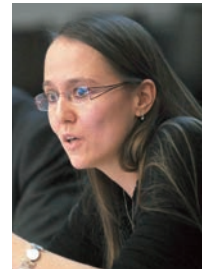


Perspectives on Inclusive Innovations



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Developed and emerging economies alike face a critical policy challenge: they have to boost growth and make it more socially inclusive, by offering opportunities for different groups in society. In developing and emerging countries addressing high levels of poverty remains critical. Innovation can contribute to this objective as a driver of income growth and job creation, which under certain conditions will benefit all in society, be they directly or indirectly affected. Importantly, innovations that are specifically aimed at lower-income and excluded groups – “inclusive innovations” – can substantially improve their welfare. This article focuses on the role “inclusive innovations” can play in support of development. The findings come from the OECD’s Innovation and Inclusive Growth project. A forthcoming publication discusses the issues raised here in further detail.

Characterization of Inclusive Innovations

Inclusive innovations are innovations that improve the welfare of lower-income and excluded groups. There are different types of inclusive innovations. One important type of inclusive innovation is innovations by lower-income and excluded groups to improve their welfare. These are often called “grassroots innovations”. These innovations critically contribute to empowering these groups. Many inclusive innovations are developed by others. Some of these innovations modify existing technologies, products or services to better meet the needs of these groups. One approach is to lower unit product prices by preserving only critical functionalities while keeping core quality. The lowered price allows lower-income groups to purchase those innovations. Examples of such “frugal” innovations include the

Tata, a low-cost car produced in India based on a no-frills strategy, and the Narayana Hrudayalaya Cardiac Care Centre which provides heart surgery at a much lower price due to standardization and the use of less skilled labor. There are other approaches: inclusive innovations can be highly technological, as illustrated by Protoprint, a pro-inclusive innovation bridging the gap between “high-level” innovations and inclusive innovations. The [Table](#) describes Protoprint and two other inclusive innovations.

Scaling Up Inclusive Innovations

Given potential consumers’ overall income and numbers, standard innovators may have better opportunities than inclusive innovators to attain production scale and product standardization (since agriculture

TABLE

Examples of inclusive innovations

Empresas Públicas de Medellín	Narayana Health	Protoprint
<p>A utility company providing energy and water services. Low-income users can use prepaid cards to pay for the service according to their cash flow. Households do not pay fixed installation costs.</p> <p>Innovation: pay-per-use method. Operator: public utility company. Sector: energy and water. Country: Colombia. Scale: 43,000 low-income users have been connected since implementation in 2007.</p>	<p>One of India’s largest healthcare services providers, Narayana Health offers low-cost cardiac surgeries and other healthcare services to the poor. It also caters to isolated communities via telemedicine.</p> <p>Innovation: business process innovations aimed at decreasing surgery costs. Use of ICTs to establish healthcare centers in remote locations for poor rural communities. Operator: private corporation. Sector: healthcare. Country: India. Scale: 6,200 beds are spread across 23 hospitals in 14 cities (up from an initial 300 beds in 2001).</p>	<p>Protoprint developed a low-cost technology enabling garbage pickers to transform reclaimed plastic, increasing their income 15 times for a given amount of plastic collected.</p> <p>Innovation: Protoprint has created two low-cost, easy-to-use machines that will eventually allow producing 3D printing filament. Protoprint currently has a pilot “filament lab” in Pune. Operator: Indian company created by MIT students partnering with SWaCH (Solid Waste Collection and Handling), a co-operative of self-employed waste pickers. Sector: waste management. Country: India. Scale: Product development is still ongoing and filaments are being tested on a variety of printers.</p>

Sources: Suárez Franco, C.F. (2010), “EPM: Antioquia Iluminada”, Growing Inclusive Markets Case Study, No. C109, United Nations Development Programme for Empresas Públicas de Medellín; Kothandaraman, P. and S. Mookerjee (2008), “Healthcare for All: Narayana Hrudayalaya, Bangalore”, Growing Inclusive Markets Case Study, United Nations Development Programme; www.narayanahealth.org (accessed Nov. 6, 2014); www.protoprint.in (accessed Nov. 6, 2014).

plays a lesser role and local specificities have less impact on products not typically required by the poor). In the absence of representative statistics, the evidence to date suggests that few cases have reached scale. A 2011 survey of 439 inclusive businesses conducted by Kubzansky, Cooper and Barbari found that only 37% were commercially viable and had the potential to achieve scale. Only 13% were operating at scale, with operating volatile margins between 10% and 15%. These numbers, however, do not necessarily point to higher failure rates for inclusive innovations, as standard innovators also show a substantial failure rate.

The type of innovation is very much a factor when it comes to scaling up. Reaching maximum scale depends strongly on demand — which will be quite low for localized products, but may involve millions of customers for broader-based services, such as mobile banking. Furthermore, product-level scaling is not an absolute necessity: the very process of designing local innovations to serve local needs may support an inherently small-scale market, while also contributing to poverty alleviation. One solution can consist in creating networks to explore opportunities to enhance uptake of localized solutions through customization.

New Opportunities for Inclusive Innovations

Several ongoing trends in technology, business, policy and macroeconomics have changed. They have affected the demand for inclusive innovations positively and eased production costs on the supply side and, consequently, may facilitate wider success of scaled inclusive innovations in the future (Chart 1).

The following trends are particularly relevant:

- ICTs in general — and mobile phones in particular — have provided an opportunity for leapfrogging critical infrastructural shortcomings. By successfully connecting a much larger number of the poor to the mobile phone network, they have served as a platform for several inclusive innovations in the areas of health and education, as well as a platform for activities involving the poor in agriculture. ICTs also have the potential to further improve opportunities for mobile banking: as the cost of providing mobile services only involves

developing the applications, the service itself can be distributed for free on a wide scale.

- The growing wealth of emerging economies is generating an increase in the demand for inclusive innovations, as the purchasing power of larger segments of society is sufficient to acquire products from markets but insufficient to access the same products available to households in developed countries. The BRICS countries, and China and India in particular, are increasingly important as they offer a growing market relative to the overall size of the world economy. This could mark a change from the past where technological and innovation trajectories responded more to the demands of advanced economies.
- A number of larger multinational companies have placed an emphasis on developing inclusive innovations, particularly to serve the growing middle class in emerging economies. Companies such as Siemens, for instance, have set up research projects under the SMART objective (Simple, Maintenance friendly, Affordable, Reliable, and Timely to market) to introduce low-cost high-quality products. Prahalad and Hart have popularized the notion of market opportunities for the “bottom-of-the-pyramid”. While it is subject to debate whether new market dynamics will really affect the poorest, the market opportunities for the rising middle classes are certainly a reality.

Rationales for Public Policy Support for Inclusive Innovations

Inclusive innovation approaches have a sound rationale for policy action because of the following:

- Inclusive innovations are exposed to various types of market failures. These include higher cost of supplying the poor than supplying higher-income markets, as well as barriers to access to finance for innovators.
- Many inclusive innovations involve public services (education, health, transportation, etc.) from which the poor often find themselves excluded. The government is, therefore, necessarily a stakeholder.
- The opportunity for empowering lower-income groups provides an additional rationale for policy action if support for grassroots innovation can provide better opportunities for individuals to move out of poverty.

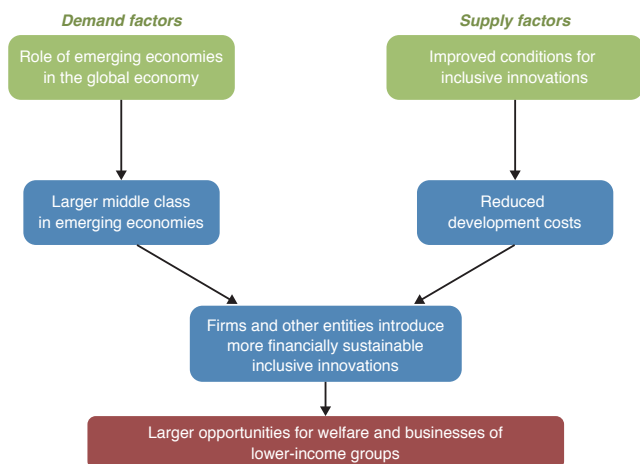
National Policy Approaches in Support of Inclusive Innovations

There is growing support for inclusive innovations in several emerging economies, as shown by the examples of China, Colombia, South Africa, India and Indonesia:

China In China “inclusive innovation” initiatives have been discussed under the heading of “Science and Technology for Public Well-Being”, “Poverty Alleviation through Science and Technology” and “Science and Technology for Rural Development”. Pro-inclusive innovations have been discussed in the context of supplying affordable healthcare, education and sanitation. Grassroots initiatives have also been adopted, including in agriculture. Examples include the S&T Demonstration Programmes that bring technology to small farmers to modernize their activities.

Colombia Colombia’s National Development Plan for 2010-14 aims to

CHART 1
Opportunities for inclusive innovations



Source: OECD (2015), *Innovation Policy for Inclusive Development*, OECD Publishing, Paris (forthcoming)

“align its economic development to its social development” by providing incentives and removing barriers to social innovation. The country’s social innovation policy (the “National Node on Social Innovation”) defines social innovation as “the process through which value is created for society through practices, management models, and innovative products or services that satisfy a need, take advantage of an opportunity and resolve a social problem in a more efficient way than the existing solutions, producing a favourable and sustainable change in the system in which they operate.” The initiative is a result of intergovernmental cooperation between the National Agency for Overcoming Extreme Poverty, Colombia’s National Planning Department and the Administrative Department of Science, Technology and Innovation (Colciencias).

South Africa Policy discussions emphasizing the empowerment of excluded populations — where exclusion relates not only to poverty, but also to race, gender and disability — focus on innovations’ contributions to inclusive development. “Innovation for inclusive development” can be inclusive both in terms of output/outcomes and the process itself. It encompasses a) pro-inclusive innovations, especially insofar as they develop access to “basic services” (health, education and human settlement), with the involvement of science councils; and b) grassroots innovations, as a way to empower excluded groups and generate employment.

India The term “inclusive innovations” is widely used in India to describe innovations that solve the problems of “citizens at the base of the economic pyramid”. Grassroots innovations also receive strong support from, and underpin the activities of, the National Innovation Foundation (NIF) (Box 3).

Indonesia Government initiatives dealing with inclusive innovations focus on incremental innovation, with particular emphasis on process innovation. The main governmental actors are ministries, e.g. the Ministry of National Development Planning and the Ministry of Social Affairs, but also non-ministerial governmental institutions, such as the National Team for Accelerating Poverty Alleviation. To date, the Indonesian authorities have not yet promoted the idea in the country so that no specific policy to support inclusive innovations currently exists. However, some district governments have started to introduce participatory development planning, which aims to include all communities.

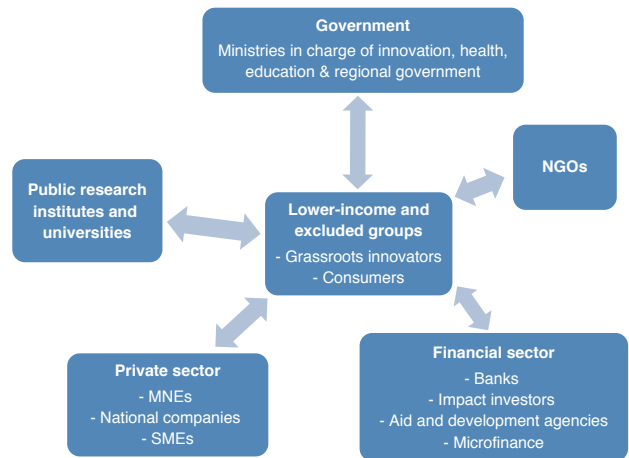
Policy Measures in Support of Effective Collaboration

Inclusive innovations require specific policy attention. Notably, standard innovation policy measures might not focus as much on consultative processes to fully understand market demand and the role of different actors, and may fail as a result. Collaboration within government is important as otherwise different policies adopted can challenge success. For example, regulations in the health sector constrain efforts aimed at introducing technology to provide lower-cost services. What is more, collaboration has to involve a wide group of stakeholders: Chart 2 provides an overview of the main institutions and actors involved in inclusive innovations, indicating that in addition to well-known players — government, public research institutes (PRIs) and universities, the private sector as well as financing institutions — inclusive innovations also rely on excluded and lower-income groups and on support by non-governmental institutions.

Moreover, involving lower-income and excluded groups in the

CHART 2

Actors for inclusive innovations



Source: OECD (2015), *Innovation Policy for Inclusive Development*, OECD Publishing, Paris (forthcoming)

innovation process supports ownership by the communities involved, which is often critical to an inclusive innovation’s success. Colombia’s Policy on Social Innovation (Box 1) aims to engage the community. The Indigenous Knowledge Systems initiative, led by the Department of Science and Technology in South Africa, involves the informal sector in finding solutions based on indigenous knowledge. Correctly assessing consumer needs is also at the heart of the Inter-American Development Bank’s Social Innovation Programme, Innovation Lab and “A World of Solutions” project.

Box 1

Colombia’s Social Innovation Policy

Colombia’s Social Innovation Policy was developed in line with the 2010-2014 National Development Plan of Colombia. The Plan recognizes the central role of innovation not only as part of the productive sector’s development but also for social and sustainable development and for good governance. It also calls for an inclusive innovation system that involves all sectors of society. Several projects have been set up including the “Ideas Para el Cambio” initiative: each year the project selects priorities, such as the provision of water and energy, consulting with communities. It then issues a call to the scientific and innovation community for solutions. The best ideas for solving the problems receive funding for ideas to be implemented. The overall budget was of approximately \$550,000. Examples of projects include ceramic filters for water sanitation (indigenous community of Emberá Chamí in Risaralda) and solar pumps for water provision (communities in LaGuajira).

Source: www.ideasparaelcambio.gov.co/ (accessed May 21, 2014); www.anspe.gov.co/es/programaque-es-el-centro-innovacion-social (accessed May 28, 2014)

International cooperation is also important to ensure that governments adopt best policy approaches in this emerging policy domain. To help policy learning and facilitate collaboration, the Donor Committee for Enterprise Development (DCED) put together a comprehensive list of bilateral and multilateral organizations. The DCED is a forum of about 24 bilateral and multilateral donor agencies and private foundations that aim to promote private sector development. Moreover, programs such as the World Bank’s Vietnam Inclusive Innovation Project (2013-2018), funded with \$55 million, support the development of inclusive innovation ecosystems. The Global Research

Alliance (GRA) provided expertise to support the project's implementation (*Box 2*).

Box 2

The GRA: an international approach to inclusive innovation

The GRA is an international network of nine research organizations — Battelle (USA), CSIR (India), the Council for Scientific and Industrial Research (South Africa), the Commonwealth Scientific and Industrial Research Organisation (Australia), the Danish Technological Institute (Denmark), Fraunhofer Society (Germany), SIRIM Berhad (Malaysia), TNO (The Netherlands) and VTT Technical Research Centre of Finland — created to “improve the livelihood of the world’s poorest through science and technology”. Inclusive innovations are a central theme of the GRA, which implements them through partnership-based projects involving end users, local stakeholders and the private sector. The GRA focuses on priorities such as water, health, energy, food security and ICTs and on supporting poor communities in Africa, South Asia and Southeast Asia.

Source: www.theglobalresearchalliance.org (accessed June 5, 2014)

Policies Improving Access to Finance, Knowledge, Skills & Setting Incentives

Financing is an obstacle for all innovators and has therefore received substantial policy attention. Inclusive innovators may face steeper difficulties: reaching a sustainable scale quickly is more arduous and grassroots innovators are often not well placed to receive financing. In order to improve financial opportunities for inclusive innovations, Colombia is planning to launch a special fund for social entrepreneurship as part of a comprehensive support package for inclusive innovators. Financial incentives can also take the form of feed-in tariffs, reduced interest credit, differential taxes for businesses serving the poor and special interest rates for end consumers. Public-private partnerships are another way for governments to support the development of frugal innovations. South Africa used public-private partnerships at the national and subnational levels to foster inclusive innovations in the water sector: company Amanz'Abantu developed an innovative business model to bring water to underserved communities.

Providing access to knowledge and technical expertise can be particularly helpful to grassroots innovations. One way to achieve this is for governments to support intermediary institutions that build bridges between formal innovation facilities (PRIs, universities) and people at the grassroots level, between innovators and private-sector companies (for scaling up purposes), and between grassroots innovators themselves. The National Innovation Foundation and Honey Bee Network (India) are examples of intermediate institutions (*Box 3*). Also, as early as 1986, the Chinese Ministry of Science and Technology initiated the Spark program, which aims to transfer and diffuse science and technology over China's vast rural areas through grant funds, technology training for farmers and the use of research institutes' know-how to solve local technology problems.

Another priority consists in improving grassroots innovators' capacities. Raising educational levels creates more opportunities for lower-income groups to contribute to, and benefit from, more complex innovations. Capacity constraints — particularly the availability of relevant skills — hinder the expansion of grassroots innovations. Education can also support the adoption of products that do not offer immediate benefits (e.g. vaccines can help address health challenges in

the future, but lower-income groups might not adopt them unless they are informed about the benefits). Indonesia's National Community Empowerment Program (PNPM Mandiri) is an example of a government-initiated program designed to empower communities and alleviate poverty. The government provides communities with block grants for spending on projects (related to infrastructure, education, etc.). The projects are developed through a participatory process that involves communities from their inception. Specialists facilitate project implementation and advise communities.

Box 3

India's National Innovation Foundation & Honey Bee Network

India's National Innovation Foundation creates a link between grassroots innovators and actors who help develop their inventions at different stages. Working closely with the Grassroots Innovations Augmentation Network — which provides incubation and commercialization support to grassroots innovators from the Honey Bee Network (founded in the 1980s by Professor Anil Gupta) — the NIF operates the Value Addition and Research and Development program, which connects selected grassroots innovations that could benefit from teaming with the formal research sector (public and private-sector R&D institutions, academic institutions, etc.) to optimize product development. The NIF also promotes inventions in need of development support in an online directory searchable by interested companies. Through a catalogue of innovations, the NIF also allows potential licensors to learn about technologies. The Honey Bee Network manages a freely accessible database of grassroots innovations and traditional knowledge recording over 181,000 ideas. One way to scout for innovations and spread awareness around them is through the “Shodh Yatras” (journeys of exploration), where volunteers tour remote villages during 100-200 kilometer walks.

Sources: www.sristi.org; (accessed May 28, 2014); <http://west.gian.org>; (accessed June 2014); Gupta, A. K. (2012), “Innovations for the poor by the poor”, International Journal of Technological Learning, Innovation and Development, Vol. 5, Nos. 1/2, 2012; www.nif.org.in (accessed March 2014)

Conclusion

Inclusive innovations can play a critical role in development and several policy approaches can help support those innovations. Aside from the many inclusive innovation initiatives currently underway, a broader question arises about innovation and its impacts on inclusive growth. The OECD's “All on Board — Making Inclusive Growth Happen” publication emphasizes the critical role structural policies may play in achieving inclusive growth. This includes labor market and competition policies as well as policies for entrepreneurship and innovation. The role innovation policy may play in inclusive growth is at the heart of the Innovation for Inclusive Growth project. Further information is available at: <http://oe.cd/inclusive>. **JS**

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