

## Inclusive innovation: definition and potential in terms of growth (an analytic survey of the literature)

### الابتكار الشامل: التعريف والإمكانات من حيث النمو (مسح تحليلي للأدبيات)

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#### Abstract:

*This paper deals with inclusive innovation, a new concept within the field of innovation studies. It offers an analytical survey of the literature concerning two aspects. First, we review the literature that focuses on the definition of the term and consider the relationships with related concepts (frugal, pro-poor, grass root innovation). Secondly, we analyze the links with so-called inclusive growth, describing the mechanisms by which growth is possible, and what place inclusive innovation could have.*

*Our main result is the richness of the concept of inclusive innovation and the great diversity of its meanings. This type of innovation tends to bring together private consumption and social well-being, previously separate targets. We conclude by noting that the richness of the concept of ININ is crucial for rethinking economic growth, especially in its pro-poor aspect.*

**Keywords :** inclusive innovation, pro-poor, ladder of inclusion, BOP, growth

**Jel Classification Codes :** O15, O31, O33

#### ملخص :

تتناول هذه الورقة الابتكار الشامل ، وهو مفهوم جديد في مجال دراسات الابتكار ، وتقدم مسحا تحليليا للأدبيات المتعلقة بجانبيين. أولاً ، نقوم بمراجعة الأدبيات التي تركز على تعريف المصطلح والنظر في العلاقات مع المفاهيم ذات الصلة (الابتكار المقتصد ، المؤيد للفقراء ، على مستوى القاعدة). ثانياً ، نقوم بتحليل الروابط مع ما يسمى بالنمو الشامل ، ووصف الآليات التي يمكن من خلالها النمو ، والمكان الذي يمكن أن يكون للابتكار الشامل.

أهم استنتاج من الدراسة هو ثروة مفهوم الابتكار الشامل و تنوع معانيه. يميل هذا النوع من الابتكار الى جمع بين الاستهلاك الخاص و الرفاهية الاجتماعية، الدين كانا يعتبران كهدفين منفصلين من قبل. نشير الى أن ثروة مفهوم الابتكار الشامل ضرورة لإعادة النظر في النمو الاقتصادي و خاصة من الجانب المراعي للفقير.

**كلمات مفتاحية:** الابتكار الشامل ، لصالح الفقراء ، سلم الاحتواء ، ميزان المدفوعات ، النمو

**تصنيف JEL:** O15, O31, O33

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## 1. INTRODUCTION

Our research starts from the important assumption that there has been a radical change in the determinants of innovation in favor of overcoming poverty and including the marginalized population. In the past, innovative “pro-poor” practices were promoted by civil society organizations but were not always accepted by consumers and businesses in the developed North (Kaplinski, 2011b). In the 1970s, appropriate technologies aimed to enable the economic development of the economies of the South.

This idea of an “appropriate” or adapted technologies originates from the work of Schumacher (1973). The underlying structure of this approach is that consumers (and other economic agents) need products adapted to their income situation and to their geo/socio/economic context (Pansera, 2013). It was a breach in the apprehension of North/South technological transfers which cannot be made for the benefit of the economies of the South without revisiting more or less deeply the content of technological systems. Appropriate technologies have moved from the margins of economies to the heart of the economy of accumulation and growth.

These technologies have fundamentally transformed into inclusive technologies produced by private actors. They are now increasingly efficient and a source of revenue and profit for private enterprise. In the 20th century, most of the world's innovations originated in the North, producing products for high-income consumers, developing technologies that excluded poor producers, and energy-intensive and polluting technologies. This trajectory of innovation gave rise to the so-called Appropriate Technologies movement in the 1970s. A whole series of factors contributed to transforming the potential of these technologies to support pro-poor or inclusive growth. One example among others: in Cameroon, Chinese motorcycles are less durable than Japanese motorcycles and require more repairs. However, they cost a third of the price of higher quality products, which provides opportunities for a low-income population to enter the market for taxis and logistics service providers (Khan and Baye, 2011). It should be added that given the state of the roads and the extent of car traffic in the big cities, “top-of-the-range” motorcycles are not necessary.

The interest in inclusive innovations (ININ later) and inclusive growth (even if authors give it other names like “pro-poor innovation”) does not only have a root in the academic world. The surprising development of this concept has its origins in political and academic interest motivated in particular by the reality and/or the increased perception of growing income inequalities. These inequalities could be considered as a brake on social and economic development in a long term (Stiglitz, 2012). Academic work on innovation tends to show that traditional innovation is associated with increased inequality, while ININ is associated with reduced inequality (Lazonick and Mazzucato, 2013).

Thus it has been noted that these ININs have a real capacity to alleviate poverty in a more indirect way by helping to nurture new growth paths. Work by the OECD (OECD, 2014), for example, has taken up the idea that IUU could be associated with the definition of “inclusive development”. Their interest therefore goes beyond the field of microeconomics, ININs can be seen as the levers of new growth. The concept of ININ is not that new. In the remarkable work of Bell (2009) reviewing official and academic reports prior to 2008, the terms ININ and frugal innovation do not appear. Innovation is always the product of research and development or the innovation capacities of firms.

This is probably the work of Kaplinski et al. (2009) who were the first to formalize this “invisible” technological innovation which does not necessarily involve R&D investments or the work of scientists or engineers (see also Kaplinski, 2011a). In 2014, the journal *Innovation and*

Development published a special issue on this theme directed by Heeks, Foster and Nugroho (Heeks et al., 2014) showing that we had already passed the stage of emergence of the concept. We will also draw inspiration from the papers of this special issue, which is remarkable in many respects. In this work we focus our analysis on developing or emerging economies. In other words, we are not dealing with “pro-poor” or inclusive innovation in developed countries. A key reason for this, as Angot and Plé (2015) have shown, is that innovation aimed at the “poor” in “rich” countries requires specific treatment, in particular an underlying business models.

The important point is the following: due to the newness of the concept we suggest to picture in this paper an analytic survey of the literature. The paper aims to provide a better understanding on the nature and the economic spins off of ININ. As a consequence, we have no results as we could have if we proceed through an empirical study. But our study might be considered as a first step for building up further empirical research on ININ.

This paper consists of two parts (sections). The first is devoted to the analysis of the definitions of inclusive innovation, the second offers a better understanding of what inclusive growth is and the place that ININ could have.

## **2. Inclusive innovation: definition and content:**

ININ is a new concept within the field of “innovation studies”. Our goal here is to clearly define inclusive innovation in order to understand the implications of empirical realities and provide keys to understanding academic work.

### **2.1 In search of a coherent and operational definition: beyond frugal innovation:**

The ININ is rooted in thinkings on new forms of innovation. Thus, in the literature, there is a profusion of analyzes around frugal innovation (FI later). A good example of FI is provided by the Chotu Koolfridge refrigerator manufactured by the Indian company Godrej which is the size of a computer and could even be considered as its cooling system. According to Basuet al. (2013) frugal innovation is a process of innovation in product design for which the needs of people in developing countries are prioritized in order to develop appropriate, adaptable, affordable and accessible services and products for emerging markets. It makes it possible to include low-income populations in the consumption. This returns is consistent with the formula of Radjou et al. (2013) conceiving FI as a process allowing “to do more without”. It involves redesigning products with the explicit aim of reducing unnecessary costs (Woolridge, 2010). This new technological paradigm aims to offer robust, solid, low-tech – or low-sophistication – products to the poorest social categories. A characteristic of this model is the low level of technological complexity: fewer elements in the products, fewer and more reliable interactions. It can also be easier to repair. All of which leads to much lower design and manufacturing costs.

While research on frugal innovation focuses on the notion of affordable technologies or products, research on inclusive innovation (ININ) goes beyond that. Besides the affordability of the products, the literature points out that the ININ is designed to develop mechanisms for companies and other actors, so that they not only provide accessibility to the needs of low-income people but also aims to strengthen their capacities and improve their empowerment and well-being (Mortazavi et al., 2021; Peerally, De Fuentes, Figueiredo, 2019).

ININ, like any social innovation, aims to provide livelihood and consumption opportunities to poor people who are excluded from the market (Foster and Heeks, 2013). Academic research tries to

understand the mechanisms by which ININ can support inclusive growth, sustainability and economic development (ErkenetKleijn, 2013; Grimm et al., 2013). In doing so, it constructs alternatives for inclusive economic policies, which fuels the reflections of political decision-makers. In any case, the definition of ININ by Foster and Heeks (2013) often cited in current research (Pansera and Owen, 2018; Peerally et al., 2019) is central in this field. Several other works (Ansari, Munir and Gregg, 2012; George, McGahan and Prabhu, 2012; Hall, Matos, Sheehan and Silvestre, 2012; Halme, Lindeman and Linna, 2012; Nijhof, Fisscher and Looise, 2002) have put the emphasis on the notion of ININ or made similar arguments before the seminal work of Foster and Heeks (2013). According to George et al. (2012), inclusive innovation is the development and implementation of new ideas that aspire to create opportunities that improve the economic well-being of disenfranchised members of society.

## **2.2 ININ and innovation for the poor or PPI (pro-poor innovation):**

Luiz et al. (2021) proposed to conceive the PPI as an all-encompassing concept. As these authors indicate, it is a global concept serving as an umbrella for a set of other concepts that can be considered as related: frugal innovation, inclusive innovation, innovation from the base (“grassroot innovation”), indigenous innovation. These concepts come together on a central point: they place the poorest at the center of innovation, whether in consumption or production (Luiz et al., 2021). The PPI is not specific to emerging countries, even if academic works focus their attention on this block of countries. In developed countries, there are also PPIs.

These concepts describe different models of innovation with the potential to improve the well-being of marginalized communities. They present many overlaps, and remain dependent on a strong commercial bias. In other words, these innovations aim to include poor individuals in the consumption process. While the ININ goes further, since it also targets the development of their capacity. In this approach, it is certain that frugal innovation offers the most emblematic example of inclusion in consumption: product focused on basic functionalities, substantial cost reduction and performance/efficiency optimization (Agrawal et al., 2016 Khan and Melkas, 2020). However, so-called low-cost innovation differs from frugal innovations by seeking to reduce costs at all costs, sometimes even to the detriment of quality (Luiz et al., 2021).

A difficulty of the IPP approach lies in the empirical identification of what is called the poor population. Prahalad (2005) and Prahalad and Hammond (2002) were the first to tackle this question. They are the ones who put forward the expression “Bottom of the pyramid” (BOP). They underlined the market potential of this new class of low-income consumers (Prahalad and Hammond, 2002). They noted that on the one hand there were absolutely poor people (living below \$1/\$25 a day), and those who could live on more than \$1.25 a day but less than £2.5 a day.

These two groups are listed as BOP1 and BOP2 respectively. BOP1 has little revenue and is unlikely to be a major market for transnational corporations (this is Prahalad's thesis). On the other hand, the BOP2 group has incomes which, although low, can constitute an incentive for innovation for profit purposes for Schumpeterian entrepreneurs. They are the potential applicants for new products based on “pro-poor” innovations because, although poor, they have monetary income. While Prahalad did not distinguish between poor BOP1 and BOP2, this does have important implications for innovation. There is considerable evidence that BOP2 people living above the subsistence level are more open to engaging in more risky and innovative entrepreneurial behavior than the BOP1 population. They provide products for those in the BOP1 category. They would then be innovative grassroots.

### 2.3 Is ININ the opposite of Exclusive Innovation?

We want to progress in the conceptualization of ININ by asking the question: is ININ simply the opposite innovation of an exclusive innovation? For this we choose the framework of induced innovation which constitutes an essential chapter of the economics of innovation (Antonelli, 1995; 2008; 2011; 2014). From this perspective, the nature and trajectory of technological progress is essential (Ruttan, 2001).

Three factors must be considered. The nature of demand plays a crucial role here: in the context of exclusive innovation, innovative firms respond to the demands of consumers with high disposable monetary incomes. In the Fordist model of growth, which was deployed after the Second World War in the developed capitalist countries, mass consumption constitutes an engine of growth linked to the creation of productivity gains made possible by the diffusion of the Taylorian/Fordian model of organization of mass production. Growth markets in the postwar era were supported by high-income consumers in developed economies rather than low-income consumers in developing countries. In other words, these did not interest the big firms of the developed North. The only consumers from the South who could be involved were the representatives of the upper middle class who, through a demonstration effect, modeled their consumption pattern on the upper classes of the North (imitation effect all the stronger as they could have stayed in the North).

A second aspect also works in favor of a non-inclusive type of innovation. Northern innovation reflects the general economic conditions of high-income, capital-intensive economies with large-scale production dependent on reliable infrastructure. Innovation is related to the structure of factor prices (high wages) leading to mechanized and then computerized manufacturing processes. The third factor clearly identified by Ruttan (2001): firms in terms of technological development are on path-dependence trajectories. This means that when Northern firms innovate in particular areas, their innovations are closely linked to their past successes, reinforcing a particular technological innovation trajectory. This trajectory is supported by the need to meet the needs of high-income consumers and the operating conditions in high-income economies.

The ININ, or "pro-poor", appears excluded. However, we must take a little distance from this thesis. The possibility of reverse innovation testifies to this<sup>2</sup>. But, also the fact that companies from the North with dense skills and a high technological level can launch into low-cost products and technologies (the example of RENAULT with its low-cost range is striking here). Our basic idea here is that the ININ constitutes a very specific type of innovation for which the firms of the North, taking into account what has just been noted, do not naturally have the required skills and therefore advantages over firms from other economic areas. ININ is a type of innovation that differs in a systemic way from the type of innovation very long in force in the North that we could consider as "exclusive".

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<sup>2</sup> Reverse innovations are innovations of the frugal type that find markets outside of the emerging markets in which they were originally conceived. This is an innovation that is very often linked to innovation from the South transferred to the North after some incremental or larger changes. Reverse innovation is a new product developed in emerging markets that is modified for sale in developed economies or the global market. Products must necessarily be "redesigned" in order to ensure that they are adapted to the standards and characteristics of their new markets. Consequently, it requires solid technological and managerial skills, characteristics specific to companies in the North.

## 2.4 The different levels of inclusive innovation

The essential question at the heart of the ININ is to know precisely the dimensions of innovation that allow poor or marginalized populations to be included. We have already implicitly approached this theme through the idea that we should distinguish between inclusion in consumption and inclusion in the market. The main opposition is between those who think that exclusion can be approached simply in terms of innovation results (buying a new cheaper product is inclusion in consumption) and those who argue that marginalized populations must be included in the innovation process itself. A finer view, in the form of a scale, is offered by Heeks et al. (2013) and Heeks et al. (2014). Here is their model:

Level 1: An innovation is inclusive if the aim of this innovation is to meet the needs, desires or problems of the poor group.

Level 2: an innovation is inclusive if it is adopted and used by the excluded group (standard case of the ININ for Consumption)

Level 3: An innovation is inclusive if it has a positive impact on the livelihoods of the excluded group.

Level 4: an innovation is inclusive if the excluded group is involved in the development process of the innovation (here it would probably be necessary to specify to be complete at what stage of the production of the innovation).

Level 5: an innovation is inclusive if it is created within a structure that is itself inclusive.

Level 6: an innovation is inclusive if it is created in a framework of knowledge and discourse which is itself inclusive. This implies the will of private or public decision-makers (a policy?).

As the authors note, these levels are like steps on a ladder where each level involves a gradual deepening and/or broadening of the scope of inclusion of the excluded group in relation to innovation. Clearly, each level includes the inclusion of lower levels, but takes the scope of inclusion further. Ultimately, this model provides a solid basis for better understanding the differences between ININ approaches. Moreover, it already contains the seeds of a finer understanding of the potential of ININ to understand the drivers of inclusive growth/development.

## 2.5 The main research topics of ININ

ININ research has gained in consistency. The concept has been recognized in various studies as bringing a better understanding of reality. An excellent illustration of this is provided by the study by Mortazawi et al. (2021). It aims to map different aspects of ININ research through the notion of clusters and offers a condensed review of the literature. From this point of view, several clusters are listed:

Cluster 1. ININ as a tool of accessibility (“affordability”): ININ tends to offer a mechanism to create the conditions for the production of goods for less wealthy markets in developing countries. It creates frugal offers (products and services) for poor people and societies. This cluster merges with the field of frugal innovation.

Cluster 2. ININ as a tool for market inclusion. Innovations aimed at inclusion focus primarily on offering inclusion as much as possible so that products or services are aimed not only at part of the

market but also to the whole market. It is mainly access or availability of goods and not only social empowerment that constitutes the target. Innovation that aims for inclusion bears some resemblance to affordable innovation, but goes beyond the provision of cheap goods and offers an 'inclusion marketing' solution.

Cluster 3. Capacity building and social empowerment. In this third cluster, innovation results in the production of goods affordable by the poorest populations, thus promoting inclusion, but also social empowerment and capacity building for individuals, including in terms of technologies and entrepreneurship. This can provide job creation and knowledge sharing. Cluster 4. Innovation constraints associated with social empowerment. Innovation constraints play as a determinant of ININ promotion. There is a whole literature focusing on innovation constraints and ways to overcome them in economic environments marked by limited resources. These constraints could be related to government institutions and infrastructures. They also refer to the internal innovation processes of organizations (production process, management decision and strategy/choice at company level). This literature also discusses the means of lifting/moving these constraints.

Cluster 5. The ININ as an "inclusive system". Here we must rely on the work of Foster and Heeks (2013) in which ININ is seen as a system that replaces standard innovation systems, which involves poor communities in the innovation process, thus offering them new capacities to absorb innovation, and achieve impact on the creation of livelihoods.

The ININ studied in this paper is very diverse. It corresponds to a particular type of Schumpeterian innovation, i.e. carried out by private actors for profit motives even if exclude public actors motivated by considerations other than profit from participating in its production. It fits fairly well with transformative change innovation, a term coined by Schot and Steinmueller (2018). Paradoxically, it is a new type of innovation but which retains the major characteristics of a Schumpeterian creative innovation. Today stakeholders and economic decision-makers recognize the need to better align social issues with innovation objectives. The goals are many and varied: reduction of inequality, poverty and many other social evils. Such alignment corresponds to a new framework for science and technology systems: transformative change (Schot and Steinmueller, 2018). ININs are at the heart of this problem. The basic idea of technological innovation of transformative change is that innovation is intended to be a lever to create a better world. New orientations of technological progress are thus put in place aimed at the economic inclusion of low-income people.

As a conclusion to this section, it is important to note that the ININ constitutes a complex innovation which, in order to operate effectively, needs the different mechanisms envisaged in the 5 clusters of the literature highlighted by Mortazawi et al. (2021). Thus, our literature review crucially highlights the dynamic nature of the relationships between the elements of these clusters and the ININ. The mechanisms at work around ININ should allow for inclusive growth and development.

Now we will see how.

### **3. Inclusive growth and innovation**

The second objective of our work is to assess the contribution of ININ to economic growth. However, to our knowledge, there is no work that proposes a measurement of this effect. This is because the ININ remains "below the radar" and therefore escapes statistical recording. Nevertheless, there is literature on inclusive growth. This is what we worked on to give visibility to the ININ/growth relationship. George et al. (2012) argued that ININ is an extension of research on inclusive growth. This assertion can be based on an empirical observation, namely that there are similarities between the

approach to phenomena such as ININ and inclusive development or inclusive growth.

The notion of inclusive development shares many similarities with ININ, it can be considered as a development tool (Peerally et al., 2019). Academic research has provided insight into the role of government agencies in ININ (Sengupta, 2016) and the role of various operational capacities of ININ (Peerally et al., 2018). However, the ININ is fundamentally private in that it is implemented by private Schumpeterian entrepreneurs aiming for performance in terms of profit. In this, it differs from the appropriate technology movement of the 1970s, which was very often driven by actors outside the private sector (“non-profit organizations”). Several themes are involved here.

### **3.1 1. ININ and growth: general insights**

The analysis of the relationships between growth, innovation and poverty cannot be carried out by ignoring the issue of income distribution. It is central in its relation to growth as Kuznets showed through his famous inverted U curve. Following the old but still relevant work of Townsend (1979), poverty has two dimensions: one absolute (measured by income level) and the other relative (equity). In today's world, income inequalities at the global level are less and less accepted, equity takes precedence over the absolute dimension of poverty. We can see the growth/distribution relationship in two ways: one that sees the reduction of poverty (absolute and relative) as resulting from an ex post redistribution of the gains from growth, i.e. productivity gains. A second analysis tends to think of a more equitable distribution pattern endogenously as a component of the growth path itself. We can think that in the current period we are witnessing a growth trajectory in low-income economies characterized by less unequal growth patterns (Kaplinski, 2011b).

The relationships between innovation, poverty and growth are not simple. From the perspective of this article, we can limit our comments to developing economies. At the aggregate level, the results of empirical studies are mixed on the relationship between growth and income inequality (Lopez 2004). However, inequality has been shown to have a negative influence on growth: the economies of countries with higher levels of inequality tend to grow more slowly than those with a more balanced income distribution. In general, it is accepted that higher growth can reduce absolute poverty (Ravallion 2004), although there are exceptions. Regarding the effects of globalization on inequalities between countries, it has enabled some high-skilled and low-wage economies to close income gaps. Contrary to simple explanations, our view is that while innovation is very often causally linked to poverty and inequality (relative poverty), this causality occurs through many different economic, social and political processes. (Cozzens and Kaplinsky, 2009). Inequality sometimes influencing the nature and trajectory of innovation itself. Our analysis illustrates the variety of these links in a framework that we hope will stimulate future research and policy analysis.

### **3.2 Inclusive growth: search for meanings<sup>3</sup>**

We will follow here the penetrating views of Klasen (2008; 2010). Inclusive growth is more than generalized growth, but growth is a necessary condition for inclusive growth. To characterize it, two approaches have been proposed in the literature. The first retains the idea that inclusive growth must “include” many people. Inclusive growth would be equivalent to generalized or labour-intensive growth. Clearly, the unemployment rate could be a hollow measure of the intensity of inclusive growth. In this perspective, inclusive growth can be characterized as a growth with large scale which

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<sup>3</sup> We recall that economic growth refers to the sustained increase over a long period of time (more than one or two decades) in the per capita product of an economy (Aghion and Howitt, 2008; Barro and Sala-i-Martin, 2003).



includes non-discriminatory participation.

There is a very important empirical element in the very definition of inclusive growth: the poverty threshold<sup>4</sup>, since pro-poor growth focuses on people below the poverty line. In contrast, inclusive growth is arguably more general requiring that growth benefit all sections of society, including the poor, near-poor, middle-income groups and even the rich (Klasen, 2010). It should be noted that innovation is not directly involved in this process, it is however implied insofar as it is a powerful determinant of growth. At the extreme, one could argue that inclusive growth must benefit everyone. Interpreted in this broad sense, its connection to the vision of, for example, an Asia free from poverty is tenuous and not a useful path to follow.

Of course, one might want to redefine "inclusive" as not meaning "all". For example, one could limit inclusiveness to the poor based on the respective national or international poverty line (\$1.25 or \$2.50), but that brings us back to pro-poor growth. On the other hand, inclusive growth could be defined as benefiting mainly disadvantaged groups; it is more appropriate to define such growth as "disadvantage-reducing" growth.

### **3.3 The place of innovation in inclusive growth:**

Innovation is the most important determinant in modern economic growth in developed economies (Aghion and Howitt, 2008; Barro and Sala-i-Martin, 2003). However, in less developed economies, innovation is of lower intensity. We are interested here in the place of innovation in relation to what inclusive growth should be. The interactions between the two types of poor populations. Let's come back to the BOP1 (absolutely poor) and BOP2 (poor but with income) populations. Kaplinski (2011b) shows the interest of taking into account the connections between the incomes of the BOP1 and BOP2 groups. The key idea is that the rise in revenue from BOP1 can often be linked to that of BOP2. For instance : (i) BOP1 provides cheap wage goods and services for BOP2 workers, thus contributing not only to the welfare of BOP2 populations, but also keeping wage rates low and promoting growth (ii) BOP1 typically uses products used or "rejected" by the BOP2 sector (iii) BOP2 consumers with cash incomes can be significant consumers for BOP1 products (iv) BOP2 income recipients provide transfers to their relatives who remained in BOP1 (v) BOP2 people living above the subsistence level, are more open and can adopt innovative entrepreneurial behavior than BOP1, but can provide them with products.

The analysis highlights that the BOP1 poor are much less likely to provide a market for the private sector. Innovations that affect the poorest segments of society are those that aim to meet the needs of the BOP2 population. But the market or non-market links between BOP1 and BOP2 that we have just identified tend to show that this dynamic can also be (but to a lesser extent) favorable to BOP1 populations. We will return to this point a little later.

#### **3.3.1 At the heart of the innovation/growth relationship: capabilities:**

We follow in our perspective a crucial element: the importance of the construction of technological capacities at the micro and macro-economic level, which is attested by a number of studies by organizations specializing in the study of development (see the synthesis made by Bell (2009)). Let us retain what two experts on this question Cozzens and Kaplinsky (2009) note: "For the global South, what is most clear is that investments in building capability to increase absorptive

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<sup>4</sup> We are talking here about the international threshold. According to the World Bank it is (May 2022) at \$1.90 per day.

capacity are absolutely crucial, not just for growth but for distribution as well. These investments should of course start with households and individuals, to give regions and countries a base for building competitive businesses and attracting investment from abroad.

These same investments, made on a universal basis with high equality education for all, are also the basis for reducing several other innovation-related inequalities, such as those related to skill. The capacity for households to use available technologies should be kept in mind, along with the ability of individuals to get and perform skilled jobs. At the same time, encouraging capacity building in local firms is an important policy goal, since they will be the mainstay of the regional and national economy. Small firms may need special attention. A key policy agenda for south-based firms is their capacity to change their position in global value chains and to command rent-rich niches such as design and branding". As an extension of these general (but generally correct) objectives, one could add that the concentration of these rents among the small elites must also be avoided. In this context it necessarily follows that governments should take measures to give small producers and the poorest a role in the development of techno-economic capacities (Cozzens and Kaplinsky, 2009).

### **3.3.2 SOUTH-SOUTH technology trade or the end of the Vernon life cycle model.:**

To better situate the new place of SOUTH-SOUTH technology trade, we must start from the standard model of technology transfer: Vernon's product life cycle theory. In this approach, the product life cycle is structured in four stages: in the first stage, the product is manufactured and sold in the United States; secondly, the product, now more standardized, can be sold on foreign markets; thirdly, to fight more effectively against competition from foreign companies, the American firm outsourced manufacturing. In a final step, American companies do not manufacture the product locally, but their subsidiaries abroad supply the American market. Cantwell (1995) showed that new aspects are emerging, such as the strong globalization of technological activities through which firms produce and exploit international knowledge networks. This partly renders Vernon's initial model obsolete.

In this context, multinationals from emerging economies that have substantial experience can acquire the knowledge base related to technological adaptation. If we take Ruttan's diagram (2001) but this time applied to the economies of the South, we see the appearance of new factors testifying to the different technological trajectories intrinsic to the economies of the South: low-income consumers, low factor prices (in particular for work), new entrepreneurial spirit ("pro-poor" or grassroots innovators). It follows that the technological model emerging in the South will be different from that originating in the North. In this context, "under the radar" innovation emanating from small and medium-sized enterprises<sup>5</sup> occupies a central position. But what is at the heart of the model is the position of the industries producing capital goods in the most advanced of the underdeveloped countries. They take the initiative to produce appropriate capital goods for export to other developing economies (Kaplinski, 2011b).

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<sup>5</sup> Often from the rural sector. This also constitutes a distinctive feature (geolocation) of technological activities in the SOUTH (compared to the essentially urban industry of the NORTH).

### 3.3.3 A few remarks on the plausibility of re-enforcement mechanisms between growth and ININ :

Formally, inclusive growth implies that several phenomena take place at the same time (Klasen, 2010):

- a positive growth rate of per capita income (which is the very definition of growth)
- growth rates of primary income (pre-tax income and self-employment income) for predefined and disadvantaged groups at least as high as the growth rates of income per capita, indicating that these groups have been able to participate in the growth process at least proportionally (which indicates a reduction in inequalities)
- an increase in the non-monetary dimensions of well-being<sup>6</sup> ; for the predefined disadvantaged groups this increase must exceed the average rate<sup>7</sup>.

Kaplinski (2010a: 20) remarks the following property: “We can therefore anticipate a self-reinforcing virtuous circle in which pro-poor growth stimulates pro-poor innovation which, in turn, reinforces pro-poor growth”. According to our own analysis, several phenomena can be put forward to explain this virtuous circle: has. As Kaplinski (2010a: 20) describes it: “Historically, the needs being met by the global innovation system have been those of high income consumers. However, in recent years, we have seen a critically important change in this inducing factor, one in which the growing market power of low-income consumers has led to the development of a growing number of products and services designed to make profit out of poor consumers, and production aimed technologies at poor producers. It stands to reason, therefore, that the faster this market of poor consumers grows, and the larger this market is, the greater will be the inducement for pro-poor innovation”. More simply, we can say that with inclusive growth more individuals move from B0P1 to BOP2, and it is in this last category that we find the most frugal or “grassroots” innovators. Inclusive growth would produce more ININ. These maintain the rate of growth. b. Poor producers and consumers are often illiterate and/or lack access to the internet and print media. This leads to knowledge gaps, especially about the nature and extent of what is new. These imperfections are all the more damaging since these pro-poor innovations are produced in large numbers by SMEs located in rural areas. These are areas not connected to internet-type infrastructures and are “below the radar”. With economic growth, public and private actors have more means to invest in these infrastructures for the production and sharing of information. Ultimately this would facilitate the linking of producers for the poor and poor populations, and would promote a higher dynamic of ININ. This seems to be for us the second pillar of the virtuous circle of growth.

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<sup>6</sup> Non-income dimensions include schooling, improved survival rates, improved nutritional status, access to transport, communications and various household services (including drinking water, electricity).

<sup>7</sup> Difficulties can also arise. Klasen (2010: page 14) for example notes: “Notably, an income growth episode can be inclusive in some ways but not in others. Given the three conditions listed above, an income growth episode could be inclusive in terms of leading to higher primary incomes for rural areas and women and promoting faster expansion of education and access to household services for the poor, rural areas and backward regions. That same episode could be non-inclusive due to lower-than-average growth of primary incomes of ethnic minorities who expanded their non-income dimensions of well-being at lower than average rates. This apparent conflict would emphasize to what extent a country’s growth process has been inclusive and in which ways it has not”.

### 3.4 Innovation, growth and inclusive structural change

ININ is often approached through the prism of structural change that is consubstantial with growth. In this paragraph, we try to examine the main critical questions relating to this notion. We can draw inspiration here from the remarkable work of Ciarli, Savona, Thorpe (2021) proposing a broad framework to assess the complex relationship between innovation and structural change. However, it relies more on the economic structures of emerging economies than on those of developing countries. However, their model is also relevant to some extent for these countries. It can be summarized by 3 main relationships:

1. In order to create the foundations for inclusion, innovations must lead to learning, technological upgrading and, later, structural change. In this regard, radical or disruptive innovation is assumed to be less inclusive or conducive to learning. Consequently, an incremental innovation more favorable to the emergence of experience gains is preferable.

2. Second, our knowledge of how ININ can be performed is still limited. Moreover, there is a lack of empirical evidence concerning the populations included/excluded from an innovation process.

3. The authors note that the way in which inclusion and inequality influence successive phases of innovation and structural change is still poorly developed. Furthermore, the evidence for the effect of inclusion on structural change is far from conclusive. This relationship is based on rather aggregate measures of inclusion, such as poverty and inequality, with little attention to exclusions based on ethnicity, geography, gender and other non-economic dimensions. They note (page 360): « Most fundamentally, exclusion might occur at the level of access to information in regard to decision making in investments and participation in the decision-making process. We also know little about the direction of structural change, which is likely to depend on which innovations endure or dominate and which are replaced and disappear ».

It can therefore be assumed from this brief development that the relationship between ININ, growth and structural change still remains a field of research.

## 5. DISCUSSION and CONCLUSION

In this article we first offered a synthesis of the recent literature dealing with ININ.

### 5.1. DISCUSSION.

We have seen that the definitions could be different although a single direction seems to characterize them. Perhaps the definitions are too broad and the notion of inclusion deserves to be clarified. It would then be necessary to expressly include in the term the type of population targeted or the type of exclusion. The essential point when we talk about ININ is to clearly see that this type of innovation tends to bring together private consumption and social well-being. Two previously separate targets: on the one hand the dynamics of private consumption, on the other public social action. It should be noted that proposing the development of ININ does not imply that we renounce traditional social policies (policy of social protection and policy – more offensive – of redistribution). On the other hand, with the ININ we insist on the entrepreneurial dimension of innovation. If innovation is not necessarily entrepreneurial in nature, several conceptions of the entrepreneur nevertheless associate the entrepreneurial approach with a dynamic of innovation. This second group thus includes social enterprise or social entrepreneur approaches that highlight the social innovation produced by these entrepreneurs, actors of change (Richez-Battesti et al., 2012).

We then explained what inclusive growth could be, its relationship to innovation and its mechanisms. It may be surprising to imagine that poverty can be a potential breeding ground for the growth of economies. Let us think of the Fordist model of growth at the very beginning of the 20th century. It was a remarkable innovation to propose to create a growth model based on the incomes of salaried workers. But the "five dollars day" implied a different organization of production (the Taylorian rules) and a structural change in the product (the mass consumer product). We find ourselves faced with the same challenge when it comes to pro-poor growth. It must involve, to be realized on a large scale, transformations of the product itself and in the industrial organization. As for the first point, frugal innovation offers a relevant reference: a product that is much less complex from a technological point of view, simpler because it has fewer functions, a sleek design (on these points: Le Bas, 2022). For the second aspect: a new fully capitalist or Schumpeterian entrepreneurship is necessary. A new entrepreneurship, coming from the "base" ("grass roots") is therefore an essential mechanism in the system. Perhaps the most important point is to clearly see that this model will involve deep structural change.

### 5.2. CONCLUSION.

The basic idea behind the notion of ININ is there is no longer acceptance of strong inequalities between people, social categories, regions, countries. In this paper we emphasize the newness and the richness of the concept of ININ. We also underline the large variety of interpretation. We devoted a section to the scope of ININ in terms of scope.

Developing countries remain the research context. It is around this concept that progress could be made. For example, inclusive growth should be extended to non-monetary dimensions of well-being unrelated to income, such as, for example, health and education. The analyzes that would be carried out in this direction would no longer approach growth but rather inclusive sustainable development (McKinley 2010).

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