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INNOVATION AND DEVELOPMENT IN SEARCH OF A POLITICAL THEORY OF JUSTICE

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Innovation and Development in Search of a Political Theory of Justice

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Abstract

Recent approaches to innovation and development have slowly started shifting their emphasis from economic growth to social equality and justice. These two concepts were prominent in the 1970s, but were sidelined during the neo-liberal era and are currently being rediscovered. Thus, innovation and development researchers now agree that 'making new things in new ways' has positive and negative impact on equality and socio-economic and political relations within and between countries. They recognise that innovation and technical change are significant from the point of view of distributive justice. However, despite their recognition, none of them adequately defines these concepts or provides a set of principles which ought to guide socially equitable or just innovation and development. This paper explains why innovation and development studies need to move towards the normative terrain in search of a plausible theory of distributive justice. Unless such a theory can be found and defended against other competing theories, the recent shift from economic growth to equality and social justice will be temporary and without any substantial impact on global policies for poverty reduction.

Keywords: *innovation; development; growth; global justice; equity; political theory*

1. Introduction

Recent approaches to innovation and development have slowly started shifting their emphasis from economic growth to social equality and justice. These two concepts have to do with impartiality and fairness. They were prominent in the 1970s, but were sidelined during the neo-liberal era and are currently being rediscovered (Pieterse, 2010; Payne and Phillips, 2010; Hettne, 2009; Brett, 2009). Thus, an increasing number of innovation and development researchers (Srinivas and Sutz, 2008; Sutz and Arocena, 2006; Arocena and Sutz, 2003; Arocena and Sutz, 2000; Cozzens, 2007; Cozzens et al, 2005; Cozzens et al, 2002; Cozzens and Kaplinsky, 2009; Wetmore, 2007; Woodhouse and Sarewitz, 2007) now agree that 'making new things in new ways' has positive and negative impact on equality and socio-economic and political relations within and between countries. In their view, innovation and technical change are therefore significant from the point of view of distributive justice.

However, despite their efforts, none of these researchers adequately defines equality and justice. More importantly, they do not provide a set of principles which ought to guide socially equitable or just innovation and development. Rather, innovation and development researchers identify the shortcomings of their analytical tools, remaining reluctant to fix them by means of adopting a clear normative approach to equality and justice. One of these tools is the national systems of innovation (NSI) theory. NSI are conceptualised in terms of the set of institutions and organisations whose interactions result in products and/or processes new to the firm, to the sector, or to the world. Whether innovations promote equality and justice depends on the normative direction of NSI. Political philosophers such as Pogge (2005) and Buchanan et al (2011) have realised that there is a gap between innovation theory and normative direction. Therefore, they attempt to close it by proposing liberal cosmopolitan principles of global justice and the development of new institutional structures for equalising innovation diffusion. However, they also fail to do so due to their reluctance to move away from the profit-incentives argument of innovation (Papaioannou, 2011).

This paper explains why innovation and development studies need to move towards the normative terrain in search of a plausible theory of distributive justice. Unless

such a theory can be found and defended against other competing political theories, the recent shift from economic growth to equality and social justice will be temporary and without any substantial impact on global policies for poverty reduction.

The paper is divided into five sections. Section 2 analyses the slow shift from growth to equality, emphasising the need for a normative account of innovation and development. Section 3 critically reviews liberal egalitarian and cosmopolitan theories of global justice, evaluating their relevance for guiding equal generation and diffusion of innovation. Section 4 proposes an alternative way forward based on the idea of public action and the Marxian principles of justice. Section 5 concludes that whatever the shortcomings of this proposal, innovation and development studies should not fail to take a position about which theory of distributive justice can have the potential for guiding global policy and leading to substantial reduction of inequality and poverty in the world.

2. The Slow Shift: From Growth to Equality

Since the World Summit for Social Development in Copenhagen in 1995, the relationship between innovation-led growth and development has been increasingly challenged. It has become apparent that social progress is not possible without fairer distribution and market regulation. The 'Washington consensus' and the 'structural adjustment' programmes of the World Bank (WB) and the International Monetary Fund (IMF) clearly failed to deliver across a range of developing regions, including Latin America, Sub-Saharan Africa and Eastern Europe (Payne and Phillips, 2010). Therefore, the neo-liberal orthodoxy that unequal generation and diffusion of innovation through the global market is necessary to foster growth and prosperity proved to be a myth. Data shows that although global poverty (i.e. the number of people living below $1.25 per day) has fallen the last two decades due to innovation-led growth in places such as China, a number of fast growing countries have either experienced little poverty reduction or increasing poverty (Fosu, 2011). In fact, a billion of the world's poorest people now live in these middle income countries.

Table 1 particularly shows that between 1981 and 2005 some regions (e.g. EAP) registered high growth with substantial poverty reductions while some others (e.g. SAS), despite their substantial GDP growth, registered little poverty reductions. The reason for this is the increasing inequality in the generation and distribution of innovation-led growth. Even in China, the fact that the economy enjoys high percentage of growth per capita GDP says nothing about how precisely this growth is distributed within the country (Pogge, 2008). In India where half of the global poor live, the fact that the economy enjoys high annual growth has no overall impact on poverty reduction (Kaplinsky 2011). Therefore, it is clear that however crucial economic growth is for reducing extreme poverty, the shift from this indicator to equality is necessary for achieving social justice and development.

Table 1: Per capita GDP growth vs ($1.25 per day) poverty reduction by region, 1981-1996

Region	PC GDP Growth 1981-1995	PC GDP Growth 1996 - 2005	$1.25 Poverty Reduction 1981 -1996	$1.25 Poverty Reduction 1996-2005
East Asia & Pacific (EAP)	6.894	6.355	-5.126	-8.481
Eastern Europe & Central Asia (EEECA)	-3.434	4.138	6.769	-2.594
Latin America & Caribbean (LAC)	0.140	1.394	-1.083	-3.176
Middle East & North Africa (MENA)	0.713	2.309	-4.347	-1.445
South Asia (SAS)	3.208	4.143	-1.548	-1.710
Sub-Saharan Africa (SSA)	-1.009	1.293	0.644	-1.597

Source: Fosu (2011)

The adoption of the United Nations (UN) Millennium Development Goals (MDG) confirmed the normative and practical necessity of shifting focus from growth to equality, redefining the mission of science, technology and innovation as the

reduction of poverty and the elimination of extreme deprivation. In this sense, as Juma et al (2001: 630) point out, achieving the MDGs '…requires approaches that place science and technology at the centre of development policy in a world that is marked by extreme disparities in the creation of scientific and technical knowledge. The majority of the world's scientific knowledge is generated and utilised in industrialised countries.' Indeed, technological innovations such as genomics and biotechnology can have substantial impact on reducing unjust inequality and improving human wealth. In fact, as the UN Millennium Project (2005) points out, all eight MDGs can be met if science, technology and innovation are made available to developing countries. These countries have urgent health, agricultural, communication and environmental needs. As Juma et al (2001: 632) argue 'In contrast to advanced developed nations, developing countries lack many of the ingredients needed for innovation. Opportunities are rare, prompting the analogy of a island of innovation opportunities that must be discovered in a large sea at risk. Most developing countries have only limited indigenous capacity to innovation'. This argument does not necessarily imply that developing countries should rely on continuous inputs from advanced developed nations. Rather it implies that considerable high proportion of resources which go into innovation still remain in the ownership of advanced developed nations. However, as Kaplinsky (2011) reminds us, this proportion is measured as a percentage of global GDP expenditure but R&D is just one source of technological change. Other sources include incremental change and innovation which occur during the actual process of production.

Kaplinsky (ibid) argues that one response to this northern-focused innovation trajectory was the so called Sussex Manifesto (SM) (Singer et al, 1970) and the Appropriate Technology Movement (ATM) (Schumacher, 1973). The SM argued that the focus of research and development (R&D) agendas ought to be on the needs of low income countries. The ATM promoted the development of new appropriate technologies (AT) in order to address these needs and improve poor infrastructures in low income countries. Although it is true that the ATM offered the prospect of more inclusive and environmental friendly growth, it is also true that it faced several problems. According to Kaplinsky (2011) the first problem was that most ATs were 'economically inefficient' in the sense that input of capital and labour exceeded the output of products. The second problem was the contextual nature of

'appropriateness' and the disappointment of AT expectations. Finally, the social context of innovation was different from that of developed countries and therefore ATs could not easily scale up.

Kaplinsky (ibid) observes that, although the ATM of the 1970s and early 1980s failed to keep the promise of more equal growth, there are new factors emerging which can potentially disrupt the dominance of global innovation system. These include: the dynamism of emerging economies such as China, India and Brazil; the emergence of new radical technologies such as ICT; new green technologies; biotechnology and nanotechnology; the diffusion of innovation capabilities; and the emergence of disruptive entrepreneurs. Let me examine each factor in more detail and raise the question of whether potential disruption of the dominance of global innovation can automatically have impact on global equality and international development.

First of all, in emerging economies such as China, India and Brazil there is a large market of poor consumers. Therefore, the hypothesis that low-income driving consumption will induce what we have called elsewhere (Kaplinsky et al, 2009) below the radar innovation (BRI) seems to be correct. However, as has been already implied, the context of pro-poor innovation is not the same in all developing regions. In the LAC region, for instance, there is more scarcity of infrastructures, skills and socio-economic institutions than in the SAS region. Thus, in the former it is more likely to have what Srinivas and Sutz (2008) call scarcity-induced innovations (SII) than in the latter. SIIs seem to be different from BRIs in that they address basic human needs. In this sense, SII can mainly occur within redistributive systems while BRIs can mainly occur within competitive markets.

Secondly, the emergence and growth of new radical technologies such as ICT, green technologies, biotechnology and nanotechnology can have substantial impact on meeting the needs of the poor and promoting more equitable growth. However, the rapid diffusion of these technologies is neither equal nor fair. Take for example biotechnology and nanotechnology. Many developing regions, including LAC and SSA, lack important innovations such as molecular diagnostics, antibody-coated dipstic tests, recombinant vaccines and improved methods of drug delivery (Juma et al, 2005). Also nanotechnology-based solutions such as microfluidic devices, carbon

nanotube-based biosensor arrays, nanowires, quantum particles, fluorescent semiconductor nanoparticles (UN Millennium Project, 2005) and other innovations in the field of nanoproteomics (Ray et al, 2011) with significant diagnostic advantages are slowly diffused in developing regions.

Thirdly, there has been an increase in capabilities and learning-by-doing but this has happened in some low-income economies which increased their share of global manufacturing; namely China and India. Other countries in the LAC region face huge scarcity in terms of innovative capabilities (Srinivas and Sutz, 2008). This is not only because they lack cognitive, institutional and socio-economic capabilities but also because their firms are not scaled up to the point that they can participate in global value chains.

Fourthly, there may be entrepreneurs who can indeed play a crucial role in the innovation of pro-poor products. However, this cannot happen unless substantial profit is to be made. As Kaplinsky (2011: 12) recognises 'Prahalad was one of the first to spot the potential which … low income markets offered for profitable production and drew attention to the market potential of this new class of consumers'. But the markets that Prahalad had in mind were those of China and India, not those of developing regions such as LAC and SSA. Also he did not approach 'the fortune at the bottom of the pyramid' (Prahalad, 2005) from the point of view of equality and global justice.

In fact, despite the optimism, the potential disruption of the dominance of global innovation might not affect the pattern of increasing unjust inequality in the developing world. Recent data below demonstrate the persistence of inequality despite strong innovation-led growth. These data confirm the findings of a number of other studies that show inequality playing crucial role in transforming growth to poverty reduction (Fosu, 2011; Fosu, 2009; Kalwij and Verschoor, 2007).

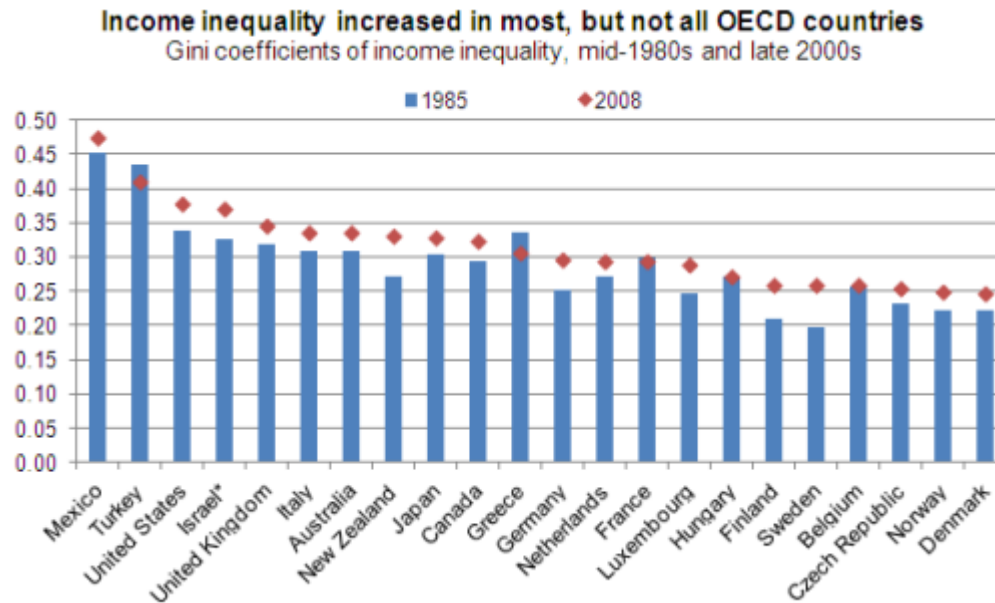Table 2: GDP Growth per capita, income and inequality vs. poverty growth early-mid-1990s to present

Country	Region	GDP pc	Income	$1.25 Po	$2.50	Gini
Brazil	LAC	1.112	1.888	-7.142	-4.584	-0.664
China-rural	EAP	8.376	4.443	-7.103	-2.576	0.714
China-urban	EAP	8.376	6.573	-17.681	-8.945	1.673
India-rural	SAS	4.812	1.199	-1.634	-0.348	0.576
India-urban	SAS	4.812	1.167	-1.091	-0.609	0.822
Russia fed	EECA	3.563	0.538	-34.218	12.270	-2.303

Source: Fosu (2011)

As has been pointed out elsewhere (Papaioannou, 2011), although innovation has the potential to promote justice and equality at global level, in doing so it can threaten the very existence of private property relations which provide profit incentives for effective generation of new technologies and processes. To put it another way, although innovation is presupposed of both justice and equality, in a global capitalist system, effective application of principles of justice and equality reduces the profit incentives for technological innovation. The growing literature in this field (Srinivas and Sutz, 2008; Arocena and Sutz, 2003; Cozzens, 2007; Cozzens et al, 2005; Cozzens and kaplinsky, 2009; Woodhouse and Sarewitz, 2007) clearly demonstrates the relationship between innovation and inequality. However, the focus of this literature is predominately on income inequality. Recent OECD data below demonstrates that the income gap has risen worldwide and this is so even in developed countries with traditionally strong redistributive systems such as those of Germany, Denmark and Sweden (from 5 to 1 in the 1980s to 6 to 1 today). Nevertheless, as table 2 shows, income inequality is still much higher in developing countries outside the OECD area (e.g. Brazil). In some countries (e.g. China and India) there are substantial differences between the urban and the rural sectors in terms of inequality and poverty reduction.

Income inequality increased in most, but not all OECD countries
Gini coefficients of income inequality, mid-1980s and late 2000s

Source: OECD (2011)

Certainly, as Buchanan et al (2011: 309) stress '…not all inequalities are injustices. To know which inequalities are unjust and hence whether particular innovations are impacting justice positively or negatively, one needs an account of justice'. In fact it might be argued that this is what contemporary approaches to innovation and development lack: a normative account about how innovation ought to be generated and distributed so that it can satisfy minimum requirements of justice. Apart from some exceptions (Cozzens, 2007; Arocena and Sutz, 2003), generally speaking, contemporary innovation and development studies have avoided providing and/or defending a particular theory of distributive justice. Although there have been crucial efforts, including the development of *A New Manifesto* (2010) that raises key political questions about justice in the generation and distribution of innovation, these efforts remain incomplete and weak in terms of normative arguments about the direction of NSI. So far, there has not been a complete political theory of distributive justice in innovation and development. In fact, contemporary studies can be criticised for remaining interpreters of the innovation and development world, hesitating to make the normative step towards a theory of changing this world according to minimum requirements of justice.

It is true that 'Theorising about justice is notoriously afflicted … with both disagreement and uncertainty' (Buchanan et al, 2011: 309). First of all, there are

competing accounts of justice. According to Wolff (2006) these include: 'justice as mutual advantage'; 'justice as reciprocity or fair exchange'; and 'justice as impartiality'. Secondly, there is disagreement between different proponents of accounts of justice: '…disagreement between consequentialists and deontologists, between proponents of 'positive' rights and libertarians, between egalitarians, prioritarians and sufficientarians, and among egalitarians as to what the 'currency' of justice is (well-being, opportunity for well-being, or resources). In addition, there is uncertainty as to how to move from a given theory's abstract, highest-level principles to lower level principles with clearer implications for policies and institutions' (Buchanan et al, 2011: 309).

However, it is not the case that a plausible account of justice is impossible. Most political theories, for instance, seem to accept the account of '…"justice as impartiality'', where justice requires taking everyone's situation and interests into account in determining what is to count as a just outcome' (Wolff, 2006: 8) while they also seem to '…converge on the belief that what might be called extreme deprivation is presumptively unjust, at least when it is undeserved and unchosen. People suffer extreme deprivation when they lack adequate food, shelter, safe drinking water, are afflicted with serious preventable diseases, and when their physical security is seriously compromised by the threat of violence, as in the case of civilians in war zones' (Buchanan et al, 2011: 310). Most liberal theories of justice from Adam Smith (1976) to John Rawls (1972) and neo-Rawlsian cosmopolitans such as Charles Beitz (2008; 2000), Thomas Pogge (2002), Joshua Cohen and Charles Sabel (2006) would require everyone involved or affected to ask the question: what provisions for the extremely deprived would you want in your society if you did not know whether or not you were extremely deprived (Wolff, 2006). Liberal theories use devices such as those of 'impartial spectator' or the 'veil of ignorance' to justify the principles of justice that individuals would chose in a hypothetical situation (e.g. the original position) in which they are denied knowledge of their interests and abilities. Although this situation might indeed produce fair principles of justice in innovation and development, because people are unable to choose principles that serve their interests, it remains ideal and inapplicable.

As far as the field of innovation and development studies is concerned, it might be suggested that a search for a suitable political theory of justice should be guided by non-ideal principles. This presupposes two things: firstly, interrogating systematically the liberal cosmopolitan argument; secondly, working out a plausible alternative. The latter, however, cannot be only evaluated on the grounds of non-ideal principles but also on the grounds of whether the application of those principles is likely to resolve what I might call the 'innovation-justice trade off' i.e. the trade off between reducing unjust inequality and increasing incentives for innovation. As Arocena and Sutz (2003: 178) put it 'The big question is which types of progress towards … less inequality are self-sustaining in the sense that they in turn foster growth and innovation. When this reinforcement occurs, we may speak of proactive or creative equality, i.e. an equality that creates more equality by activating innovation capabilities. This refers to processes that, by diminishing inequality in some particular way, expand the social capabilities for social technological and institutional innovation'. In the following paragraphs, this paper begins the normative search for a theory of justice in innovation and development that addresses the question of proactive equality.

3. In Search of a Political Theory of Justice

As has been stressed, most arguments about justice in innovation and development emerge from within the liberal cosmopolitan theory of global justice. Contemporary theorists, including neo-Rawlsians such as Beitz (2008) and Pogge (2002) and non-Rawlsians such as Buchanan (2004) clearly affirm three principles: individuality, equality and universality. These principles are considered to be more demanding than humanitarianism and therefore appropriate for guiding just cooperation beyond state borders. Although statists such as Nagel (2005) reject the monism that lies behind the principles of global justice, proposing instead pluralism as a solution to the problem of just global cooperation, cosmopolitans use these principles to address three key questions: who should be targeted by a global theory of justice? What should be distributed? How should goods be distributed? (Papaioannou et al, 2009).

Cosmopolitans are convinced that, since our lives are intertwined, there are justice-generating implications at the level of global politics. Thus, addressing the first

question, they agree that it is individuals who should be targeted by a global theory of justice. There are distributive obligations to every individual human being who is the ultimate unit of moral concern. Indeed, as Caney (2005: 105) confirms, '…the most contemporary cosmopolitans affirm that duties are owed to individuals (and not to states)'. Cosmopolitan individualism is consistent with human rights requirements. Rights to life, liberty, security, equal recognition before the law, freedom of expression, assembly, association, adequate standard of living and self-determination concern every individual human being. For this reason cosmopolitans consider the universal human rights doctrine to be essential in their defence of global justice. According to Beitz (2008: 156) 'Human rights are standards intended to play a regulative role for a range of actors in the political circumstances of the contemporary world'.

Although cosmopolitans provide useful clarifications to the doctrine of universal human rights, they do not specify what type of just distribution might be possibly meeting human rights requirements. Thus, in addressing the second question of what should be justly distributed, cosmopolitans give different and competing accounts about the currency of global justice. The neo-Rawlsian school of cosmopolitanism (Beitz, 2008; Pogge, 2002) endorses the view that what should be justly distributed are resources. Resources are conceived as material productive means and for this reason they are distinguished from welfare (Dworkin, 2002). The latter is understood to be about the satisfaction of persons' preferences and therefore it is rejected on the grounds of what Cohen (1989: 912) calls the 'offensive tastes' and 'expensive tastes' criticisms. The non-Rawlsian school of cosmopolitanism (Buchanan, 2004) also seems to accept resources as the currency of global justice. Thus, Buchanan (ibid) clearly sees the need for constraining material inequalities within a global basic structure. By contrast, other schools of cosmopolitan thought such as the human capabilities school (Sen, 2009; Nussbaum, 2000) maintain that global distributive justice should be concerned with each individual's capabilities to function. This resolves the fundamental problem of the neo-Rawlsian and non-Rawlsian currency of justice; namely converting resources to capabilities of interrelated functionings. Certain capabilities need different resources. For example, as Klasen (2006: 75) points out, '…the capability to be integrated with the community might require a car in rural areas of the United States but just a bicycle in rural Bangladesh'. In both cases

the most important issue is whether people can convert their different resources into the equal capability of community integration.

Given their disagreement about the currency of justice, cosmopolitans also find themselves in dispute about whether resources or capabilities should be distributed equally to all or according to merit or according to particular needs (Papaioannou et al, 2009). For instance, Pogge (2002: 196) defends a 'global resource dividend or GRD' that requires states and their governments to give up their full libertarian rights to the natural resources in their territory and share part of the value of any resources they use or sell. According to Pogge (ibid) this is '…based on the idea that the global poor own an inalienable stake in all limited resources'. Therefore, people within states ought to be taxed for using natural resources and the proceeds spent on the global poor. Pogge's GRD is nothing more than the extension of Rawls's principles of justice (i.e. the difference principle and the equal right to basic liberty) to the global level. According to these principles '…social and economic inequalities are to be arranged so that they are both (a) reasonably expected to be to everyone's advantage, and (b) attached to positions and offices open to all' (Rawls, 1972: 60). Although, as has been stressed elsewhere (Papaioannou et al, 2009), in his *The Law of Peoples*, Rawls (1999) strongly rejects the monism between the global and the domestic, Pogge and Beitz insist that a global theory of justice can be Rawlsian in its principles. On the other hand, Buchanan (2004), although he accepts the importance of a global theory of distributive justice, he rejects Rawls's principles in favour of positive rights of distributive justice that can be legally enforced by international law. It is worth noting that neo-Rawlsian and non-Rawlsian cosmopolitans affirm institutional principles of global justice. By contrast, Sen (2009) defends a non-institutional solution to the problem of global justice, making comparisons between the lives and freedoms of people in terms of the advancement of equality of capabilities.

It might be argued that despite their differences, some neo-Rawlsians such as Pogge, non-Rawlsians such as Buchanan and capability cosmopolitans such as Sen, offer specific proposals for dealing with the issue of unjust inequality in the global generation and diffusion of innovation and development. To begin with Pogge (2005), he focuses on one crucial area of innovation: global health. Thus, he offers an institutional proposal of Health Impact Fund (HIF) that aims to address two aspects of

global health: the lack of equal access to essential medicines and the failure to develop innovative drugs for the poor. These aspects are due to the problem of lack of market demand in low income countries (Prahalad, 2005). As a solution, Pogge proposes an alternative IPR system (what he calls Patent 2 option) which operates in parallel to the current IPR system (what he calls Patent 1 option) and which requires innovators to make public all information about their innovation but which makes them eligible for reward from an international HIF in proportion to the positive impact of their innovation on increasing health and decreasing poverty. According to Hollis and Pogge (2008: 9), 'To be eligible to register a product under the HIF reward scheme, a company must hold a patent (on the product) from one of a set of patent offices specified by the HIF. It can then register its product with HIF and will then be rewarded on the basis of the product's global health impact in its first ten years following marketing approval'.

Although the HIF mechanism has been designed to resolve the 'innovation-justice trade off' promoting proactive or creative equality, it fails to do so in several respects. First of all, Pogge's global institutional proposal is based on the profit incentives argument. Paraphrasing Cohen (2008), this argument might be described as follows: when innovative people take home modest pay, they innovate less than they otherwise might, and as a result relatively poor and badly off people are worse off than they are when the exercise of innovation talent is well rewarded. The problem with the profit-incentives argument is the claim that profit-incentives for innovation that produce inequality can be justified because they make badly off people better off. In the case of Pogge's proposal, the more positive the impact of innovations on increasing health and decreasing poverty, the more reward for innovators from an international HIF. Following Cohen (ibid) it might be argued that the profit-incentives argument that underpins the HIF fails to pass the interpersonal test. Indeed, this argument can justify inequality only in a society where interpersonal relations lack communal character. In a cosmopolitan society where neo-Rawlsians envisage citizens justifying to one another their common institutions of justice as fairness, the profit-incentives argument of innovation is problematical. In addition to this, the key question of whether some significant inequalities are required for optimal innovative motivation can be answered from the point of view of internal gains to innovation performance. According to Cohen (ibid: 53) '…the desire to achieve, to shine, and, yes, to outshine,

can elicit enormous effort even in the absence of pecuniary motivation'. These are alternative non-profit incentives (rather than non-incentives) which, as has been pointed out elsewhere (Papaioannou, 2011) can be based on a conception of basic human needs. Pogge's HIF ignores the existence of non-profit incentives for innovation and the communal relations within which such incentives can be promoted. This is one crucial shortcoming of his theory.

Another shortcoming is, of course, the fact that the HIF is limited to one kind of innovation; namely health innovation. This narrowness has been criticised by non-Rawlsian cosmopolitans such as Buchanan et al (2009) who are generally concerned about basic economic and social inequality. In addition, the HIF has been criticised for its voluntariness. As Buchanan et al (ibid: 20) point out 'Drug companies could decide, case-by-case, whether to invoke Patent 1 or Patent 2 protections. The voluntary nature of Patent 2 is a double sword, since firms might never invoke the Patent 2 option. Never invoked, Patent 2 would be like unfinished monuments in the desert: testimonies to failed ambition. The big question about Patent 2 therefore is whether firms will invoke it'. According to Buchanan et al (ibid), the answer to this question depends on the credibility of the reward promise. 'For the promise to be sufficiently credible to induce drug producers to forgo the known benefits of the Patent 1 option, two things must be true. First, drug producers must have confidence that the promised funds will be available…We call this the *funding assumption*. Second, the firms must have confidence that the procedure for identifying the disease burden reduced by drug, and therefore the patent 2 rewards due to drug companies, will be reliable and fair. Call this the *reliability assumption*' (ibid: 325). Buchanan et al (ibid) insist that none of these assumptions are true. First of all, the *funding assumption* is not credible because international funding pledges are not trustworthy. Secondly, the *reliability assumption* is problematic because of the epistemological and methodological difficulty of reaching agreement on reliable measurements of the impact of a particular drug on a disease.

In order to avoid the narrowness and voluntariness of Pogge's HIF, Buchanan et al (ibid) propose a new global institution: the global Institute for Justice in Innovation (GIJI). Their concern is impediment to diffusion of innovation in general and not just health. Therefore, non-Rawlsians such as Buchanan et al (ibid: 9) propose '…to

modify the IPR regime in a way that preserves its valuable functions while remedying or at least significantly ameliorating its institutional failures'. Specifically, they argue that the GIJI would be an organisation designed to construct and implement a set of rules and policies governing the just diffusion of innovations. This organisation would be similar to WTO and would '…encourage the creation of useful innovations, for example through prizes and grants for justice-promoting innovations and through offering extended patent life for innovations that have a positive impact on justice. But its major efforts would be directed towards the wider and faster diffusion in order to ameliorate extreme deprivations and reduce their negative impact on basic political and economic inequalities…' (ibid). Non-Rawlsians insist that the most important asset of GIJI would be the 'licensing option' i.e. the option to authorise compulsory licensing of slowly diffusing innovations. Another asset would be the 'compensation option' through GIJI and not through royalties from the sales of licensed products.

Although both options are important, they do not transcend the profit-incentives argument. Buchanan et al (ibid) fail to think in egalitarian terms outside the current IPR system. The latter promotes what Cohen (2008: 53) describes as '…a population of talented people each of whom is a unique moral hero' and not an egalitarian global society. In this sense, neither the profit-incentives for useful innovations nor the compulsory licensing of slowly diffusing innovations can resolve the 'innovation-justice trade off'. But even if we assumed they could, they would face serious operational problems. Encouraging useful innovations through grants and/or authorising compulsory licensing would presuppose that GIJI receives political support from its member states and therefore becomes not only legal but also legitimate global entity. It might be argued that these presuppositions do not exist in the non-Rawlsian proposal. First of all, as Buchanan et al (ibid) confess, it is difficult for powerful developed states to provide political support for a global institution that might authorise compulsory licensing of innovation-creating firms' products. Even if there are positive incentives for developed countries and their firms to support the GIJI (e.g. more rapid diffusion of innovation, acceleration of economic development worldwide, less arbitrary compulsory licensing procedures, etc.), there are also negative incentives (e.g. reduction of immediate profits, loss of economic and political power, etc) and the latter are stronger than the former. Non-Rawlsians overlook the fact that innovative firms in sectors such as health spend millions of

dollars from their profits to lobby governments in favour of their economic interests (Papaioannou, 2011). Secondly, even if powerful developed states provided support for GIJI, they would do so on the grounds of their own set of rules and principles of justice. Buchanan et al (2009) seem to overlook the material interests and power relations between dominant developed states such as the US and developing countries (Rosenberg, 1994; Callinicos, 2002). Thus, they propose global political institutions such as the WTO or the IMF as models for GIJI. In fact, these top-down institutions constitute nothing more than arenas of global struggles of material interests and power between developed and developing countries. These struggles undermine the political basis for a GIJI. No matter how important non-Rawlsian cosmopolitanism is as a theory of global justice in innovation and development, global cosmopolitan politics may not be a plausible way of pursuing that. Our critique of Buchanan et al (ibid) echoes Martell's recent critique of cosmopolitanism in which he argues that '…cosmopolitan ethics may require non-cosmopolitan politics' (Martell, 2011: 621). This implies a conflict approach to politics of global justice in innovation and development. I will come back to Martell's argument later on this paper. For the time being let me examine Sen's proposal for dealing with unjust inequality at global level.

By contrast to both Pogge and Buchanan, Sen (1999, 2009) is more interested in development than innovation. As has been said, his theory of justice is not about guiding the establishment of just global institutions but about guiding practical reasoning and ways of reducing injustice in development. The latter should not be seen as a global process of innovation-led growth and technological advance. Rather, it should be seen as a global process of freedom that, according to Sen (1999: 3) '…requires the removal of major sources of unfreedom: poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglect of public facilities as well as intolerance or overactivity of repressive states'. For Sen, freedom is both the primary end and the principal means of development. People ought to be capable of making a free choice of the kind of life they (have reason to) value. In this sense, Sen proposes a specific evaluative system as a solution to the problem of global injustice; namely the capability evaluative system. This proposal addresses '…the need to assess the requirements of development in terms of removing the unfreedoms from which the members of society may suffer' (Sen, 1999: 33). Sen's capability evaluative system might be seen as a public policy tool that uses the

metric of capabilities to identify unjust inequalities in global development. Capabilities as such are '…sets of vectors of functionings…A functioning may be any kind of action performed, or state achieved, by an individual, and may *a priori* cover anything that pertains to the full description of the individual's life. Therefore, such a description may be done by a list or "vector" (or "*n-tuple*") of functionings' (Fleurbaey, 2006: 300). Indeed, as Fleurbaey (ibid) notes, Sen's reason for prioritising capabilities over functionings is that by focusing only on achievements, one would miss the freedom dimension of human life. For example, an individual life of great achievement in technological innovation and development is not so great if it is in a totalitarian state of affairs and so there is little or no freedom in it. This, however, does not imply that freedom is an absolute value in Sen's system but that it is of primary importance. As Fleurbaey (ibid: 305) points out 'Typically, even when freedom is deemed important, one would still look at achievements as well'. This brings into discussion the issue of individual responsibility in choosing certain functionings under conditions of equal freedom and loosing any right to complain for achievement failure. Sen does not insist on individual responsibility and therefore he differentiates his theory from luck egalitarian theories (e.g. Dworkin, 2002) which deny equal safety net to individuals responsible for their bad situation. Thus, according to Fleurbaey (ibid) the capability evaluative system can take account of achievements and justify safety nets for basic functionings. This is even clearer in the work of theorists such as Nussbaum (2000) who elaborated and operationalised Sen's capability system. According to her, there are at least ten basic capabilities and functionings for human beings to achieve if they want to live their lives with dignity: 1) Life; 2) Bodily health; 3) Bodily integrity; 4) Senses; 5) Imagination and thought; 5) Emotions; 6) Practical reason; 7) Affiliation; 8) Other species; 9) Play; 10) Political and material control over one's environment (ibid). These capabilities and functionings correspond to basic human needs which ought to be satisfied in order for global justice to be achieved (Brock, 2009).

Certainly, the capability evaluative system has received various critiques (Clark 2006) as regards the problem of disagreement about the valuation of capabilities (Beitz, 1986), the high informational requirements of the system (Alkire, 2002) and the paternalistic move towards determining capabilities for developing societies and systems (Jagger, 2006; Stewart, 2001). However, despite criticism, this evaluative

system has been endorsed by global policy organisations in the area of innovation and development, including the UN, the WB and even the IMF (Pieterse, 2010). The metric of capabilities has been applied in the human development index. Also, it has been used in various measurements (Anand and Van Hees, 2006; Anand et al, 2007). For instance, a recent *Report by the Commission on the Measurement of Economic Performance and Social Progress* clearly suggests shifting emphasis from measuring economic production to measuring peoples' well being, recommending that 'Quality of life depends on peoples' objective condition and capabilities' (Stiglitz et al, 2008).

The key question here is whether the capability evaluative system resolves the 'innovation-justice trade off'. Is it plausible to say that avoiding basic capability deprivation at global level can in turn lead to increasing innovation and growth? The answer is in the positive, given that equalisation of basic capabilities like, for instance, life and bodily health can provide incentives for health innovations such as genomics and biotechnology. However, these incentives need to be non-profit incentives if it is for basic capabilities to be equalised in low income regions such as LAC and SSA. Sen and Nussbaum say little about the institutional preconditions for achieving equality of basic capabilities in low income developing regions. For example, is the current IPR system conducive to equalising basic capabilities of life and bodily health through equally accessible health innovation? It might be argued that the most crucial problem of the capability evaluative system is this: it overwhelmingly relies on cosmopolitan politics and institutions for its implementation. Recent analysis at an empirical sociological level indicates no basis for such politics. According to Martell (2011), in a number of cases, including global negotiations over trade, cosmopolitanism is undermined by clashing material interests of powerful countries such as the US. From this it follows that the capabilities solution to the global problem of unjust innovation and development might be implemented by non-cosmopolitan means. As Martell (ibid: 632) says 'This does not rule out cosmopolitanism. It means pursuing cosmopolitan ends through non-cosmopolitan approaches. Clashing material interests suggest one needs to find non-cosmopolitan politics for cosmopolitan goals. Continuing to pursue cosmopolitan means which evidence casts doubt upon may undermine cosmopolitan ends. It is better to find an alternative route'. As far as innovation and development are concerned, I have suggested elsewhere (Papaioannou, 2011) that one such alternative route is the

following: public action and campaigning for just redistributive systems and non-ideal politics of development. In the remaining paper, I will provide further theoretical and empirical arguments in support of this route.

4. The Way Forward

Before I explain why I think public action and campaigning can be considered as an alternative way forward, achieving global justice in innovation and development, it would be helpful to clarify the basic terms. First of all, although 'public' tends to be associated with the state, in the context of political theory, 'the public' is used to describe citizens' participation in social and political processes. In this sense, as Mackintosh (1992: 4) points out, the '…concept of 'public action' … is considerably wider than the actions of the state' and means purposive collective action for public (or private) ends. Secondly, 'campaigning' can be defined as an organised public (or private) action towards a particular moral and political goal.

The global sphere of public action and campaigning includes a variety of organisations and movements. Some of them are: non-governmental organisations (NGOs); alter-globalisation movements and networks; South-South alliances with developing countries; and the G77 groups of developing countries in the UN. These actors are critical of neo-liberalism, promoting the establishment of just redistributive systems and challenging the content of innovation and development policies. As has been argued elsewhere (Papaioannou, 2011), on the one hand, redistributive systems such as health systems not only equalise access to quality health care but can also provide non-profit incentives for just generation and diffusion of innovation. Empirical cases like the creation of the single health system in Brazil and the integrated health system in Cuba support this argument. The control of endemic diseases such as *dengue* (Nunes et al, 2008) and the innovative study of *Trypanosoma cruzi* (Sutz and Arocena, 2006) in Brazil would not be possible without the redistributive role of its single health system. Similarly, the innovative development of vaccine against *Haemophilus Influenzae type b* (HIb) in Cuba (ibid) would not be possible without the full integration of its equalised health system with its domestic biotechnology industry (Gardenas, 2009).

On the other hand, challenging the content of policies in terms of non-ideal principles of just innovation and development is crucial for satisfying minimum requirements of global justice. The empirical case of global health supports this argument. Public action and campaigning for equal access to HIV/AIDS medicines by NGOs such as the Health Action International (HAI), the Consumer Project on Technology (CPTECH) and Medicines San Frontiers (MSF) promoted specific innovation policies relevant to global justice e.g. compulsory licensing and exceptions to patent rights for medical research (Koivusalo and Mackintosh, 2009). Although it is true that these actors eventually did not manage to change the global IPR regime, it is also true that they succeeded in undermining its full application in the sector of global health. Also, equal access to HIV/AIDS medicines became a topic of global political debate in a way that would not have otherwise occurred.

In all empirical cases examined here, public action and campaigning against unjust innovation and development appear to be less oriented towards agreeing ideal cosmopolitan norms and more to do with building non-ideal principles through local action. Following Martell (2011) it might be said that this is an alternative type of ethics and politics '…going from the bottom up, based on unilateral initiatives rather than on an inclusive top-down basis, assuming cosmopolitanism' (ibid: 625). Alternative ethics and politics lead to social innovations such as, for example, participatory budgeting processes. Thus, in Brazil, there is direct involvement of local populations in decision-making processes for public investment in innovative projects. This arose from the bottom-up processes of (re) democratisation of the 1980s and 1990s in the LAC region, involving public action and campaigning for equal participation in economic and social development. Social innovations such as participatory budgeting can be regarded as local responses to top-down cosmopolitan initiatives for global justice (Nunes et al, 2008). These responses can progressively engage global actors provided that non-ideal principles of can be universalised.

If what I argue here is correct, then the following question can be raised: which precisely non-ideal principles of just innovation and development can be possibly built through public action and campaigning? Although the answer to this question

might be predominantly empirical, the recently re-discovered Marx's *Critique of the Gotha Programme* (2000) could provide some clues. This particular work demonstrates the normative dimension to Marxism.[1] After all, as Lukes (1987: 139) suggests, Marxism is '…a way of interpreting the world with a view to change it, and not primarily about what has been done in its name or what it has been invoked to justify'. Bearing this suggestion in mind, it might be argued that the so called 'needs principle of distributive justice' may be relevant to innovation and development. The principle states that distribution in a (just) society ought to be '…from each according to his ability, to each according to his need' (Marx, 2000: 615). This implies a particular concern for equality. What Marx equalises is the right of everyone in society to emancipate himself/herself through satisfaction of his/her human needs. Differences of intellectual ability (and thus labour contribution to innovation and development) cannot justify inequality. All people, equally, ought to be able to satisfy their needs (Geras, 1989).

Certainly, Marx formulated the needs principle of justice on conditional basis (i.e. the historical emergence of a higher phase of communist society in which the division of labour has vanished and the fruits of social cooperation flow more abundantly) and this has led to disputes about both its moral foundation and its application to contemporary society.[2] However, following Lukes (1987), it might be suggested that these disputes can be settled if we take the needs principle of justice to be founded on the morality of emancipation and be applied to resolve the problem of basic human needs satisfaction in contemporary society. Emancipation means setting someone free from natural and social constraints. As Lukes (ibid: 29) stresses 'For Marx human emancipation denoted a setting free from the pre-history of human bondage, culminating in wage slavery and exploitation, and thus it refers to that ideal of transparent social unity and individual self-realisation…'. Emancipation is about the conception of 'man as a species being' (Marx, 2000: 61). This conception is directly related to the satisfaction of human needs within society and the notion of human dignity. However, given the lack of abundance conditions in contemporary global society, only the satisfaction of basic human needs may be feasible. To put it another way, although increasing material productivity through the possibility of technological innovation does not eliminate scarcity, it does provide enough resources for satisfying basic human needs. Therefore, it might be argued that the Marxian

principle of justice can be so far applied only to basic human needs. Accordingly, the moral requirement is that the basic needs of all ought to be met equally. From the global justice theorists that we have surveyed, only Sen and Nussbaum clearly understand this relationship between emancipation and satisfaction of basic human needs. That is the reason why from the outset they acknowledge strong connections between their capability evaluative system and Marxism (Sen, 2009; Nussbaum, 2000). What Sen and Nussbaum do not do is follow Marx in proposing a conflict approach to emancipation and social change. Their capability evaluative system remains a tool for identifying unjust inequalities in innovation and development, and not for removing them by means of conflict politics.

It might be argued that conflict approach to emancipation and social change is necessary for applying the (basic) needs principle of distributive justice in innovation and development. Public action and campaigning are consistent with this Marxian approach. Through public action and campaigning people can demand institutional and policy changes which satisfy the requirements of the (basic) needs principle of distributive justice. One of these changes can, for example, be the elimination of morally unfounded IPRs (Papaioannou, 2006). In this way, more collective ownership of scientific knowledge relevant to satisfying basic human needs might become possible. Another change can be the development of non-profit incentives of innovation. As I have argued elsewhere (Papaioannou, 2011), these incentives are based on a conception of basic human needs which are unversalisable preconditions of life. Doyal and Gough (1991) argue for the existence of two basic needs (i.e. physical health and mental competence to choose) while, as has been said, Nussbaum (2000) provides a list of capabilities which correspond to ten basic needs. By contrast, earlier models of development, and especially those proposed in regions such as LAC (Herreara et al, 1976) identify four basic needs (i.e. nutrition; housing; education; and health). Despite chronological and geographical differences, basic needs can be agreed on both natural and social grounds. To put it another way, agreement about basic human needs can be achieved on the grounds of natural and social reproduction of emancipated people. What emancipated people require for their natural reproduction might include life, health, nutrition, etc. What people need for their social reproduction might include political freedom and material control over one's environment, housing, education, etc. Natural and social basic needs are interrelated.

Thus, for instance, the natural basic need of health is often determined by the social basic need of education. The increasing debate about the social determinants of health reflects this interrelation between natural and social basic needs.

The question, of course, is whether agreement about basic needs should be philosophical or involve a process of participation. Would a philosophically agreed list of basic needs be legitimate? The purpose and length of this paper do not allow me to provide full answers to these questions. However, the following might be said. A universal list of basic needs agreed by philosophers faces the same objection that Nussbaum's list of basic capabilities faces; namely philosophers cannot possibly know which basic needs (or capabilities) are the most important to people, especially in developing countries (Claasen, 2011). This objection is not just epistemological but political. In fact, neither philosophers nor anybody else is politically legitimate to impose a list of basic needs to people who have not participated in developing this list. Of course, as Clasen (ibid) reminds us, not all philosophers are the same. Some philosophers-investigators regularly cross the boundaries between ideal theory and non-ideal political practice. This is not, however, a good reason for prioritising philosophy over participation in order to specify and agree a list of basic human needs which ought to be satisfied in terms of global justice. From a Marxian viewpoint, participation remains an essential element of the process towards emancipation. As has been stressed, the latter is a non-ideal process of conflict politics. Therefore, a list of basic needs agreed through participation can provide pragmatic and legitimate ground for public action and campaigning.

In any case, basic needs are indispensable with respect to human functioning in society (Brock, 2009) and therefore they can only be satisfied through non-profit incentives of innovation. For example, IPRs and market signals can neither be necessary to decide what diseases to cure in order to satisfy the basic need of health nor can be efficient means of deciding that (Cohen, 2009). Non-profit incentives presuppose the elimination of the current IPR system in order for basic needs-driven innovations to be rapidly diffused to everyone, addressing scarcity and promoting proactive equality and development. It is the rapid diffusion of basic needs-driven innovations that should provide rewards to inventors.

Rewards might not only include reasonable economic compensation and prizes for the time and effort of inventors but also recognition. As Fraser and Honneth (2003) show, claims for recognition increasingly become crucial for social justice. The latter is not only about redistribution of resources and/or capabilities according to the (basic) needs principle but also about recognition. Fraser argues that redistribution and recognition go together. 'In the redistribution paradigm, the remedy for injustice is economic restructuring of some sort…In the recognition paradigm, in contrast, the remedy for injustice is cultural or symbolic change' (ibid: 13). In the case of innovation and development, redistribution might involve institutional and policy changes towards equalising resources and incentives for innovation to meet basic needs, while recognition might involve upwardly revaluing disrespected identities of non-profit innovators. The important role of such innovators can only be appreciated within just redistributive systems. The principle of recognition can be theorised as being complementary to the (basic) needs principle of justice in innovation and development. This is because as Fraser correctly points out, the Marxian tradition maintains '…the category of distribution fails to capture the full depths of capitalist injustice because it neglects the relations of production and fails to problematise exploitation, domination and commodification' (ibid: 11). Public action and campaigning for less exploitative and commodified systems of innovation and development might satisfy democratically basic human needs and recognise the role of innovators in meeting specific requirement of global justice.

5. Conclusion

The Shift of emphasis from growth to equality and the emergence of competing theories of distributive justice in innovation and development present us with a difficult challenge: what is the normative framework within which innovation and development studies can play a significant role in reducing unjust inequality and poverty in the world? In this paper, I have addressed this challenge by arguing for abandoning the liberal cosmopolitan theory of global justice in favour of the Marxian (basic) needs framework of public action and campaigning. The latter is a non-ideal framework that can combine claims for redistribution with claims for recognition, promoting bottom-up changes to global policies and institutions for just innovation

and development. By contrast, the former is an ideal theory that is undermined by global conflicts of material interests and the lack of top-down cosmopolitan politics. Whatever the shortcomings of my argument, one thing is pretty clear: innovation and development studies should not fail to take a position about which normative framework is theoretically plausible and has the potential for practical application, reducing unjust inequality and poverty. Unless a position is taken, the historical shift from economic growth to equality will be temporary, and without any substantial impact on global policies and institutions for poverty reduction. The reason for this is that innovation and development studies need to adopt a specific normative guidance for action in a specific direction of change. Otherwise, their role in global justice would not and should not be taken seriously.

Notes

[1] Although there is an ongoing dispute about the existence of this dimension, a number of scholars (Cohen, 1981; Elster, 1985; Lukes, 1987; Geras, 1989) now agree that Marx had a concern for distributive justice.

[2] A number of theorists (Cohen, 1981; Elster, 1985) consider Marx's theory of distributive justice to be hierarchical. For them, although the needs principle is the best criterion of justice, it is not yet applicable to a society '…still stamped with the birth marks of [capitalism]…' (Marx, 2000: 615). For such a society only a second best principle of justice can be applicable i.e. the contribution principle that states that '…the individual producer receives back from society – after the deductions have been made – what he gives to it' (ibid: 614). To put it another way, each individual is rewarded an amount in proportion to his/her labour contribution. Application of the contribution principle does not imply complete elimination of injustice. As Geras (1989) points out, this principle allows those with more physical or intellectual abilities and less needs or responsibilities to benefit from greater contribution they can make. By contrast, those with less physical or intellectual abilities and more needs or responsibilities are worse off.

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