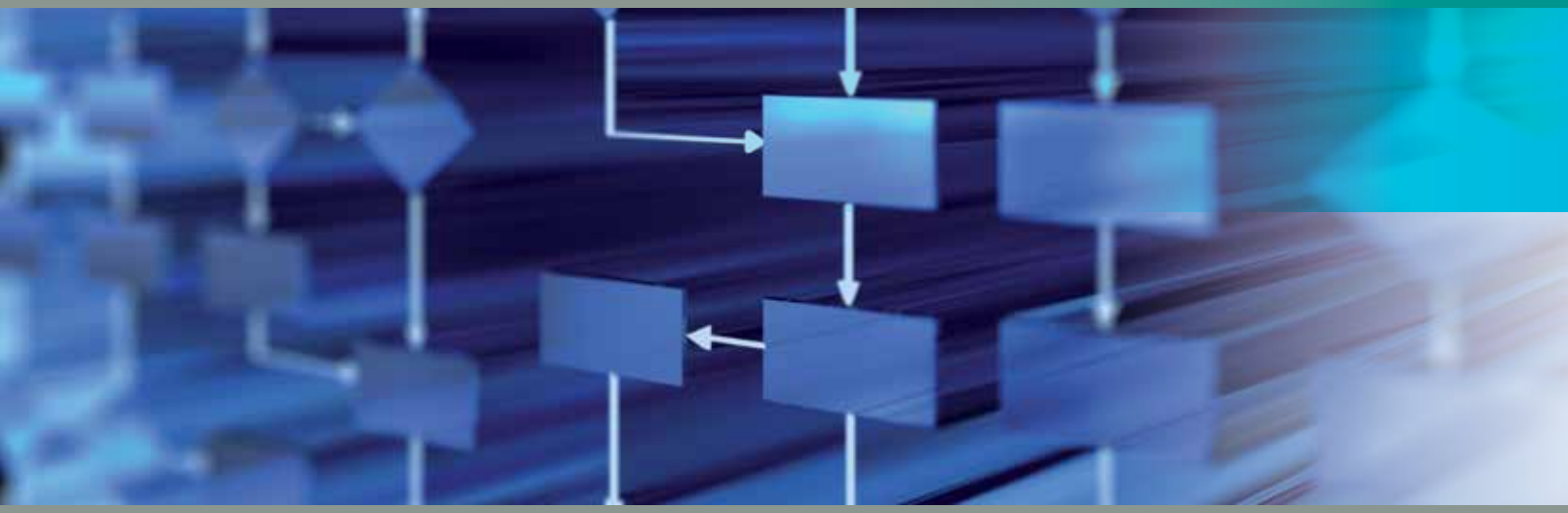

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The informal economy, innovation and intellectual property – Concepts, metrics and policy considerations

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THE INFORMAL ECONOMY, INNOVATION AND INTELLECTUAL PROPERTY – CONCEPTS, METRICS AND POLICY CONSIDERATIONS

Jeremy de Beer[1], Kun Fu[2] and Sacha Wunsch-Vincent[3]

Abstract

In this working paper, the authors connect concepts, definitions and data regarding the informal economy, innovation, and intellectual property in order to establish a framework for further qualitative and quantitative research and the improvement of public policies in respect of these issues.

First, the authors review the literature defining the informal economy, and present an original synthesis of statistical data regarding the informal economy's social and economic significance. Second, the authors apply established and emerging concepts of innovation to the context of informal systems. Third, the authors discuss a spectrum of appropriation mechanisms, ranging from formal intellectual property rights to informal mechanisms of knowledge protection, sharing and exchange. Fourth and finally, the authors review existing policy approaches toward innovation in the formal economy, and establish a framework to consider future scenarios for the application of intellectual property concepts in this context.

Keywords: informal economy, innovation, intellectual property

JEL classification: E26, O12, O17, O3

Disclaimer

The views expressed in this article are those of the authors and do not necessarily reflect the views of the World Intellectual Property Organization or its member states.

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Introduction, Objective and Scope

The informal economy (IE) represents a significant share of output and employment in many middle- and low-income countries. Furthermore, evidence suggests that innovation takes place in the small enterprises that constitute the IE. Yet, little is known about how new processes, products and other innovations are generated, monetized and diffused in the IE. Even less is known about what incentives operate in that sector and what prompts individuals and communities to innovate. In particular, the role of intellectual property rights (IPRs) and other appropriation mechanisms in innovation in the IE is poorly understood.

Work is underway to address this gap in our understanding, including a project to implement the World Intellectual Property Organization (WIPO) Development Agenda.[4] That project has two major components:

1. A conceptual study which reviews existing research regarding the IE, innovation and IP and constructs an analytical framework for further empirical research; and
2. Three case studies which explore IP in innovation in the IE contexts of herbal medicines in Ghana, metal manufacturing in Kenya, and the chemical sector in South Africa.

The project involves a team of collaborators, including experts in economics, business, law and information science who advise on the framework and studies, and researchers who conduct empirical fieldwork in the project's study countries. Among the first steps taken toward executing this project was a workshop organized by WIPO and hosted by the Institute for Economic Research on Innovation (IERI) at Tshwane University of Technology in Pretoria, South Africa (see Annex I). The workshop brought together experts and stakeholders to discuss and refine strategies for successfully carrying out the project.

This working paper integrates the insights and strategies agreed upon at the workshop. The study is structured in four parts.

The first part of the paper provides an introduction to the IE, providing selected economic data on its size and economic relevance. Importantly, it circumscribes the scope of enquiry by delineating core characteristics that distinguish the IE from the formal economy. Because the lines between formal and informal economic activity are not always clear, this first part provides a general framework for defining and analyzing issues of innovation and appropriation through the project's case studies.

The second part discusses innovation in the IE, shedding light on the characteristics of the innovation systems and processes. It highlights the methods and results of previous research on innovation in general, and considers how these might be applicable in the distinct context of the IE.

The third part concentrates on the appropriation of benefits from innovation in the IE, including through formal IPRs. It outlines a spectrum of appropriation mechanisms ranging from more to less formal. This section also establishes a framework for analyzing potential economic and other implications of the various ways to appropriate benefits from innovation in the IE.

After a review of current policy practices aimed at the IE, the fourth and final part of the paper develops existing and potential policies to foster innovation in the IE.

[4] For further information on the WIPO Development Agenda, see http://www.wipo.int/ip-development/en/agenda/.

1. INTRODUCING THE INFORMAL ECONOMY AND ITS MAIN CHARACTERISTICS

1.1 Defining the Informal Economy

Over the last four decades, the economic and social role of informal economic activity has attracted significant academic and policy attention, especially in the context of studies relating to development, poverty reduction and employment in low-income countries. Despite growing attention since the term "informal economy" was coined in the early 1970s by Hart,[5] there is still no universally accepted definition of the IE and its scope.

Due to its interest in the employment aspects of the IE, the International Labour Organization (ILO) first defined the "informal sector" in 1972. It characterized the sector based on seven factors: ease of entry; reliance on indigenous resources; family ownership of enterprises; small scale of operations; labor-intensive and adapted technology; skills acquired outside the formal school system; and unregulated and competitive markets.

Later, the International Conference of Labour Statisticians (ICLS) defined the "informal sector" mainly according to the legal status of an economic enterprise. As seen in Box 1, the ICLS's definition refers to the economic activities that take place in "household enterprises or unincorporated enterprises", where unincorporated enterprises are defined as:

"Enterprises owned by individuals or households that are not constituted as separate legal entities independently of their owners, and for which no complete accounts are available that would permit a financial separation of the production activities of the enterprise from the other activities of its owner(s)".[6]

One sees in the ICLS's definition of the informal sector that the nature of employment is not the only consideration. Labor statisticians as well as policymakers were also interested in economic activity more generally. As a result the definition comprises activities that involve the provision of goods and services in exchange for remuneration, but which are not covered or are insufficiently covered by formal arrangements.[7]

This definition includes all private unincorporated enterprises or which do not register their paid employees or under a certain size threshold that produce at least some of their goods and services for sale or barter, and which are not registered (no business license), or which do not register their paid employees or that are under a certain size threshold and are engaged in non-agricultural activities.[8]

[5] See Hart (1973).
[6] See ILO (1993).
[7] See ILO (2002a). Based on these criteria and for statistical purposes, countries can determine an upper limit on the size of employment, decide whether or not to add the criteria of non-registration of either the enterprise or its employees, and decide on economic sectors to focus on, for example whether to include or exclude agriculture.
[8] See The European Commission, IMF, OECD, UN and World Bank (2009) and ILO (1993).

Box 1: Labor statisticians' definitions

1993 ICLS definition of the informal *sector*

The informal sector is regarded as a group of household enterprises or unincorporated enterprises owned by households that includes:

- Informal own-account enterprises, which may employ contributing family workers and employees on an occasional basis;
- Enterprises of informal employers, which employ one or more employees on a continuous basis. The size of unit has to be below a specified level of employment (5 employees), or it must have no registration of the enterprise or its employees.

2003 ICLS definition of informal *employment*

In 2003, the ICLS broadened the definition to include "informal employment", i.e., informal employment both inside and outside of informal enterprises. Informal employment comprises the total number of informal jobs that are, in law or in practice, not subject to national labor legislation, income taxation, social protection or entitlement to certain employment benefits, whether carried out in formal sector enterprises, informal sector enterprises, or households. It includes:

- Own-account workers and employers employed in their own informal sector enterprises;
- Members of informal producers' cooperatives;
- Own-account workers engaged in the production of goods exclusively for their own final use by their household;
- Contributing family workers working in formal or informal sector enterprises; and
- Employees holding informal jobs, whether employed by formal sector enterprises, informal sector enterprises or as paid domestic workers by households.

Sources: Resolution concerning statistics of employment in the informal sector, adopted by the Fifteenth International Conference of Labour Statisticians (ILO, 1993); The 17th International Conference of Labour Statisticians: Guidelines concerning a statistical definition of informal employment (ILO, 2003, 2011).

While the ILO and ICLS definitions are now widely accepted and consistently applied in employment-related analyses, these are not the only definitions that exist. Different countries and institutions draw different conceptual boundaries to analyze the IE (see Annex II-A and II-B). This variation in conceptual boundaries is in part due to the IE's intrinsic heterogeneity in specific national contexts. Whereas some definitions characterize the IE by highlighting the nature of employment, other definitions emphasize the nature of IE activities.

Particularly important distinctions exist between the informal economy, the informal sector and informal employment. These terms are sometimes used interchangeably, but should not be. Table 1 illustrates the various components of the formal and informal sectors. Indeed, informal employment exists both in the formal and informal sectors (1+3); the same holds true for formal employment (2+4). In fact, people who work as formal employees in the formal sector may – at the same time – also be entrepreneurs in the informal sector. The employment in the informal economy is defined as the formal and informal employment in the informal sector as well as the informal employment in the formal sector (1+2+3).

Table 1: **Components of the Informal Sector and Informal Employment**

		Individuals/Jobs	
		Informal	Formal
Economic units / enterprises	Informal sector	(1)	(2)
	Formal sector	(3)	(4)

Source: See Charmes (2012), Table 1

For the most part, this conceptual study and the project will focus on the innovative activities of the informal sector. Importantly, and for the purposes of this project, the IE is distinct from the illegal or underground economies that involve production and distribution of legally prohibited final goods and services.[9]

1.2 The Economic and Social Significance of the Informal Economy

Before further defining the characteristics of the IE and the scope of this paper, it is appropriate to briefly review the available data regarding the IE's significance and its perceived characteristics. The next two subsections assess available macroeconomic and sector data. The last subsection assesses evolving perceptions of the IE's economic contribution.

1.2.1 Employment and Macroeconomic Contributions

Measuring informal employment and informal economic activity is challenging because most activities in the IE are not recorded in official national statistics. Researchers have, therefore, relied on the direct method of conducting surveys to collect relevant information, or the indirect method of deducing conclusions about the IE by extrapolating and modeling from available data pertaining to formal employment and economic activity. [10] Annex II-C describes these methods in further detail.

Measuring the IE, like defining it, often begins with labor and employment-related data. The IE is an important and growing segment of the world's labor markets. Based on available data, informal employment increased in the 1970s, 1980s and 1990s. The trend becomes less clear after 2000, due to the limited availability of data.[11] Data suggest that the level of employment in the informal sector varies across countries and regions. Estimates suggest that over the past two decades, informal employment or employment in the IE made up for more than half of non-agricultural employment in most middle- and low-income countries.[12]

[9] See ILO (1993); Castells and Portes (1989); Feige (1990); Portes and Haller (2005); Webb (2009) for a more detailed discussion. Feige (1990) distinguishes: 1. The illegal economy encompasses the production and distribution of legally prohibited goods and services. This includes such activities as drug trafficking, prostitution, and illegal gambling, whereas 2. The IE comprises economic actions that bypass the costs of, and are excluded from the protection of, laws and administrative rules covering "property relationships, commercial licensing, labor + contracts, torts, financial credit, and social security systems". Castells and Portes (1989) clarify further that the "basic difference between formal and informal does not hinge on the character of the final product, on the manner in which it is produced and exchanged. Thus, articles of clothing, restaurant food, or computer circuit boards—all perfectly licit goods—may have their origins in legally regulated production arrangements or in those that bypass official rules". For the distinction between illegal and informal economy, see further OECD (2002).

[10] See ADB (2011) and Charmes (2004).

[11] See Charmes (2009) and OECD (2009b).

[12] See ILO (2002b); Charmes (2009) notes the following: "There are several reasons why informal employment is measured excluding agriculture, fishery and forestry: 1) the criteria for defining the informal sector are not adapted in the case of agriculture and usual data collection systems do not often distinguish between formal and informal (or modern and traditional) agriculture; and 2) the shift from agricultural to non-agricultural activities is a sign of modernization. Therefore, we must distinguish between agriculture and non-agriculture to take account of major structural changes in developing countries: to be acknowledged and understandable, the trends in informal employment as well as in self-employment must distinguish between agriculture and non-agricultural activities. This is because the shift from the former to the latter results in a decrease in agricultural self-employment or

[Footnote continued on next page]

The proportion of informal versus formal employment is highest in Sub-Saharan Africa, followed by Southern and Southeastern Asia and Latin America (see Annex II-D and II-E).[13]

Overall, employment in the IE varies across countries and regions. Despite this variability, in all developing countries and regions, statistical estimates of the share of informal employment in total employment demonstrate the significant and mostly growing size of the IE. Internationally available data also show that the share of women in total non-agricultural self-employment rose from more than 25 per cent in the 1970s to more than 40 per cent globally in the 2000s.[14]

Two theories explain why people participate in the IE.[15] The segmentation or "exclusion theory" suggests that informal employment is a response to involuntary unemployment. People excluded from formal jobs by high entry barriers or the lack of qualifications turn to the informal sector for work out of necessity.[16] The "self-selection theory" regards informal employment as workers' voluntary choice. Advantages of participating in the IE may include autonomy, non-wage-related benefits such as avoiding rules and regulations, better suitability to personal ambitions and characteristics, or financial profits, which are not necessarily, lower than in the formal economy.[17] Table 2 sets out these and other reasons why individuals participate in the IE.

Table 2: Reasons for Participating in the Informal Economy

Exclusion
• Formal economy has limited capability to absorb surplus labor, especially when coupled with structural changes in a society
• Economic hardship and poverty
• Barriers to entry (e.g., high cost, burdensome regulations) into formal economy are high
• Formal institutions fail to provide sufficient education, training and infrastructure
• Globalization is a disadvantage to lower-skilled workers, who cannot migrate easily or at all
• It is hard for undocumented individuals to formalize their businesses
• Inability to secure formal employment
• Growth in the number of women who have limited access and the right to control and own property or land entering the labor markets outside of agriculture
Self-selection / Exit option
• Demand exists for low-cost goods and services
• Barriers to entry into the IE are low
• The desire for undocumented income
• Dissatisfaction with formal employment
• Desire for independence and control
• Competitive advantage. Many believe their success depends on being able to price below the formal market.
• First stage in the pursuit of formal business
• Desire to strengthen neighbourhood social support networks and economic conditions

Source: See Becker (2004).

[Footnote continued from previous page]

agricultural informal employment."

[13] The reported employment numbers for South America and Southeast Asia overtook those for Sub-Saharan Africa during the most recent period 2005-2010.

[14] See ILO (2011).

[15] See Günther and Launov (2006).

[16] See Harris and Todaro (1970) and Stiglitz (1976).

[17] See Gindling (1991); Günther and Launov (2006) and Maloney (2004).

In light of the various reasons people participate in the IE, it should not be surprising that the informal labor force is highly heterogeneous. Box 2 provides a stylized categorization of one segment of "informal household businesses" in Viet Nam.

Box 2: Heterogeneity of Informal Household Businesses

Multiple component analysis on Vietnamese data drawn from the Labor Force Survey in 2007 identifies three specific Informal Household Business (IHB) groups:

- The **Professionals** (10%) are the high-end group, and almost all of these IHBs set up the business to be their own boss.
- The **Resourceful** (51%) are better off, and most of the IHBs in this group were created for reasons not related to labor market constraints.
- The **Survivors** (39% of the total IHB) are the most precarious and insecure, and most of them have ended up in this business because they could not find a job elsewhere.

Source: Cling, Razafindrakoto and Roubaud (2011)

Data on informal employment are especially important, because they are often used to estimate statistics related to economic conditions more generally. Again, due to the lack of a standard definition of the IE and corresponding official statistics, it is difficult to compare the IE to the formal economy globally. The data discussed below are drawn mainly from a recent study by Charmes[18] based on statistics from the Bureau of Statistics of the ILO and the National Accounts Section of the United Nations (UN) Statistics Division, as well as from national statistical offices. Other research methods relevant to this project are econometric estimation[19] and a collection of qualitative data using case studies, structured interviews and other social scientific research methods, which will be discussed below.

Regional data are reported in Table 3 and country-specific data in Annex II-F. Sub-Saharan Africa is the region with the largest estimates for the contribution of the informal sector to gross domestic product (GDP): nearly two-thirds including agriculture; one-third excluding agriculture; and half of non-agricultural gross value-added (GVA). It is followed by India, with around 50% of total GDP (including agriculture). Then come countries from the Middle East and North Africa region (with, respectively, 36%, 26% and 29%); Latin America (with 29%, 24% and 25%); and, lastly, transition countries (with about 20%, 11% and 14%).

The latest statistics from the ILO (2011) suggest a negative correlation between the percentage of employment in the informal sector and GDP per capita (see Figure 1). Moreover, employment in the informal sector is positively correlated with poverty across countries (see Figure 2).[20]

[18] See Charmes (2012).

[19] See Schneider, Buehn and Montenegro (2010).

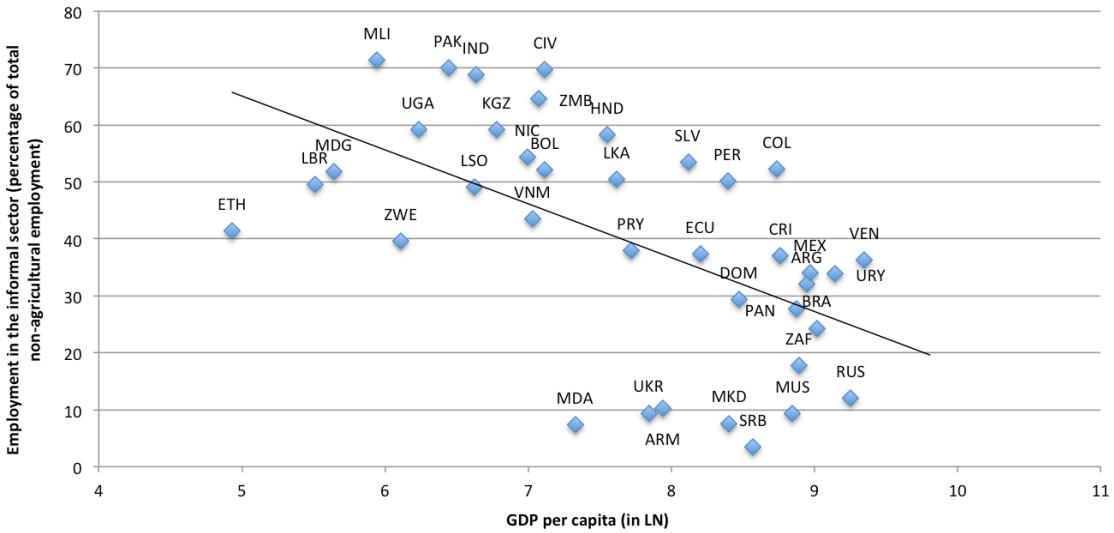
[20] Seasonal and casual workers are particularly susceptible to chronic poverty, and the link is stronger for women than for men. See Chen, Jhabvala and Lund (2001).

Table 3: **Informal Sector Contributions to GDP, based on Available Country Data for Individual Years between 2000 and 2010**

Countries (years)	Informal sector GVA (including agriculture) in % of total GDP	Informal sector GVA (excluding agriculture) in % of non-agricultural GVA	Informal sector GVA (excluding agriculture) in % of Total GDP
Sub-Saharan Africa	63.6	50.2	31.3
Middle East and North Africa	36.2	29.2	26.2
Asia	30.2	17.2	14.2
Asia without Sri Lanka and Bhutan	42.1	29.3	24
India	54.2	46.3	38.4
Latin America	29.2	25.2	24
Transition countries	19.5	13.9	10.7

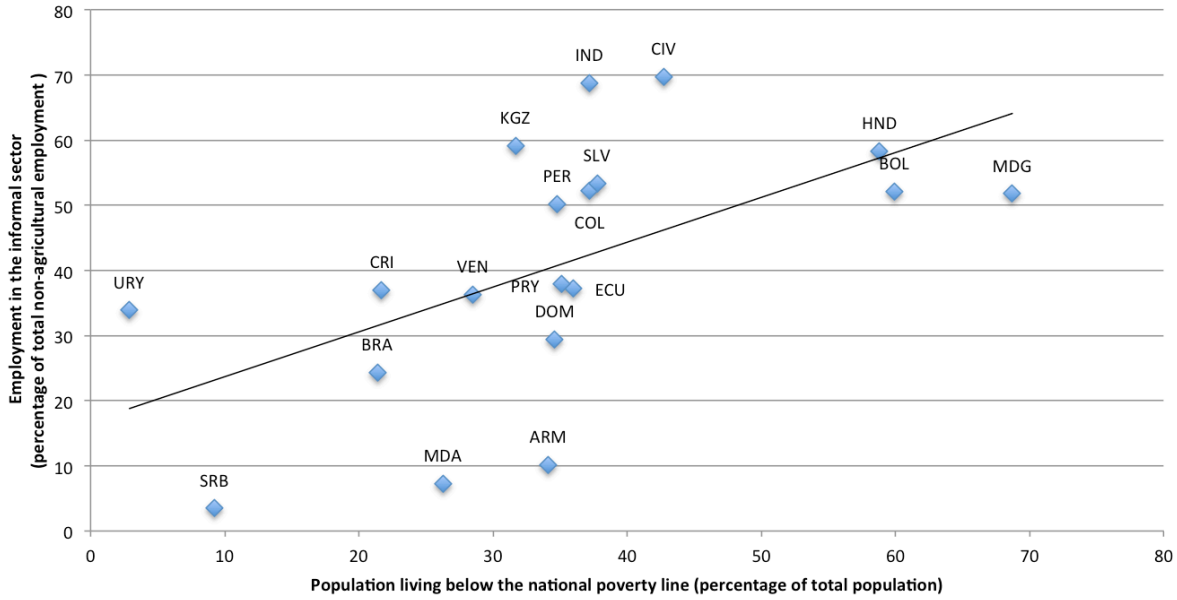
Source: Table 9 from Charmes (2012).

Figure 1: **Employment in the Informal Sector Negatively related to GDP per capita, 2010 or Latest Available Year**



Source: Authors based on ILO (2011).

Figure 2: **Employment in the Informal Sector Positively related to Population Living below National Poverty Line, 2010 or Latest Available Year**



Source: Authors based on ILO (2011).

However, interpreting and drawing conclusions regarding causal relationships among informal employment, per capita GDP and poverty is difficult. There is no convergence of evidence suggesting that informal employment does or does not cause low GDP or high poverty. One possible explanation for the correlations is that economic growth and poverty reduction cause more formal (or less informal) employment, because wealthier workers are more likely to be aware of their rights to certain legal and social protections through formal employment.[21]

Yet a monocausal and automatic relationship between growth and the reduction of the IE should not be taken as a given. Indeed available country-specific data tell us that growth does not always associate with a reduction in informal employment.[22] In most regions considered there has been a marked increase in shares of informal employment, despite pronounced growth (see Annex II-D).[23] Individual countries, such as India, saw solid economic growth in the 1990s but at the same time also a rising share of informal employment. Elsewhere, analysis of the agricultural sector shows that informal employment of youths has increased as opportunities in the formal sector disappear.[24] These statistics and analyses support the literature that describes the IE as a "permanent feature" in regions such as Latin America and Africa.[25]

In the light of the above discussion on the interaction between the IE and growth, the views of the IE's contribution to the economy have indeed been evolving (see Box 3).

21 See ILO (2011).
22 See Kucera and Xenogiani (2009) and OECD (2009b) .
23 Except for Sub-Saharan Africa. This is mainly due to the inclusion of new statistics from some countries with lower informal employment rates within the region (e.g., South Africa, Namibia, Liberia) in recent years.
24 See African Development Bank (2012) and Grimm (2012).
25 See Biles (2009).

Finally, the IE also has a social dimension that must be recognized. Researchers in disciplines other than economics have highlighted the social utility of the informal sector.[26] For example, political scientists assert that "[i]nformal activity takes place largely in personal and intimate domains [...] reflect[ing] the nature of the personal ties between the participants, defined by norms and institutions that are in essence non-economic",[27] while sociologists believe that "[a] solidary ethnic community represents, simultaneously, a market for culturally defined goods, a pool of reliable low-wage labor, and a potential source for start-up capital."[28]

Indeed informal production units mostly originate from social groups (family, religious affiliation, social network) with particular social values, such as solidarity, dialogue, social capital (trust, social and cultural values and norms), and a particular demand and needs of these groups for particular products.[29]

Box 3: The Evolving View of the Informal Economy's Contribution to the Economy

Initially, many observers perceived the IE as marginal, only loosely connected to the formal economy, and often associated with survivalist and unregulated activities deterrent to investment, growth and development.[30] In this view, informal firms: (i) prefer to stay small; (ii) have less access to inputs; and (iii) cannot engage in formal business relationships. Those factors can inhibit informal firms' productivity. Indeed, available evidence shows that efficiency gains could be derived by transferring production from low-productivity informal firms to more productive formal firms or by facilitating the formalization of informal firms.[31] Historically, the IE was often understood as an undesirable element of developing country economies that would gradually fade away.[32]

Increasingly, however, the IE has been seen as an important economic pillar and source of livelihood, particularly in developing countries where formal unemployment is rapidly growing.[33] Informal activities are seen to play a critical role in alleviating poverty, increasing employment, providing competition in the economy, supplying the formal sector, and fostering adaptation and innovation.[34] Furthermore, researchers have pointed out that IE firms address an important segment of otherwise unmet consumer demand, producing goods for the majority of low-income people.[35]

Still, views do diverge regarding whether the informal sector should be stimulated or suppressed. Certainly the idea that informal firms should "graduate" into firms of the formal sector, and to thereby add more to overall economic growth, is still a mainstream belief of economists and policymakers. Some continue to see the IE as impeding innovation in the formal sector (see Section 3.3).

[26] In a recent paper, Godfrey (2011) provides a rich cross-disciplinary overview of these ideas, making a strong case for the need to look beyond the field of economics when discussing the informal sector.
[27] See Gaughan and Ferman (1987).
[28] See Portes and Sensenbrenner (1993).
[29] See Konte (2012).
[30] See Chen (2005).
[31] See Perry *et al.* (2007) and OECD (2009a).
[32] See Grimm, van der Hoeven, Lay and Roubaud (2012).
[33] See Grimm, Knorringa and Lay (2012) and Misati (2007).
[34] See ILO (2002b) and OECD (2009b).
[35] See Kabecha (1997).

1.2.2 Sectors of Informal Economic Activity

In establishing a conceptual framework for analysis of innovation and appropriation, it is important to consider not only macro employment and economic data, but also sector-specific information about the IE.

The IE covers a wide range of different activities in different industrial sectors, ranging from street vendors, to informal garment businesses, to home-based micro firms, to manufacturing entities.[36] Broadly speaking, one can distinguish **informal goods subsectors** from **informal service subsectors**.[37] The former encompasses the production of tangible goods, including agricultural production, mining and quarrying, small-scale manufacturing, building and construction. The latter includes repairs and maintenance, informal education services, health services, counseling services as well as labor for menial work.[38] Informal health services, especially in the rural areas, include traditional birth attendants, herbalists and other traditional medical practitioners.

Available statistical data, however, show that IE activities tend to be concentrated in the following sectors or some part thereof: agriculture, forestry and fishing; manufacturing; construction; wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; and other service activities. Often activities are focused either on work in households such as food production, woodwork, furniture making, garment making, welding and iron works, among others.

In South Africa, for example, most jobs in the category of informal self-employment are reported to be in domestic work in households and wholesale or retail trade.[39] The next most prominent sectors are manufacturing and construction. On the whole, the occupational distribution has shifted slightly in recent years away from elementary occupations toward craft and related trade occupations.

Two areas that are harder to grasp through the existing literature are:

The creative sector and related activities: Evidence shows that traditional crafts and other creative sectors can also be important parts of the IE. Artistic and cultural activities, including those practiced by indigenous communities, are partly included in the employment and economic data discussed above. For instance, informal metalworkers in areas of Kenya are reported to manufacture not only industrial products but also sculptures or unique goods with an artistic design.[40] Street traders in South Africa distribute many different kinds of products, including handicrafts and books. These examples demonstrate the blurred lines between cultural industries and other industrial sectors. Extrapolating statistics on IE activities specifically related to cultural industries in general is not possible based on any existing data that we are aware of.

Activities based on traditional knowledge, indigenous peoples and local traditional communities: Similarly, the existing sectoral data provided on the IE do not make explicit the informal activities which are based on traditional knowledge or which are innovative activities by indigenous peoples and local communities.[41]

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[36] See Williams (2007).

[37] http://www.onlinenigeria.com/economics/?blurb=495.

[38] Repairs and maintenance services include tailoring, vehicle repairs and maintenance, tinkering, carpentry and servicing of various household and commercial tools.

[39] See Wills, (2009).

[40] See Daniels (2010).

[41] Traditional knowledge is defined here as knowledge, know-how, skills, innovations or practices that are passed between generations in a traditional context and that form part of the traditional lifestyle of indigenous

[Footnote continued on next page]

Despite this variety of activities, it is important to note that the quantitative and qualitative evidence from existing studies used in the following parts focuses mainly on manufacturing, construction, repair services, wholesale and retail trade activities.[42] In the past two decades, however, research on the informal sector has emphasized the heterogeneity of this part of the economy, e.g., in terms of entry costs, firm size, access to credit, forward and backward linkages, and human and physical capital endowments.[43] Consequently, generalizations concerning the different enterprises and sectors in the IE have to be treated with caution.

1.2.3 Evolving Perceptions of the Characteristics of Informal Enterprises

Our understanding of the characteristics of enterprises in the IE is evolving. A first lesson shows that there are various degrees of informality and formality among actors in the IE. One needs to move beyond simplified views of IE actors to grasp their diversity.

Traditionally, formal and informal firms and their characteristics have been juxtaposed as extremes on two opposite sides of a spectrum (see Table 3).

A typified view of the informal sector firm retained the following characteristics: (i) low entry requirements in terms of capital professional qualifications; (ii) small scale of operations, with the number of employees often less than five; (iii) unskilled labor/skills often acquired outside of formal education; (iv) labor-intensive methods of production and simple/adapted technology; (v) scarce capital, low productivity and minimal saving; (vi) an unregulated and competitive market; and (vii) family ownership of enterprises.[44]

These characteristics were often contrasted to the somewhat idealized characteristics of formal firms, which are often presented as having the exact opposite characteristics, i.e., large scale of operations, skilled labor, capital-intensive production, etc. (see Table 3).[45]

As argued above, the more appropriate conceptualization of the informal sector is to look at it as a continuum, from formal to informal, where different activities and actors along the continuum occupy different locations. In reality, small firms in the formal sector probably share many commonalities with firms of the IE as to what innovation and the use of appropriation mean. The transition from informal to formal enterprise status is also gradual; indeed, single firms and single households/workers can carry out some activities informally and others formally at the same time.

The degree of informality, the type of activity, the technology used, the profile of the owner and the market characteristic in which the informal sector firm operates vary significantly

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[Footnote continued from previous page]

peoples and local communities. It includes the intellectual and intangible cultural heritage, practices and knowledge systems of traditional communities, including indigenous peoples and local communities. Traditional knowledge can be found in a wide variety of contexts, including: agricultural knowledge; scientific knowledge; technical knowledge; ecological knowledge; medicinal knowledge, including related medicines and remedies; and biodiversity-related knowledge, etc. See WIPO (2012a), http://www.wipo.int/tk/en/resources/faqs.html, and http://www.wipo.int/tk/en/resources/glossary.html. See also WIPO Report on Fact-Finding Missions on Intellectual Property and Traditional Knowledge (1998-1999) "Intellectual Property Needs and Expectations of Traditional Knowledge Holders", at p. 25, available at http://www.wipo.int/tk/en/tk/ffm/report/index.html.

[42] An alternative International Standard Industrial Classification (ISIC) aggregation for analysis and reporting on informal-sector statistics has been proposed. See http://unstats.un.org/unsd/publication/seriesM/seriesm_4rev4e.pdf and United Nations (2008).

[43] See Grimm (2012).

[44] See ILO (1972, 1991, 1993, 2002a).

[45] See ILO(1972).

from one firm to another.[46] Some are single street traders with limited education and skills who essentially operate for subsistence. Other IE actors can be unofficial firms with labor-intensive or more knowledge-intensive operations. The latter can operate in markets with high barriers to entry and capital requirements, and can be dynamic businesses with wage employment.

In some sectors, firms in the IE are perceived to be more competitive than those in the formal sector. Indeed, firms may prefer to remain small and informal, rather than large and formal, if they perceive advantages to doing so. Such advantages may include the agility to respond to changes in the technological or competitive landscape, or resilience in the face of systemic macroeconomic risks and adversity, such as the recent global economic crisis.

Table 3: Flawed Juxtaposition of Informal Versus Formal Enterprises

	Informal firms	**Formal firms**
Business size	Small, <5 workers/paid employees	Large, >50 workers
Start-up capital/ qualification	Low, easy to start a business	High, difficult to start a business
Factor of production	Labor intensive	Automated production
Work condition	Unprotected by contracts, social welfare or unions	Protected by contracts, social welfare and unions
Skills	Skills passed on by informal apprenticeships	High-level skills from formal training institutions
Raw materials	Scrap from formal and informal sources	New from local and imported sources
Infrastructure	Unreliable power and insecure premises	Reliable power and secure premises
Resources	Limited access to capital goods and funding	Extensive access to capital goods and funding
Selling price	Affordable for local population	Out of reach for local population
Demand	Low	High
Quality	Low-quality goods	High-quality goods
Proximity to Consumers	Close	Distant
Profit	Low	High
Medium of exchange	Cash	Cash and bank credit (e.g., credit card)
Market Linkages	Poor distribution network, fragmented informational environment	Well-established distribution network
Flexibility	Adapts well to market conditions	Difficult to adapt
Efficiency	Efficiency through coordination among businesses	Efficiency through vertical integration
Risk attitude	Risk avoiders	Risk takers
Culture	Embedded in social relations	Relies on impersonal written rules of the firm

Source: Authors based on ILO (1972); Becker (2004); Daniels (2010); Losby, Else, Kingslow, Edgcomb, Malm and Kao (2002); Thetford and Edgcomb (2004); Grimm (2012); Nordman and Coulibaly (2011) and OECD (2009a, 2009b).

[46] The Informal Economy Round Table, Sofia, April 18–20, 2002, Simeon Djankov, Ira Lieberman, Joyita Mukherjee, Tatiana Nenova, "Going Informal: Benefits and Costs", reproduced in Becker (2004).

Often, the IE produces for, trades with, distributes for and provides services to the formal economy. In some circumstances, the IE competes directly with the formal sector, at times with an unfair advantage because of tax or regulatory avoidance for example.[47] In other circumstances, formal and informal actors and activities interact.[48] Also, these informal firms often have direct backward or forward linkages with the formal sector.[49] Individuals switch between formal and informal work or, in many cases, engage in both types of activities. These linkages are important for understanding how firms "graduate" from an informal to a formal status[50] – not least because the economic literature suggests that informal enterprises that have links to the formal sector are more profitable and dynamic than those that do not.[51]

1.3 Focus of this Conceptual Study

Our framework adopts the above conceptualization of a continuum between formal and informal actors and activities. While the focus is on the activities in the informal sector as defined in Section 1.1, we also consider innovation and appropriation in the IE in its broader sense, leaving room to consider areas of overlap between formal and informal economic activities.

Importantly, the conceptual framework considers that the IE is not disconnected from the range of economic and productive actors surrounding it (see Part 2). This systemic approach is also applied when thinking about innovation and appropriation mechanisms in the IE. Both the framework and the case studies adopt an innovation systems approach in which the informal sector is seen as integral part of the local innovation system – be it composed of formal, semi-formal or informal actors. This is a departure from many existing innovation studies that mostly exclude informal segments of economic activity in the study of national innovation systems.[52] Another aspect to consider in the analysis is the fact that it is households and economic exchanges between households, rather than established firms, which are at the center of the IE. This paper is limited in scope in the following ways:

First, our focus lays in the field of manufacturing and – to some extent – service activities.[53] That said, while mostly in manufacturing-related areas the three case studies and the conceptual study also provide a window into non-technological innovation such as in processes, business models, marketing. The herbal medicine case study also provides a window into innovation in agriculture. While the entertainment and creative sectors are not conceptually excluded from the ambit of the IE, they are not treated in detail in this study. In future, specific work on the creative sector and its linkages to the IE would be needed to inform policy.

Second, our focus is on economic activities leading to gainful employment. The goal is to capture work undertaken by individuals, families or groups to enhance their standard of living.[54] Activities that are primarily related to the generation or the preservation of traditional knowledge or cultural expressions and that do not have a distinctly economic dimension are only treated indirectly.

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47 See Banerji and Jain (2007).

48 See Thomas (1995) and United Nations (1996).

49 Backward linkages from the informal sector involve trading of goods produced in the formal sector by the informal sector, so that informal traders act as a link between formal producers and customers. Forward linkages from the informal sector involve the production of goods and services in the informal sector for use in the formal sector.

50 See Charmes (2009).

51 See Grimm (2012).

52 See Konte (2012).

53 Note that some extent, herbal medicine touches on the agricultural sector.

54 See Dimova, Gang and Landon-Lane (2011).

Third, while important, the social, cultural and political dimension of the IE will be secondary to our economic analysis.

Fourth, following the earlier definition in Section 1.1, enterprises engaged in producing illegal goods or services, commercial counterfeiting and large-scale piracy fall outside the scope of our analysis.[55]

[55] On request of the CDIP, the topics of counterfeiting and piracy in the IE and their relationship to employment are excluded from the scope of the study. See the WIPO Project implementation proposal at http://www-dev.wipo.int/edocs/mdocs/mdocs/en/cdip_8/cdip_8_3_rev_study_inf_1.pdf and the original project proposal at www.wipo.int/edocs/mdocs/mdocs/en/cdip_8/cdip_8_3_rev.doc. This frame of analysis largely follows the one adopted in Kraemer-Mbula and Wamae (2010a).

2. INNOVATION IN THE INFORMAL ECONOMY

In the preceding section we analyzed an array of data and rich analytical literature about the economic contributions of the IE. In this section the authors describe a parallel body of research on IE and innovation.

Unfortunately, on the one hand, the literature on the IE does not directly address issues of innovation and, on the other hand, the innovation literature does not integrate much of the existing research and data focused on the IE. Our main objective here is to interconnect these so-far separate strands of research in order to establish a more complete context for our project's analysis of possible appropriation mechanisms and policy frameworks.

2.1 Defining Innovation

At the outset it is important to establish a clear conceptual understanding of innovation. Often innovation is equated with research and development (R&D)-intensive technological breakthroughs or, in IP circles, patentable inventions. As a result, the IE has not traditionally been considered a strong source of innovation. At best, the limited literature focused on the IE has concentrated on the "development of technological capacity" and/or the purchase and use of machines to produce a given set of outputs.[56] In the context of this study, however, a broader and deeper understanding of innovation is needed.

One does not need to reinvent the wheel for this purpose. In high- and low-income countries alike, innovation is now well understood as the "*implementation of a new or significantly improved product (good or service), or process, a new marketing method [e.g. a novel product design], or a new organizational method in business practices, workplace organization or external relations*".[57] This definition includes incremental innovations that are new to the firm or new to the country.

In this well-established innovation framework adapted for the purposes of this study, innovation activities could include the acquisition of machinery, equipment, software and licenses; engineering and development work, design, training, marketing and R&D where undertaken to develop and/or implement a product or process innovation. Objectives to innovate include the desire to increase market share or enter new markets, to improve the product range, to increase the capacity to produce new goods, to reduce costs, etc.

While the above characteristics mainly describe innovation in relatively more developed countries, they have also been adapted to developing countries, and provide a good conceptual guidepost for studies of innovation in the IE.

However, conventional IP and innovation metrics may not be appropriate in the context of the IE. The incentives for and impacts of innovation might also be different in the IE than in the formal economies of developed countries. Our research aims to examine how existing metrics, survey instruments, notions of collaboration and linkages, and impact assessment tools apply, or do not apply, in this setting.

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[56] See ILO (1972, 1992).

[57] See OECD/Statistical Office of the European Communities (2005), p. 46.

2.2 Innovation, Inclusion and Development

Innovation-driven growth is no longer the prerogative of high-income countries. It is now firmly on the development agenda of many low- and middle-income countries.[58]

Several insights can be drawn from the existing literature on innovation in developing countries.[59] Generally, there is a lower level of science and technology activity (S&T) in developing countries than in developed countries, in part due to human capital and infrastructure constraints. Often, government and international donors are the main funders of S&T, and national public research organizations (PROs) are the main R&D performers. Also, government-funded S&T expenditure often focuses on agriculture rather than on engineering or industrial research. There is a lack of applied research, a deficit of trained engineers and scientists, and weak technological capabilities in these economies. Questions persist about the relevance of this research to the business sector. Limited science-industry linkages are also explained by the low absorptive capacity of firms and an ensuing lack of "business" demand for S&T. Finally, there is a lack of policies and the institutional structures necessary to facilitate the establishment of new firms, as well as constrained access to financing.

Despite the above insights, too little is known about how innovation takes place in developing country economies, how it diffuses and what its impacts are.[60] Importantly, the conventional focus on innovation connected to large-scale, formal-sector S&T and R&D activities is not the only paradigm through which to explore innovation in the IE. On continents such as Africa, there is a growing recognition that innovation happens differently in the IE than it does elsewhere.[61] While evidence shows that entrepreneurs who work in the IE can drive innovation, the limited research on innovation in developing countries has been devoted mostly to formal sectors, organizations and institutions.[62] Existing innovation or S&T policy frameworks mostly do not target innovation in the IE (see Part 4).[63]

A quickly growing body of recent research has begun to examine different sources and kinds of innovation in this context. Many terms and definitions are emerging to characterize new research and emerging perspectives: "grassroots" innovation, "base-of-the-pyramid" (BoP) innovation, innovation "for the poor by the poor", "frugal" innovation, "jugaad" innovation and "inclusive" innovation are just some examples that are relevant to this study of innovation in the IE,[64] although those terms are not synonymous.[65] Some of this literature focuses on serving low-income populations through innovations on the consumption side, namely radically lower-cost goods and services that meet poor people's ability to pay, thus providing business strategies for global firms entering emerging markets.[66] Other literature focuses instead on the actual experiences and perspectives of "knowledge rich-economically poor people", explaining how groups such as the Honey Bee Network have helped to catalogue 140,000 grassroots innovations and traditional knowledge applications throughout India during the past 20 years.[67]

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58 See Gault (2010) and NEPAD (2010).
59 See WIOP (2011b) and Soete and Arundel in (UNESCO, 2010).
60 See WIPO (2011b) for an overview.
61 See Muchie, Lundvall and Gammeltoft (2003) and Mutua and Mbwana (2012).
62 See Kraemer-Mbula and Wamae (2010b).
63 See IDRC (2011).
64 See, for example, Gault, Bell, Kahn, Muchie and Wamae (2012), pp.23–32; Gupta (2012a, 2012b), pp.28–39; and Radjou, Prabhu and Ahuja (2012).
65 Gupta (2013).
66 See for example Radjou, Prabhu and Ahuja (2012).
67 Gupta (2006, 2012b).

On the complementary supply side innovation helps the BoP population though its impact on people as income earners (employment and earnings provision of workers, grassroots entrepreneurs and low-income informal enterprise managers; and as owners of even small amounts of capital).[68]

Generally, these studies of innovation in developing countries, and in the IE in particular, posit innovation as a "*way to improve people's lives by transforming knowledge into new or improved ways of doing things in a place where or (by people for whom) they have not been used before*".[69] Another recent definition states that "*[i]nclusive innovation is any innovation that leads to affordable access of quality goods and services creating livelihood opportunities for the excluded population, primarily at the base of the pyramid and on a long-term sustainable basis with a significant outreach."*[70]

Introducing the adjective "inclusive" defines a specific kind of innovation by reference to affordability, opportunity and sustainability. Without limiting our paper's scope of enquiry or analysis to such innovations, it is worthwhile noting this trend in innovation research and scholarship.

2.3 Informal Innovation Systems

Whether exploring innovation within a conventional, formal paradigm or in the emerging context of informality, there is consensus that a systems-based analysis is appropriate.[71]

Over the last few decades, conceptualizations of innovation have taken into account the connections among actors involved in innovative activities.[72] Understanding innovation as a systemic process puts emphases on its interactive character and on the complementarities that emerge between incremental, radical, technical and organizational innovations in the context in which they emerge. Following Section 2.1, a systemic approach also takes a broader understanding of innovation taking into account the role of firms, education and other actors that influence the acquisition, use and diffusion of innovations.

Yet, the existing innovation literature building on the innovation system approach has been largely developed for advanced economies, and is hence most adept at describing innovation in formal organizations.[73] Some other authors have attempted to develop a framework to conceptualize community innovations in the informal sector. While these authors have built upon the well-known innovation literature to produce an interesting anecdotal description of a particular industry operating in a local environment, specifically Kashmiri Pashmina Shawls, they do not fully integrate key conceptual literature, historical work or empirical data regarding the nature and significance of the informal economy.[74] So, despite extensive fieldwork in some regions of the world,[75] innovation activities in the IE remain under-researched and conceptualized systematically, and an analytical framework that incorporates innovation in informal activities is largely overdue.

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[68] Thanks to Mark Dutz for raising this complementary point.

[69] Previous studies, such as IDRC's Innovation, Technology and Society projects, demonstrate that formal science, technology and innovation (STI) policies insufficiently address the informal sector – or worse, completely ignore it. See IDRC (2011) and Part 4 of this study.

[70] See Mashelkar (2012).

[71] See, for example, Nelson (1993); Freeman (1987) and Lundvall (1992) on the innovation system literature.

[72] Internal market sources such as suppliers, competitors, clients, institutional sources such as government or public research

[73] See Kraemer-Mbula & Wamae (2010b).

[74] See, for example, Sheikh, (2012); Bhaduri and Sheikh (2012).

[75] See Gupta (2012b).

More recent contributions from the research community have, however, started to apply and modify the innovation system framework to the conditions of developing countries, where economic activities are largely informal, and in sectors outside of traditional manufacturing.[76] Funding agencies also increasingly appreciate the need for a better understanding of – and support for – the linkages between the supply of new ideas from research and the demand for those ideas by local economies.[77]

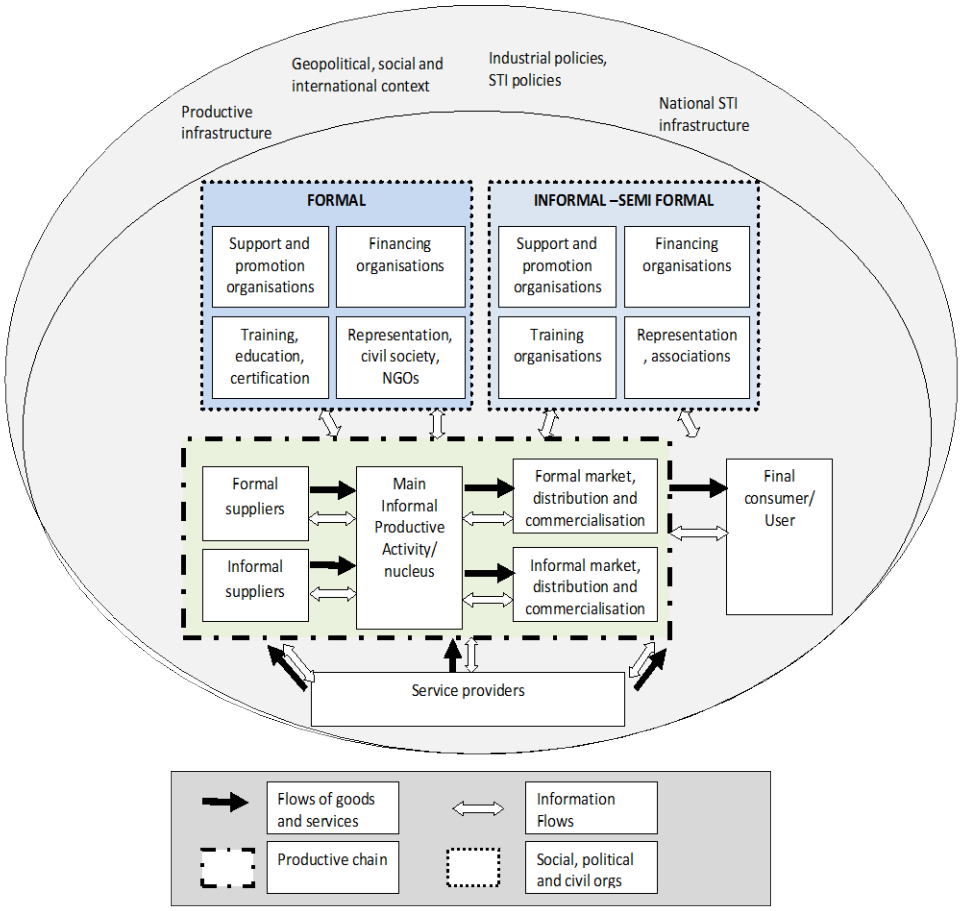
Recent work in developing countries has stressed the importance of the localized character of systems of innovation.[78] For instance, the work of RedeSist (Research Network on Local Productive and Innovative Systems) in Brazil has highlighted the local dimension of innovative and productive processes, aiming to identify challenges and concrete opportunities for fostering local development.[79] It provides a useful platform for incorporating an ample set of economic, political and social actors, including informal entrepreneurs that mainly operate "locally" in relatively small geographical territories. Figure 3 illustrates how the IE would fit within such a "local innovative and productive system" framework.

The basic argument of this framework is that wherever there is production of any kind of a good or service, there will always be a system around it comprising different activities and actors, particularly those associated with the acquisition of raw materials, machinery and other types of inputs. These systems will range from the simplest, most modest or disjointed to the most complex and articulated.[80] Such a systemic view includes actors with (a) different dynamics and trajectories, from the most knowledge intensive to those that use traditional or indigenous knowledge; and (b) different sizes and functions, originating in the primary, secondary and tertiary sectors, and operating on a local, national or international sphere.[81]

[76] Konte and Ndong (2012) and Gault and Muchie (2012).
[77] See Rath, Diyamett, Borja, Mendoza and Sagasti (2012).
[78] See Cassiolato and Lastres, (2008).
[79] See also the forthcoming book by IERI and RedeSist, Edited by Maria Clara Couto Soares, Mario Scerri and Rasigan Maharajh "Development Challenges in BRICS: Inequality and National Innovation Systems''(2013 forthcoming).

[80] See de Matos *et al*. (2012).
[81] *Idem*.

Figure 3: The Informal Economy in a Local Innovation Framework



Source: Elaborated as part of the international workshop by the case study authors Christopher Bull, Erika Kraemer-Mbula, George Essegbey and other participants, see WIPO and IERI (2012).

2.4 Features of Innovation in the Informal Economy

The IE is above all diverse, and equally diverse are the sources of knowledge shaping informal activities and the innovation within them. In each of these diverse IE activities the incidence and role of innovation, including the interactions with innovation in the formal sector, are likely to be different.

Accordingly, the literature finds that, in terms of technological capabilities and capital endowment, a great heterogeneity exists among informal micro firms within and across different sectors.[82] With this caveat in mind, a number of general insights emerge from the literature on innovation and technological capacity in the IE.

82 See Kraemer-Mbula and Wamae (2010a).

2.4.1 Firms and Entrepreneurs

Some studies aim to classify different types of firms in the IE. Authors of these studies identify a bifurcation between a rather small group of successful entrepreneurs and a larger group of firms that struggle to survive.[83]

In particular, a recent study in West Africa has identified three sets of firms (see Table 4): (i) high-growth firms (top performers)[84]; (ii) small structures with particularly high returns on investment but little capacity to expand (constrained gazelles); and (iii) survivalists. These firm types have different characteristics with respect to profitability, growth prospects and linkages with the formal sector.[85]

Table 4: **Typology of Small Firms in the Informal Sector in West Africa**

Top performers	Better-off, growth-oriented entrepreneurs with high capital stock and medium to high return
Constrained gazelles	Share many characteristics with top performers, including high capital returns. Yet they face low capital stocks and constrained growth.
Survivalists	Share little or no characteristics with top performers but face low capital stock and low return

Source: Adapted from Grimm, Knorringa *et al.* (2012).

Other studies reveal that some entities are – despite their simple technologies and low capital intensities – highly dynamic, with innovations taking place in relation to inputs, processes and outputs, allowing them to adapt to new circumstances and exploit market opportunities.[86]

According to this research, many informal activities are not small-scale; there are formal skills in the informal sector, and certain informal enterprises are as technologically innovative as many formal-sector firms (see Box 3).[87] Studies indeed conclude that self-employment serves as the "*unregulated developing country analogue of the voluntary entrepreneurial small firm sector in more developed countries*".[88]

They also conclude that informal firms behave much like a "normal firm" but that they operate under various market imperfections.[89]

Dedicated surveys or case studies of micro entrepreneurs focusing on particular sectors such as metal manufacturing reveal the introduction of new products, product improvements, process improvements and the utilization of new tools. This type of innovation has been characterized as "quick responses to market demand and supply"[90], mostly problem solving to overcome shortcomings of the formal economy (lack of parts, lack of supply of the formal sector[91]) and/or to adapt foreign products to local conditions. Examples abound in the area

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83 See Grimm, van der Hoeven *et al*. (2012).

84 In the extreme, there are also dynamic, high-growth informal firms operating in the modern hi-tech industries (Günther and Launov, 2006).

85 See Ouedraogo *et al.* (2011).

86 See Arye (1981) and Blunch, Canagarajah and Raju (2001).

87 See Trulsson (1997).

88 See Biles (2009) and Maloney (2004).

89 See Grimm, van der Hoeven *et al.*(2012) and Mead and Liedholm (1998).

90 See Bryceson (2002) and Kraemer-Mbula and Wamae (2010b).

91 Many of the local needs are often overlooked by mainstream producers in the formal economy, either because the market is not attractive enough to make a profit, or because a certain product cannot reach the local market due to some technology, skill or environment-related constraints in the local market.

of self-construction of tools, repair and maintenance activities, often surpassing the skills and speed of the formal economy.

Some early case study work focusing on the "technological capabilities" present in the IE started to reveal the innovative strain of micro entrepreneurs.[92] In particular, the informal metal manufacturing and the construction sectors of developing countries were studied as examples in the 1980s.[93] In these studies, innovation was often understood as the purchase and use of new machines, i.e., capital accumulation, to improve production processes. This earlier sector-specific work has more recently been revived by new case studies that stress the adaptive and innovative nature of the informal sector.[94]

In parallel to this work, an economic literature has developed which focuses on urban informal entrepreneurs in developing countries.[95] The group of researchers involved in these studies consists mostly of labor economists who have continually improved the methods for surveying informal sector firms via better questionnaires, and sampling and data collection strategies.[96] However, these studies are often not preoccupied with the study of innovation, neither explicitly nor – for the most part – implicitly.

The absence of focus on the theme of innovation also applies to available survey data. In the countries and regions in which surveys on the IE exist (e.g., establishment or enterprise surveys and mixed surveys) the information gathered about informal employment and economic units is not directly related to innovation.[97]

2.4.2 Imitation and Adaptation

Existing research suggests that there is more adaptation and imitation than original invention in the IE. The majority of studies, however, cite examples of adaptation of equipment of industrial origin ("tinkering on the margins"[98]) rather than of any intrinsic ability to create original technological components. However, little consistent evidence emanates from the studies concerning the type of innovation taking place in the IE. It is unclear whether product or process innovation (i.e., product, process, organizational or marketing innovation) dominates in the IE, and whether innovation aims to improve product variety or product quality.

On the one hand, technological change often comes from the entrepreneurs' imitation of existing models for their own use in the workshops, rather than for sale on the market, e.g., self-construction of tools to improve processes.[99] The aim in such cases is to increase production volume and reduce unit costs via process innovation and new tools. This is key

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92 See Amin(1989) and Khundker (1989).

93 See Mlinga and Wells (2002). For earlier work, see Aftab and Rahim (1986); ILO(1992) and King (1974). In particular, in the early 1990s, the ILO led extensive case study work across different regions to assess technological capability in the informal metal manufacturing sector.

94 See Daniels (2010).

95 See Grimm (2012); Grimm, van der Hoeven *et al.* (2012); Nordman and Coulibaly (2011) and Ouedraogo *et al.*, 2011).

96 See Joshi, Hasan and Amoranto (2009).

97 As discussed in Part 1, such data cover matters such as the socio-demographic characteristics of workers; terms of employment; wages and benefits; and the place of work and working conditions. Survey data and analysis that focus on firms relate to, for example, the size, type and industry of enterprise; bookkeeping and accounting practices of enterprises; input purchasing and investment; sales and profits; access to credit, training and markets; forward and backward linkages; major difficulties encountered in developing the business; and demands for public support. See ADB (2011).

98 Thanks go to Travis Lybbert (UC Davis) for this expression.

99 See ILO (1992).

as prices, especially relative to the formal sector, are among the most important drivers of sales.[100]

On the other hand, some studies stress that IE firms are more concerned with producing new products than utilizing technology, because the former can result in an immediate gain. Creating new products and product diversification are also a reaction to fierce competition among producers. Among the few available studies, and somewhat counter intuitively, none concludes that IE firms see value in improving on and competing over the quality of the final product. Where quality was found to influence consumers in the informal sector, it was associated first and foremost with durability.[101]

One factor that may be responsible for the prevalence of imitation in the IE rather than invention is the difficulty of appropriating benefits through formal or informal protection mechanisms. The ease of copying and the lack of appropriation methods may create a situation in which individual entrepreneurs cannot grow through inventing novel processes or products. Trends begun by individual entrepreneurs are successful until competition adversely affects revenue.

Competitors' lower prices on imitative products could eventually drive the original inventor out of the market. Similarly, from a consumer's perspective, in the absence of trademark protection, it may be more difficult to differentiate good quality products from bad quality products.[102]

However, are there other formal or informal mechanisms in the IE that perform an equivalent function? If so, what are those mechanisms and how do they operate in practice? Clearly, the lack of resources in doing sustained R&D and converting a good inventive idea into a commercially viable invention are likely to be much more important causes for imitation rather than innovation in the IE.

2.4.3 Communities, Clusters, Intermediaries and Institutions

In the context of innovations in more traditional sectors and based on traditional knowledge, studies reveal that instead of individual innovators, communities can best be regarded as the main agents of innovations (see also Part 3). Many communities that have developed certain strong informal networks share and diffuse knowledge and innovations with each other.
With this in mind, firms in the IE tend to operate in clusters or "agglomerations".[103]

This clustering of operators brings about a rapid transfer of skills and knowledge within the sector.[104] Anecdotal evidence suggests that information diffuses rather freely in the IE, that resources and access to specialized resources are shared. However, some studies report that clustering has a negative impact on the growth of the sector, as competition over a similar product and quality range – and the inability to avoid others copying one's innovation – is fierce.

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100 See Kabecha (1997).

101 See Kabecha (1997) and OECD (2011a).

102 See Kabecha (1998). Example quoted: "One micro-entrepreneur started making seamless cooking pots using a traditional design. This was highly profitable at first and required patience and skill. The other entrepreneurs decided to go a step further. They started making pots with seams while maintaining the traditional shape. By having seams the quality of the product was compromised due to poor performance, poor appearance and a high probability of leaking. However, the price was reduced. The first micro-entrepreneur could not compete and abandoned the venture."

103 See Livingstone (1991).

104 See ILO (1992).

All in all, while innovation studies in the formal economy take great interests in collaboration and knowledge transfer, few studies are available on these business-to-business linkages in the IE.

Modifying and improving competencies through innovation might appear to rely mostly on individual initiatives by informal-sector entrepreneurs with limited support from the wider institutional framework. However, in recent years, various initiatives have sought to organize workers in the IE to achieve economies of scale.[105] Intermediary organizations play a role in the informal sector.

Moreover, the innovation ecosystem described above mixes formal and IE actors. Yet not enough is known about the informal value chains formed within the IE and the forward and backward linkages between informal sector actors and formal value chains.[106]

Hardly any studies are available concerning the role of formal scientific or R&D institutions for the IE. The systematic collaboration of the IE with universities or public research centers is the exception, not the norm. Similarly this systematic collaboration has not been the focus of government policy initiatives so far. Where available, however, the studies conclude that these linkages can have an important, positive influence on technology diffusion and knowledge acquisition.[107]

2.4.4 Technology, Capital and Trade

Many micro firms in the IE demonstrate low capital intensity and low skills, tend to use simple technology, and face limitations to technical upgrading. Entities in the IE face a lack of access to techniques and technology and the lack of resources to develop processes and improved machinery. The sector itself cannot accumulate the capital necessary for it to invest in technology and skills.

As a result, the economic entities that form the IE do not demonstrate the kind of growth expected or valued of firms in developed country economies. Skills learned through traditional types of activities impose a serious constraint on the acquisition of new techniques that require education and training.[108] Also, while large producers often have a selection of technology packages to choose from, small entrepreneurs rarely have access to technology to meet their needs. In addition, as evidenced by a few studies, many micro entrepreneurs seem to lack the ability or desire to grow.[109]

In general, issues related to technology and capital affect the scale at which innovation-related production and trade occur in the IE. Across different studies, it is often argued that technology has been used to maintain the market and not as a basis for the expansion of the market.[110]

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105 See Kawooya and Musungu (2010) Kraemer-Mbula and Wamae (2010a).

106 See Kraemer-Mbula and Wamae (2010a). Backward linkages show the extent to which informal-sector enterprises obtain inputs from the formal economy in the form of raw materials, technologies, intermediate products or final goods. Forward linkages show the ability of informal enterprises to supply the formal sector with intermediary or final goods, for instance through subcontracting.

107 For example, one case study on the agricultural subsistence sector in the United Republic of Tanzania and its interaction with the Engineering Department of the local university suggests that technological capabilities have been improved and newly acquired – though at the basic level (Szogs & Mwantima, 2009). An ongoing study in Uganda, for instance, focuses on the cross-fertilization and utilization of innovations between formal institutions (universities and research centers) and informal sector entities (Kawooya, 2012).

108 See Aftab (2012); Aftab and Rahim (1986, 1989).

109 See de Mel, McKenzie and Woodruff (2008).

110 See Kabecha (1998).

Some attention is paid in the existing literature to the fact that informality is not a favorable context for innovation, because it is difficult to "scale up" innovation.[111] As the Oslo Manual notes, "the sometimes great creativity invested in solving problems in the IE does not lead to systematic application and thus tends to result in isolated actions which neither increase capabilities nor help establish an innovation-based development path."[112] New researches on inclusive innovation, however, explore the sort of scalability that is sought by innovators at "the bottom of the pyramid". Their objective may not be to make products more technically sophisticated but rather more accessible.

Confirming that the acquisition of skills in the formal sector seems important, the studies in the area of metal manufacturing argue that improvements in production techniques depend on the existence and support of a local capital goods industry. Countries solely importing machines from abroad were found to have entrepreneurs with lesser ability to improve technological capability by demonstration and learning.[113]

Imported products are an important source of learning for product innovators, so that import competition is equally a supply-side stimulus, giving scope to microenterprises to learn and imitate.[114] Mirroring the previous point, however, the relative sophistication of imported technology in relation to the sophistication of the local formal industry and skills of local entrepreneurs reduces the potential to adapt equipment. When there exists no local formal industry and the technology gap between imports and local production is too high, no local innovation will occur on the basis of imports.[115]

Moreover, supply-and-demand interactions play an important role in the IE, shaping learning and innovation processes in informal enterprises – potentially more so than in other segments of the economy. Users and suppliers are also an important source of learning. Particular studies suggest, for instance, that informal sector blacksmiths (who were often farmers as well) better understood demand preferences in the IE and were able to use local knowledge to produce high-quality customer-tailored tools.[116] Customers preferred their products, because they were able to adapt them swiftly to changes in farming conditions.

Also, customers or subcontractors regularly suggest technical and commercial solutions to problems. In that sense, actors in the IE significantly draw on external agents as a source of innovation – a phenomenon also described as "inbound open innovation" which has been debated intensively in the literature catering to developed countries in the past decade.[117]

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111 Even studies that tend to be optimistic about the level and scope of innovation in the informal sector, such as Daniels (2010), see "scalability" as an important problem.

112 See OECD/Statistical Office of the European Communities (2005), p. 137.

113 See ILO(1992).

114 For example, the manufacture of colanders and vegetable graters in the informal sector was stimulated by imports.

115 See Kabecha (1998). The situation is referred to as "technological dualism" in the literature.

116 See Akbulut (2009).

117 See, for example, Chesbrough (2003); Chesbrough, Vanhaverbeke and West (2006); Dahlander and Gann (2010); Lichtenthaler (2011) and WIPO (2011b).

2.4.5 Education, Skills and Training

Microentrepreneurs generally tend to acquire skills on the job and through apprenticeships in formal or informal workshops.[118] In the IE, skills are acquired through earlier formal education, learning-by-doing (work experience) and learning-by-training, be it in the informal or the formal sector.[119] At higher stages of development, a combination of some formal education, specific vocational training and work experience seem to be relevant for innovative capacity among microenterprises.[120] The work in formal economy factories, vocational training in public centers, and information supplied by firms importing and selling equipment are key sources of more advanced skills.[121]

In turn, learning and innovation in the IE are often based on apprenticeships where senior artisans train younger ones.[122] They generally do so for two reasons: first, out of generosity to help a relative or friend who would otherwise depend on him/her. Second, young artisans who are eager to learn tend to provide cheap labor. Once they master the art or particular skills, the senior artisans will subsequently assign them to specific tasks. The senior artisan's role is then limited to supervising them or dealing with complicated tasks that require new ways or ideas for dealing with certain problems. As elaborated in Part 3, once their training is completed younger artisans often leave their place of apprenticeship and perform similar tasks in close geographical proximity, raising important issues of how know-how and innovations are appropriated by the original inventor. Often, the young apprentice acquires the secret in the course of apprenticeship and then goes on to improve the processes. At times, the apprentice has been reported to 'steal' the master's secret.[123] When that is done, he/she is ready to go and establish his/her own enterprise.[124]

A contrario, these processes and ways to preserve and pass on knowledge and skills underline the sense of IP among the operators of the informal sector.

2.4.6 Sector-specific Considerations

Much of the information derived from existing literature about innovation in the IE pertains to certain industrial and services sectors, in particular metal manufacturing, and to some extent street trading.[125] That is not, however, the only sector of the IE in which innovation occurs. Our framework permits but not does not focus upon deeper analyses in two specific areas.

First, while cultural industries historically have been associated with creativity and copyright, there are many examples of "innovation" in the cultural industries. Some of these innovations also occur as part of more informal activities in the creative sector. One study in Brazil, for example, highlighted the importance of informal mechanisms of "*technobrega*" music production, performance and distribution.[126] Similar evidence has emerged from studies on informal aspects of the music industry in Egypt.[127] Despite the relevance of this informal activity in the cultural sector, this remains an area for future exploration.

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118 See King (1974).
119 See Kraemer-Mbula & Wamae (2010a).
120 See Kabecha (1998).
121 See ILO (1992).
122 See Kawooya (2012).
123 See Charmes (1980).
124 Ibid.
125 Presentation by the representative of the South African Spaza and Tuck Shop Association (SASTA) at WIPO and IERI (2012).
126 See Lemos and Mizukami (2010), pp. 14–35.
127 See Rizk (2010).

Second, researchers who study innovation often do so separately from those who study the theme of traditional knowledge. Some recent literature on "Indigenous Peoples' Innovation" has, however, begun to appropriately connect the concept of innovation with the traditional knowledge practices of indigenous peoples and local communities.[128] With the framework presented in this paper, we consciously refrain from attempting to reconcile the complex spiritual and cultural aspects of indigenous peoples' and local communities' innovation with the primarily economic and employment issues at the heart of this study.

To conclude, we are already pushing the boundaries of research in this field, first by conceptually integrating so-far separate analyses of innovation and the IE; second by using research methods not often used by those studying the economic and employment aspects of innovation or the IE; and third by moving beyond the manufacturing sector ordinarily studied in this context to examine other aspects of innovation in the IE. While we cannot claim to cover all areas and sectors, such as retail trade, the cultural industries or traditional knowledge, our research may shed some light on general practices and appropriation mechanisms that apply across multiple sectors.

The final part of this section summarizes the generalizable characteristics of innovation in the IE that will facilitate further analysis.

2.5 Summary

Previous parts of this conceptual study have established the following stylized facts as they relate to how learning occurs in the local innovation systems in which the IE is embedded:

- Frequently, innovation in the IE takes place in clusters that facilitate the flows of knowledge and technology via simple exchanges of ideas. Depending on the sectors in question and the appropriation methods applied, entrepreneurs imitate and copy products from each other, from local formal and informal industries and from imported products. Labor migration from formal to informal sectors, and vice versa, is taking place, facilitating the transfer of knowledge.

- Apprenticeships and on-the-job learning are common in the IE and facilitate the intergenerational transmission of knowledge and technology.[129] Apprentices with sufficient skills or resources tend to open their own operations, in close proximity to the "master" and – as they have been trained to work only with certain materials and machines – they tend to copy their master directly.

- In sectors that rely on traditional knowledge, oral transmission from generation to generation helps to preserve and transmit knowledge from generation to generation and within family or other social groups.

- There is less evidence to show that clusters directly rely on knowledge from formal public research centers or other educational institutions. In other words, the linkages to formal public actors of the national innovation system are typically underdeveloped.

Some of the main characteristics of innovation in the IE are summarized in Box 4.

[128] See Drahos & Frankel (2012) and Finger and Schuler (2004). Importantly, the word "traditional" does not imply that the knowledge is "old". It means that the knowledge is created, preserved and transmitted in a "traditional" context.

[129] See Zeng (2009).

Box 4: **Characteristics of Innovation in the Informal Economy**

- Large amounts of constraint-based innovations take place under conditions of survival, scarcity and constraints.
- Innovations are primarily demand-driven to satisfy the needs of less-affluent customers by focusing on and exploiting local resources and markets.
- Innovations are rarely driven by R&D but are often driven by knowledge gained through adopting, adapting and improving available good ideas, best practices and technologies in novel ways to solve customer problems.
- Incremental innovations, rather than radical innovations, are the main source of their innovative performance. Most technologies in use are imported from abroad or generated in the formal mainstream market.
- The copying of ideas is rapid due to apprenticeships and a lack of efforts/methods to appropriate techniques, designs and final outputs.

Sources: Authors based on Aubert (2005); Daniels (2010); Demirbas (2011); Srinivasan, Lilien and Rangaswamy (2008)

Obstacles to technological progress in the IE are largely determined by infrastructure, economics, skills and other constraints outlined in Table 5. These features indicate that when it comes to innovation, informal enterprises share similarities with small and medium-sized enterprises (SMEs) and firms in developing countries. By way of comparison, SMEs in developed regions also face a number of constraints: inadequate access to financial sources, lack of qualified personnel and technological know-how, as well as insufficient support of institutions, complex procedures and difficulty and high costs of protecting IP are among common concerns.

Table 5: **Summary of Barriers to Innovation in the Informal Economy**

Location and infrastructure constraints	Lack of space and infrastructure to expand operations paired with inconsistent energy supply and other factors
Financial constraints with economic implications	Capital market imperfections, risk and uncertainty coupled with risk aversion, pressure to achieve immediate return, and lack of demand for informal sector products
Skill constraints	Lack of competencies and skills, including entrepreneurial ambition
Information constraints	Imperfect functioning of the information market about new machines
Social constraints	Relating to the need of entrepreneurs to share their profits with a family or extended network or to invest in informal collective social insurance schemes (discouraging them from developing their business in the first place) or to employ family members such as sharing obligations with the extended family
IP-related constraints	High costs, absence of efficient litigation Standards of formal IP protection are too high to meet, e.g., some countries introduce “utility models” as a light version of patents
Institutional constraints	Such as ill-managed government regulations and exposure to corruption and the lack of insurance

Note: Table 5 does not deal with issues such as corruption, violence, health, safety and other risks.
Source: Authors based on Aboagye (1986); Aftab (2012); Grimm (2012); IDRC (2011); Kabecha (1998) and Nordman and Coulibaly (2011).

Finally, it is worthwhile noting that these characteristics of, and barriers to, innovation in the IE are not unique to the IE in developing countries. Formal enterprises also often operate far from optimal efficiency and have few differentiated products. Important market failures related to economies of scale and externalities present high barriers to innovation for formally established firms as well.[130]

[130] See OECD/Statistical Office of the European Communities,(2005).

3. MECHANISMS TO APPROPRIATE RETURNS FROM INNOVATION IN THE INFORMAL ECONOMY

The aim of this framework is to facilitate analysis of how innovation in the IE is appropriated, and what current and potential role formal IP protection might play. The third part of this paper, therefore, introduces existing and potential appropriation mechanisms on the basis of available evidence.

3.1 A Spectrum of Appropriation Mechanisms

Firms that invest in innovation commonly aim to reap the returns of their innovation by maintaining some form of exclusivity over their know-how related to innovative processes or products.[131] In other words, firms will use different means to exclude others from using the same know-how or from producing the same product. These so-called "appropriation mechanisms" reduce the risk of copying or misappropriation by competitors. This provides the firm with an incentive (although not the only incentive) to invest in innovation in the first place.

One can distinguish among formal, semi-formal or informal means to protect innovation.[132]

- **Legally anchored, formal** mechanisms of intellectual property appropriation take the form of IPRs, such as patents, trademarks, industrial designs and copyright.

- **Semi-formal indirect** means of appropriation with a lesser degree of legal formality take the form of secrecy, publishing, non-competition clauses, non-disclosure agreements, contracts and others.

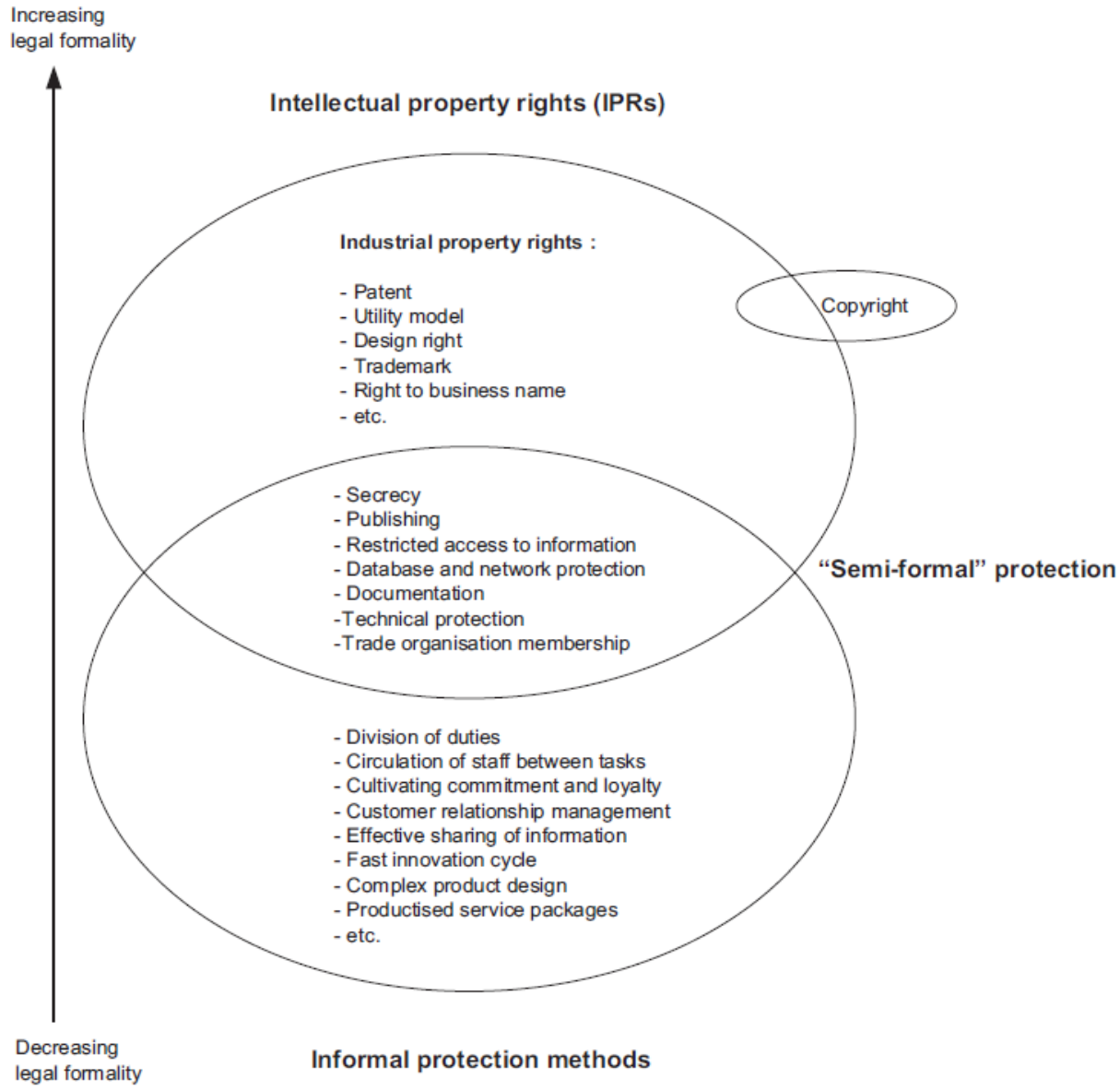
- **Indirect and informal** forms of appropriation may take various forms, such as lead-time, complexity (of design/of technology), after-sales and other services, customer loyalty but also family/community mechanisms, in tandem with community sanctions/ostracism for copying/imitation.

Figure 4 provides a graphic illustration of the different appropriation mechanisms. Box 5 illustrates the characteristics of these appropriation mechanisms. These methods are not mutually exclusive. Direct legal and more indirect protection schemes can effectively complement each other during the commercial life span of an innovation.

[131] As noted in Teece (1986), environmental factors govern an innovator's ability to capture the profits generated by an innovation. The most important dimensions of such a regime are the nature of the technology and the efficacy of legal mechanisms of protection.

[132] For a fuller review of appropriation mechanisms and their use, see Hall, Helmers, Rogers and Sena (2012); WIPO (2011a); WIPO and ICC (2011).

Figure 4: **Typology of Appropriation Mechanisms with Different Degrees of Legal Formality**



Source: Päällysaho & Kuusisto (2011)

As described in Box 5, these different appropriation mechanisms also entail different levels of information disclosure. Some of the formal appropriation mechanisms rely on public disclosure of the invention. Patent applicants, for instance, must disclose to the public the problem-solving information underlying an invention in return for exclusive rights from the state.[133] The idea is that follow-on inventors can build on that knowledge after the patent period of exclusivity has expired. Semi-formal or informal appropriation methods vary in the degree of information disclosure. Often their distinction from formal IPRs is that information and technical know-how are not disclosed but are kept secret.

[133] See WIPO (2011a), p. 78.

In the context of the IE, it will be important not only to study the “incentives to innovate” but also the diffusion of knowledge and information as it results from the appropriation mechanisms at hand. Indeed, these choices affect the circulation of knowledge.

Box 5: Characteristics of Appropriation Mechanisms

Direct, legally formal appropriation methods can help

- Protect against unauthorized usage of protected IP by competitors;
- Commercialize IP-protected products and services;
- License by entering technology market;
- Increase brand-based enterprise recognition;
- Signal to potential venture capital to obtain business finance;
- Limit the right of employees to enter employment with competitors;
- Ensure confidentiality of information;
- Ensure the transfer of rights related to inventions from employees to companies;
- Facilitate the share of rights to the results from cooperation projects in a manner satisfactory to all contracting parties.

Semi-formal IP protection methods refer mainly to contracts (e.g., non-disclosure agreements and non-competition clauses) which are legal agreements between firms and their stakeholders (e.g., employees, customers and partners) covering a broad variety of IP assets. For instance, they can

- Limit the right of employees to enter employment with competitors;
- Ensure confidentiality of information;
- Ensure the transfer of rights related to inventions from employees to companies;
- Facilitate the share of rights to the results from cooperation projects in a manner satisfactory to all contracting parties;
- Prevent patents by rival parties.

More indirect appropriation methods with little legal formality can:

- Decrease the dependency on individual members of staff;
- Decrease the risk of knowledge leakage through employment relationships, partnerships and customer interactions;
- Prevent patents by rival parties;
- Make copying and imitation difficult and time consuming.

Source: Authors adapted from Päällysaho & Kuusisto (2008, 2011).

3.2 Appropriation Mechanisms in the Formal Economy

Different firms deploy diverse strategies to appropriate returns from innovation. A growing body of empirical literature provides evidence regarding appropriation mechanisms in the formal sector in high-income countries.[134] Even in the formal sector of high-income countries, the use of formal appropriation mechanisms such as patents is, by far, not the norm. Firms typically appropriate innovation via other mechanisms. Lead-time over competitors and customer sales/service activities seem to be the most important appropriation mechanisms.

According to data collected through extensive innovation surveys, only a small fraction of all firms in all sectors in high-income countries such as the United States of America consider formal IPRs important. Among firms that consider IPRs important, trademarks are considered the most important, on average, followed by trade secrets, copyright, industrial designs and patents.[135] Based on the spectrum described above, trade secrets are better characterized as a semi-formal rather than a formal appropriation mechanism.

[134] For a detailed review, see Hall *et al.* (2012) and WIPO (2011b).

[135] New survey results indicate that trademarks and trade secrets are the most important forms of IP protection according to most businesses, followed by copyright and patents (National Science Foundation, 2012).

For many firms, it does not make business sense to use formal IPRs, and in particular patents; either other appropriation means are more appropriate or firms have no invention to protect in the first place. In some circumstances, these firms might benefit from filing for formal IPRs, but they lack awareness of the potential benefits and practicalities. On the other hand, small firms' ability to use the IP system can be constrained by various factors, including financial and other resources, and enforcement challenges on a global level.[136]

Firms that face shorter product life cycles tend to patent less. Data also reveals that process innovators rely less on patents and more on secrecy than product innovators do. Accordingly, firms in the service industry use less formal IP; and when they do use IP, trademarks are particularly important. However, as firms' R&D intensity and collaboration with public research institutions increases, patent protection becomes relatively more important. In particular, the production of "discrete" technologies like pharmaceuticals and chemicals relies heavily on patents.

The propensity to patent rises with firm size, other things being equal. It is rare that small firms rely on patents as appropriation mechanisms. When small firms innovate, they often rely on secrecy, lead-time or confidentiality agreements.[137] SMEs that cooperate in innovation with horizontal partners or significantly depend on vertical partners tend to prefer speed and the ensuing lead-time. Process innovators with modest R&D investments or few cooperative R&D activities display a preference for trade secrets.[138]

This does not mean, however, that small firms do not use the patent system. To the contrary, research-intensive SMEs that harbor specialized knowledge heavily rely on the patent system.[139] This formal IP provides them with a reputation effect, access to finance and other benefits.[140] Small firms also actively use other forms of formal IP such as trademarks. As discussed in the next section, small firms in the formal sector and firms in the informal sector share many, but not all, attributes regarding innovation investments and appropriation.

3.3 Appropriation Mechanisms in the Informal Economy

Many questions have to be considered regarding appropriation mechanisms in the IE: Are incentives for innovation, diffusion and impact different in the formal economy and the IE? Does the IE rely on different appropriation mechanisms than the formal sector does? Is an effort required to appropriate in the first place, or to make opposition to appropriation? Are innovation outputs and technical know-how communicated (disclosed/diffused) differently in the IE than in the formal economy?

Some studies have been conducted on the factors that motivate innovators in the IE, concluding that, in India for example, extrinsic forms of motivation drive only a fraction of individual innovative behavior.[141] Generally, however, different appropriation systems, or the lack thereof, in the IE have not been studied sufficiently. Indeed the study of appropriation mechanisms in the IE is an explicit objective of the three case studies undertaken in the context of this project. A review of the existing literature creates the impression, however, that actors in the IE either (a) give less consideration to appropriating their returns from

136 See Kotala, Kuusisto and Päällysaho (2010); Leiponen and Byma (2009).
137 See Arundel (2001); Kotala, Kuusisto and Päällysaho (2010); Leiponen (2006) and OECD (2011b).
138 See Leiponen (2006); Leiponen and Byma (2009).
139 See Helmers (2011).
140 See OECD (2011a) and WIPO (2004b).
141 See Bhaduri and Kumar (2010).

innovation, or (b) rely on semi-formal or informal rather than formal appropriation mechanisms (see Table 6).

The first impression that firms in the IE are less concerned with appropriation than firms in the formal economy are is created by accounts that stress that innovation in the IE frequently takes place in clusters that facilitate flows of knowledge and technology via simple exchanges of ideas. Within these clusters, entrepreneurs are said to imitate each others' products, products from local formal and informal industries, and imported products.

The second impression that IE firms are concerned about appropriation but use semi-formal or informal mechanisms requires further explanation. Table 6 and the following paragraphs summarize what the existing literature on the IE seems to imply with respect to the use of formal and less formal appropriation mechanisms.

Table 6: **Use of Appropriation Methods in the Informal Economy**

Appropriation mechanism	Intensity of use	Forms of appropriation detected in the IE
(i) Formal means of appropriation	Non-existent to low	Little to no references in the literature as to the use of this appropriation mode.
(ii) Semi-formal means	Low to medium	Some references in the literature refer to secrecy and restricted access to information. Actors often rely on process innovation rather than product innovation as this can be more easily concealed. A few articles refer to the importance of trade organizations or special "clubs" (Gatsby Club Tanzania) to build capacity and share knowledge in a restricted manner.
(iii) Informal means	Medium to high	Some features of innovation in the IE resemble informal modes of appropriation in the formal sector. Most notably, (i) lead time and the constant supply of new products and varieties, and (ii) customer loyalty and service. Some appropriation techniques prevalent in the formal economy (division of duties, circulation of staff, complex product design) are not directly evoked in the IE literature.

Source: Authors

Formal appropriation mechanisms: To our knowledge, no available study makes reference to the systematic use of formal IP in the context of the IE. It seems plausible to assume that the current use and enforcement of formal registered IP forms, be it patents, trademarks, industrial designs or others, is close to non-existent. While certain activities would qualify for copyright protection, this right seems to be rarely sought or enforced.

A few field studies broach the topic of formal IP in the IE, and they yield the following hypotheses for the quasi-absence of formal IPRs:

- Innovations in the IE do not meet the necessary threshold to qualify for formal IP protection, as many are based on imitation and adaptation of existing products;[142]
- Actors in the IE have not heard about IP and lack the necessary awareness of, skills concerning and access to the formal IP system;
- Actors in the IE are pessimistic about their ability to register and enforce their IPRs; this is so despite the fact that extensive copying among artisans and the production

[142] See ILO (1992).

of cheap copies abroad is threatening their income.[143]

The validity of these possible reasons and whether they can be generalized remains to be verified. They raise the question whether some firms in the IE should not consider their innovations worthy of formal IP protection and if that protection would be meaningful in the IE context.[144]

Semi-formal and informal appropriation mechanisms: As reviewed in Table 6, the majority of appropriation mechanisms are informal in nature, with lead-time, sales or service efforts, customer loyalty, and after-sales efforts being the most important mechanisms. Few studies emphasize the fact that IE actors are trying to appropriate their innovations via secrecy or other means of hiding their specialized knowledge, techniques or processes. This is in contrast to firms in the formal sector, in particular small ones, which practice secrecy as an important appropriation mechanism.

This tentative finding might be biased in part by the fact that most IE studies relate to the manufacturing sector (i.e., metal manufacturing). Process innovators and service industries in particular might be more prone to resort to secrecy. Furthermore, the relationship between master and apprentice involves significant bilateral knowledge exchange under exclusion of third parties. If this qualifies as "secrecy", the incidence of this appropriation mechanism might be larger than currently assessed. The fact that appropriation has not been studied systematically, that "concealing information" and secrecy might not be socially acceptable interview answers, and that this behavior is less easily quantified, might also bias research results.

Some studies also underline the importance of trade organizations, i.e., groupings to facilitate the development of SMEs, in appropriating innovations in the informal sector.[145] This vector of appropriation merits further attention.

In sum, it needs to be validated whether, in practice, IE actors do appropriate more of their innovative efforts than is portrayed in the literature, and whether different appropriation mechanisms are used than described in the literature tailored to the formal sector. Another issue that merits additional thinking relates to how innovation is communicated, disclosed and diffused in the IE.[146] Key questions are: What is the role of "informal" communication/disclosure/diffusion methods, such as word of mouth? What role do popular literature, radio, television and other communications media play (considering that in many cases the operators in the IE have only a basic education and, in other cases, these operators are university graduates, including graduates with technical degrees such as engineering)? How do these means of communication/disclosure/diffusion affect innovation/creativity in the IE?

Indigenous peoples and local communities' appropriation mechanisms: Moving to the literature concerned with innovation created and developed by indigenous peoples and local communities, the results with regard to appropriation mechanisms are different than for the sector studies found in the IE literature.[147] A core finding is that indigenous peoples and local communities have always had ways of protecting their knowledge and skills via alternative IP protection mechanisms.

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143 See chapter 2 in Finger and Schuler (2004) relating to handicrafts in India.

144 See Kawooya and Musungu (2010).

145 http://www.gatsby.or.tz/.

146 WIPO Project on Intellectual Property and the Informal Economy, Comments on the Conceptual Study (S.F. Musungu, November 18, 2012).

147 See Finger and Schuler (2004).

In addition to the above-mentioned appropriation mechanisms, indigenous peoples and local communities have distinct approaches to passing on and keeping knowledge confidential, most often relying on secrecy, particular codes to transmit knowledge or oral transmission of techniques and skills, with no formal codification and hence tacit knowledge systems. Family and community sharing mechanisms in conjunction with community sanctions and ostracism for copying and imitation have been in practice both in the informal sector more generally and in the indigenous community area more specifically. Customary laws and practices are often used to define custodial rights and obligations over traditional knowledge and its disclosure.[148] The latter define how knowledge is shared and developed, and how traditional knowledge systems are appropriately sustained and managed within a community. In this context, and similar to cases discussed in the IE literature, personal relationships are an important form of disseminating and enforcing acceptable standards of behavior. Knowledge is transferable through inheritance, for instance, or between a master and an apprentice. Confidentiality plays a large role, and concepts such as reputation, apprenticeship and trust matter.

Often, traditional knowledge is regarded as collectively originated and held, so that any rights and interests are vested in communities rather than individuals. As such, it is not easily protected by the current IP system, which grants protection to inventions by named individuals or companies, except if particular persons such as healers are regarded as the holders of the knowledge.[149]

To our knowledge, no systematic effort by innovation or IP experts exists to establish a comprehensive taxonomy of these different forms of appropriation. Also, we are not aware of any statistical or quantitative survey work documenting various appropriation mechanisms in local communities. Yet, it must be recognized that these practices constitute a real alternative to formal IPRs for such communities.

3.4 Possible Impacts of Current Appropriation Mechanisms in the Informal Economy

One can only speculate about the impacts of current approaches to appropriation in the IE. Key questions are:

- To what extent do these appropriation schemes foster innovation and the diffusion of knowledge?
- To what extent does the absence of appropriation harm the scalability, diffusion and impact of innovation?

Concerning the first point, one would wish to find out how the situation actually encourages or discourages investments in tangible or intangible innovations. Intangible investments could consist of (i) skills upgrading (e.g. resources spend on training and skills upgrading - including not only any external-to-firm training but time spent on learning-by-doing and apprenticeships, (ii) collaborative, joint learning activities, linked to learning about what and how to better produce/sell, (iii) developing innovative property and formalizing in some way "rights" to this property, together with enforcing these "rights", and (iv) market research, "branding" and "advertising" -- this includes time spent on learning from end-users and others who better know end-user needs about their needs, creating some way to recognize who

[148] Customary law, by one definition, is defined as “customs that are accepted as legal requirements or obligatory rules of conduct, practices and beliefs that are so vital and intrinsic a part of a social and economic system that they are treated as if they are laws.”

[149] See WIPO (2012b).

produced the good, and networking with a range of market actors, including word-of-mouth, about informing end-users about the good price-quality/value ratio of the firm's product(s).[150]

On the one hand, it can be argued that the absence of formal appropriation and the work in clusters make up the strengths of the IE's innovation system. In this view, the innovation system in the IE largely rests on "collective learning experiences" based on low entry barriers and free flows of knowledge.[151] The dynamics among similar enterprises in collective geospatial clusters determine the rates of innovation, economic successes and the value of the cluster.[152] Individual firms or economic units are not the key determinants of innovation and efficiency.[153]

Appropriation efforts must also be considered in light of the social systems – specifically family structures, community networks and commercial clusters – within which the IE operates. Knowledge flows are characterized by trust, reputation, reliability, social and cultural signaling, and the willingness to pool resources and collaborate. This facilitates access to information, and critically reduces transaction costs.[154]

Clearly, in this context, the notion of formal appropriation of ideas can be considered alien and inadequate in this IE context. As one study suggests, actors believe that formal IP based on exclusions and proprietary knowledge is not compatible with the knowledge diffusion and learning processes of the IE, which are based on communities, clusters and the exchange of information.[155]

On the other hand, and in contradiction to the above view, it has been argued that the presence of perpetual copying and absence of appropriation mechanisms is seen as a barrier to scaling up innovative activity in the IE.[156] Entrepreneurs are unable to develop their businesses beyond a certain stage as they lack exclusive rights to or control over their innovations. Therefore, they have fewer incentives to invest in machines or human capital (e.g., training new apprentices), and are unable to reach certain economies of scale.

Firms may also forgo the possibility to specialize in different styles and techniques, as copying is the norm.[157] The absence of branding or certificates/labels, leading to anonymity of the sector's products in the eyes of consumers, is said to prevent producers of good quality products from being rewarded.[158]

Due to this systematic effect, only small incremental improvements in processes and some incremental improvements or adaptation of products are likely to be achieved.[159] Economic growth and productivity gains in the informal sector are hence below par. The IE might also have a negative influence on the formal sector. The reasoning behind this is that informal firms that fail to comply with various economic regulations or to meet their tax obligations are able to expand and take market share away from formal firms, even when they are less efficient overall.[160] At worst, economists are concerned that informal firms may also

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150 Thanks go to Mark Dutz for raising these points.
151 See McCormick,(1998).
152 Idem.
153 Idem.
154 See Nordman and Coulibaly (2011) ; Portes and Sensenbrenner (1993) and Kawooya and Musungu, (2010).
155 See Kawooya (2012).
156 See Daniels (2010).
157 Idem.
158 See Kabecha (1997).
159 See Daniels (2010).
160 See OECD (2009a).

undermine the incentives of formal sector firms to innovate, adopt new technologies, develop their IPRs or develop brands.[161]

[161] Idem.

In sum, however, the current empirical evidence is not systematic enough to favor one view over another. In principle, and in the absence of a clear counterfactual argument, it is also difficult to speculate or rigorously determine the level and type of innovation that would have occurred in a different setting. The problem starts with the fact that innovation remains difficult to measure, even in the formal sector. Appropriately identifying and measuring innovation in the informal sector is only a fairly recent academic preoccupation. It can also be noted that the heterogeneity of sectors and the IE's innovation and learning systems will certainly influence the overall outcome. Any conclusions that purport to apply to all sectors and IE scenarios should be viewed with skepticism.

3.5 Possible Scenarios and the Costs and Benefits of Intellectual Property Protection

WIPO Development Agenda Recommendation 34 requests that this study "*assesses the tangible costs and benefits of IP protection in the IE in particular in relation to generation of employment*". At this stage, the research question can only be exploratory and hypothetical in nature. As outlined above, formal protection of IP is absent or rare in the IE. To appropriately address the above question, a prospective assessment of potential formal IP use is required.

The conceptual questions of this prospective assessment are:

1. Is there a potential use for IP and is a noteworthy uptake realistic, in particular given the current nature of innovation? Which IP forms are particularly relevant? For which sectors or innovation activities in particular?

2. What are the related drivers and barriers to the uptake of IP, including on the side of IP institutions?

3. What are the potential impacts of formal IP use on the broader innovation ecosystem in the IE, its innovation outputs and related impacts? Do the benefits of increased formal IP use outweigh potential costs?

4. Finally, what impacts on employment could be foreseen?

Concerning question 3 in particular, Table 7 offers an analytical framework for studying the potential impacts of increased formal IP use. Specifically, the use of formal IP can be analyzed with respect to its detailed impacts on existing local IE innovation systems, including innovation inputs, processes, outputs and associated knowledge transfers and learning (see Figure 3).

Table 7: **Scenario-building: Costs and Benefits of Increased Formal IP Use in the Informal Economy**

	Current situation	Potential situation with formal IP	Costs and benefits of increased formal IP use
Innovation inputs			
Impacts on innovation expenditure and activities			
Innovation process			
Process of learning and skills formation			
Impacts on knowledge diffusion			
Interactions and knowledge transfer with the formal sector			
Interactions with the demand side / the user			
Output			
Overall systemic impact on the innovation ecosystem			
Extent of innovation and scaling up			
Impact on employment generation			

4. Policy Approaches Supporting Informal Economy Innovation

We have attempted to create this analytical framework with a view to assisting policymakers in creating substantial national or local programs in the area of innovation and IP, and to maximize impacts, notably on employment generation. Accordingly, the last part of this paper focuses on existing and new policy approaches. This first section reviews the national policy frameworks applied to the IE, and how they have evolved over time. The second section develops an innovation policy framework for the IE. The third section addresses IP policy issues.

4.1 The Traditional Informal Economy Policy Framework

Neither current policy documents nor the academic literature proposes a uniformly agreed IE policy framework. In fact, our study covering the last three decades shows that national policy approaches of developing countries have typically been aimed at the formal sector, largely ignoring the IE (see Section 2.2).[162]

In addition, the few laws and policies that are aimed at the IE are often described as ad hoc, unstructured and not coordinated between ministries, institutions and various government levels.[163] A typical policy coherence problem is that economic development resources are concentrated in the national and provincial spheres, but the regulatory and management responsibility, and knowledge generation, is local.[164] Indeed, it is municipalities and city councils, which engage with the IE in different ways.[165]

In addition, existing IE policies primarily have not been aimed at fostering existing informal structures and promoting their expansion. Instead, their declared policy objective has mostly been to suppress or regulate the IE (see Box 3). The IE is perceived, for example, as an "aberration that should eventually be eliminated".[166] In particular, the focus has been on increasing compliance with rules and regulations in the following areas: business registration, taxation, labor, health and safety, environment, consumer protection, IP protection or sector-specific laws.[167] The common assumption of informal entrepreneurs is that public policy works against them.[168]

At times, policies have gone beyond the desire to "suppress the IE" and have had an explicit mandate to gradually convert the IE into a part of the formal sector; the so-called "formalization" of the IE. The goal was to diminish the underlying causes of informality by reducing regulations or market conditions that encourage firms to operate informally. Examples were: suppressing regulations that make business registration inefficient and costly; or simplifying other administrative and tax laws. At the international level, notably through the ILO, particular attention has been paid to the enforcement of labor rights and the social protection of informal workers.

Over the years, experts and policymakers have recognized the need for a more coordinated and structured approach to the IE. National economic and other policy frameworks are to more coherently address the IE. Moreover, in certain national or sub-national governments, policy ambitions have shifted from suppressing the IE to creating an enabling environment

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162 See IDRC (2011) and Muwonge, Obwona, and Nambwaayo (2007).
163 See Department of Economic Development and Tourism (2009).
164 See Mogotsi (2012).
165 See SALGA and UCLGA,(2013).
166 See WIPO and IERI (2012) and Mogotsi (2012).
167 See ESCAP (2006); Becker (2004); OECD (2009a) and Oviedo (2009).
168 WIPO and IERI,(2012) and Mogotsi (2012).

for the IE. Policymakers are cognizant that a "formalized informal economy" might lose its contributions to growth and employment, once stifled by bureaucracy.[169]

For certain local or national governments, the goal has become to foster the productivity of the IE and the quantity and quality of the employment it generates.[170]

In reality, this shift in thinking about policy approaches to the IE is much more gradual and less clear-cut than depicted above. A number of countries have in fact been active in developing integrated IE policies for a number of years. Table 8 provides some examples of early country policies in the field. The Kenyan Government, for instance, began to foster the IE as part of its official national economic policy in 1986.

Moreover, certain sectors of the IE have traditionally attracted more attention from policymakers than have others. The management of informal street trading and related city management practices have, in certain cases, been an active policy target. Cities in Brazil and in a number of African countries have formulated explicit policies to maximize the benefits of informal trading (see Box 6).[171] Finally, informal activities based on traditional knowledge, such as herbal medicines or craftwork, have often been considered separately from the IE and received particular policy attention with the aim of creating an enabling environment.

Table 8: **Examples of Early National Informal Economy Policies**

Brazil	Brazil has long recognized and supported informal activities such as water picking and street vending, including through direct financial assistance, renting of warehouses, subsidization of security services, water and electricity, etc.
India	In 1999, the National Commission on Labour in India decided to recognize informal workers and to formulate an umbrella legislation for the sector. The Commission was preoccupied with improving social security, occupational health and safety measures, as well as minimum wages. In 2006 a policy was put into place for the development of skills, to facilitate technology upgrading, to provide marketing assistance, to improve infrastructure and to facilitate access to easy credit.
Kenya	In 1986, the Kenyan Government began to incorporate the IE into national economic policy. Policymakers elaborated direct assistance to individuals and small businesses, including, among others, flexible credit schemes, encouragement of the IE to produce cheap alternatives to expensive imported items, promotion of cooperatives to access credit, group purchasing and marketing, information and assistance on new technologies. The government also subcontracted the Jua Kali for various assignments. In 1992, an IE policy was established. Street vending has been facilitated in various Kenyan cities.
Papa New Guinea	Papua New Guinea recently adopted a national policy intended to stimulate "informal" economic activity. Recently, its National Executive Council endorsed a policy document entitled the "National Informal Economy Policy 2011-2015".[172]
South Africa	In South Africa, various local and municipal initiatives have been operationalized (see also Box 6). For example, the Durban Metropolitan Local Government formulated an Informal Economy Policy. The policy framework was widened from street trading alone to include and benefit the whole IE. The policy has helped influence other policies in various municipalities in South Africa. For instance, the eThekwini Municipality Informal Economy Forum (EMIEF) gave rise to the South African National Informal Economy Forum (SANIEF).

Source: Various national sources.

169 Conroy (2010).

170 See Mlinga and Wells (2002); SALGA and UCLGA (2013); Department of Economic Development and Tourism (2009).

171 See Lund and Skinner (2004).

172 See Government of Papua New Guinea (2011)

Box 6: **Informal Street-trading Policies of the City of Johannesburg**

The City of Johannesburg has put in place policies to foster informal street trading, aiming to foster the IE and to make it more commercially viable while reducing approaches to suppress it. The policy goal is to create a well-managed informal trading sector that addresses the needs of its stakeholders and is effectively integrated into the economic, the urban design and social development goals of the city. For instance, the city established markets for informal traders while continuing to allow for controlled street trading in the city. The City of Johannesburg also adopted a strategy to regulate hawking, shifting emphasis away from punitive law enforcement. Other measures in the informal trading development program range from business courses for hawkers to improvements in the supply chain. These policies that aim to develop the informal sector on the one hand often create challenges for urban management and city safety on the other hand. Conflicts of interest – between informal enterprises and formal enterprises/property owners, Spaza shop landlords and bonded property owners, street traders and pedestrians or other users of public spaces, national and foreign nationals – need to be resolved as part of these policy approaches.

Note: For various other street trading initiatives, see SALGA & UCLGA (2013).
Source: Mogotsi (2012); and Department of Economic Development and Tourism (2009). See also the City of Johannesburg Informal Trading Policy

However, notwithstanding a few specialized domains, there have recently been more constructive policy approaches to the IE, and these continue to develop. Systemic interventions continue to be rare, and the nature of intervention models at the national level is often ill suited to local needs. Expectations and policy coordination between national and local levels often continue to be misaligned. Even for progressive approaches, the notion of "developing" entrepreneurs and economies "out of informality" and the desire to "manage the undesirable consequences of the IE" often prevail.[173]

4.2 Policies Aimed at Growth and Innovation in the Informal Economy

In the context of this paper, the question arises whether IE policy approaches in the past have aimed to foster innovation in the IE. Another question concerns whether traditional innovation policies play a role in the IE or whether new approaches need to be developed.

Our review of past and current approaches shows that existing IE policy approaches largely are not designed with a view to fostering innovation and/or IP in the IE. In fact, in many countries innovation policies do not consider the IE a potential source of innovation; the IE is almost never perceived as an explicit innovation policy target.

IE policies do not explicitly refer to innovation. Furthermore, national innovation policies continue to be dominated by science and technology perspectives, largely ignoring the IE. Provincial or local governments that interact with the IE have little input into, or even awareness of, innovation policies typically developed at the national level.[174]

The lack of empirical research on innovation in the IE hampers related evidence-based policymaking. Nonetheless, drawing on the initial findings of this project, Table 9, below, develops a preliminary policy framework for fostering innovation in the IE. IP-related policies are included in this, but discussed in the next section.

[173] See Mogotsi (2012) and WIPO and IERI (2012).
[174] See Mogotsi (2012).

Table 9: **Innovation Policies for the Informal Economy**

1) Providing a functioning property rights system and functioning economic institutions
• Ensuring that clear rights to property exist (e.g., protection of formal ownership)
2) Improving the infrastructure and providing urban spaces
• Ensuring access to basic infrastructure such as electricity, water and waste disposal • Ensuring the IE has access to production sites (e.g., permitting the use of residential allotments)
3) Facilitating access to markets and participation in the formal economy
4) Providing access to finance
• Facilitating the necessary investment and increasing efficiency and productivity. Microfinance, financial services aimed at the rural economy and the IE, financial inclusion to assist households
5) Improving education and skills, including entrepreneurship capacity
• Ensuring basic literacy and numeracy • Developing skills of informal workers through education, training, including basic skills as well as more advanced business and financial skills, and language skills
6) Fostering the innovation system and improving the capacity to innovate
• Putting in place good monitoring and evaluation mechanisms to assess or quantify the contribution of IE innovations to improving the livelihood of workers in the informal sector o Identification of innovative and creative potential (who innovates where and how?) • Facilitating start-ups o Adaptation of SME and entrepreneurship policies for the IE • Stimulating linkages between formal and informal actors, and the integration of the IE in formal sector value chains with a view to transferring skills to IE workers o Efforts to enhance forward and backward linkages, including to the formal sector and public institutions • Facilitating the assimilation of innovations created elsewhere by effectively channelling existing knowledge and technology o Creating local knowledge-sharing networks to connect innovators, adopters and intermediaries and help innovators to gain recognition for their work and to increase knowledge generation for further innovation o Making public research and other innovation actors more relevant to the IE, including the adaptation of scientific findings to local needs to improve the impact of research funding o Setting up public-private bodies to serve as a bridge between national and global research centers and IE firms for the diffusion and adaptation of technologies • Fostering access to technology and information o Establishing technology commons that allow the sharing of innovations between IE actors ("horizontal learning") • Improving the design of IE innovations • Implementing demand-side measures o Stimulating particular innovations targeted at the special needs of the poor o Using public procurement or procurement of non-governmental organizations (NGOs) o Establishing prizes, grants, etc., to foster IE innovation • Improving IE actor organization o Providing help to cooperatives, self-help groups, business and workers associations in creating organizational capacity, cooperation, clustering and political representation o Strengthening the intermediary parties (e.g., informal sector associations, cooperatives, NGOs) to address the needs of the IE for skill development and technology transfer
7) Intellectual property policies
• Needs assessment • Overcoming the hurdles in accessing the IP system o Awareness-raising and training on IP o Technological information and advisory services o Financial assistance o Assistance in IP exploitation and technology transfer • Redesigning certain features of the IP system, such as conceptualizing a set of "informal" IP norms to offer IP protection that is cheaper and better suited to the IE milieu

Source: Authors building on Conroy (2010); Becker (2004); Konte (2012); Mogotsi (2012); Municipality (2001); Rath, Diyamett, Borja, Mendoza and Sagasti (2012); Singh, Jain-Chandra and Mohommad (2012); Department of Economic Development and Tourism (2009); WIPO (2004b); WIPO and IERI (2012).

While many of these policies are aimed at the informal sector, the interactions between the formal and informal sectors and the role of formal sector institutions need to be kept in mind when designing polices for the IE. Institutional weaknesses such as excessive regulation and the weak rule of law applied to the formal sector tend to influence the size of the IE and the type of activities in it.[175] Polices aimed at the IE will function well only in tandem with policies aimed at improving the functioning of institutions in the formal economy.

4.3 Constraints on Intellectual Property Protection in the Informal Economy and Possible Policy Actions

The project findings will be used to determine to what extent and in which circumstances the IP system fosters innovation in the IE. If the case studies reveal that improved IP use by IE actors is possible or appropriate, potential barriers must be identified and policies to foster access to the IP system must become an integral part of innovation policy frameworks. Policy measures might then be crafted so as to reduce barriers while maximizing the positive effects of IP and minimizing potential negative effects.

The following barriers to access have been identified in the course of the project. It is worth noting that some barriers faced by IE actors are similar to those faced by any firm and, in particular, small firms and those in developing countries.

Various studies reveal that SMEs face a number of difficulties in using the IP system,[176] such as a limited knowledge of the IP system, lack of clarity about its relevance to their business strategy, the system's complexity, and from the perspective of SMEs – the system is expensive and/or time-consuming to use. Low awareness of the system limits the exposure SMEs have to the IP system and their ability to use effectively all the elements offered by the IP system, including not just patents but also utility models, trademarks, industrial designs, trade secrets, patent databases, copyright and other IPRs.

Box 7: IP policies aimed at facilitating access for SMEs

Activities that promote a wider and more effective use of the IP system by SMEs generally fall into five main categories:

(a) Awareness-raising and training on IP
(b) Technological information services
(c) Financial assistance
(d) Customized advisory services on IP
(e) Assistance in IP exploitation and technology transfer

IP offices have been active in providing awareness-raising activities and training, including through: organizing seminars, information campaigns, IP guides, websites, case studies, customized training, general or personalized advice, visits to SMEs and integrating IP issues into national/institutional teaching and training curricula.

Source: WIPO (2004a, 2004b)

175 See Singh *et al.* (2012).
176 WIPO (2004a, 2004b).

For a start, the biggest question seems to be whether the IP system is at all relevant to the IE. Certain forms of formal IP protection require a degree of "non-obviousness" and "novelty" that might not be easily met by actors in the IE.[177] This is particularly so in the case of patent protection. For utility models, industrial designs, trademarks and copyright, formal protection requirements are less onerous. Nonetheless, ideas typically need to be new and different from those already on the market. Also, a single inventor needs to be clearly established in order to grant exclusive protection. Ideas in the IE might grow more organically or as in the case of herbal medicines in communities and over centuries (see Section 3.3.2). In these cases, assigning ownership of ideas to individuals or specific entities is particularly challenging.

Second, an important policy challenge will be to make IE actors aware of the possibilities that formal IPRs offer. This will require raising awareness levels of IP uses and potential costs and benefits. In the course of the project, we identified clear cultural and social barriers to potential IP uptake that will prove a further obstacle in the IE. Whether the barriers are real, or whether they could be addressed through education and changing practices should be a matter for further study.

Third, IE actors might need to overcome a number of hurdles in order to access the IP system; notably, a lack of time to devote to IP matters, the need to acquire the necessary skills, and limited financial resources. Costs are significant, particularly when it comes to patenting and legal fees.[178] Formal registration requirements might be an insurmountable obstacle to IE actors, either for reasons relating to distance (travel may be required to reach the IP office and IE actors may not have access to IP systems online), time or skills.

In addition, it is important to consider whether there are specific conditions relating to IE actors that complicate the use of the IP system. Do the lack of formalization and an established legal identity of the applicant act as barriers? Are IE actors excluded from legal protection and basic rights also sometimes due to an inability to write or to interact with official, formal institutions? Are established IP institutions unreceptive to inventions from the IE? As noted before, protecting the knowledge created by indigenous peoples and traditional communities which may not be novel, and most of which is collectively held by a group of persons - brings additional challenges. Box 8 summarizes some of the IP-related obstacles potentially faced by the IE.

Box 8: **Obstacles for Informal Micro Firms in Acquiring IP Protection**

- Existing IP forms might not be relevant to IE actors;
- Innovations may not meet the threshold requirements for formal IP registration;
- Lack of awareness of the formal IP system and possible cultural/social barriers;
- Financial, educational and other access barriers;
- Formal requirements are insurmountable, in particular as registration requires that firms have a legal identity, thereby excluding informal firms from the IP system;
- Established IP institutions might not be receptive to inventions from the IE.

Source: Authors

177 See WIPO (2008), p. 20.
178 See Basheer (2010).

Fourth, the likelihood that one can enforce one's right, and the related costs, are important issues to address. Any business will consider how well its rights will be enforced in the marketplace, given the particular context of the low- or middle-income country in question. On many occasions, businesses conclude that registration is pointless if rights cannot be enforced.

Finally, some contributions have put forward the idea of conceptualizing a set of "informal" IP norms or systems to extend IP protection to IE innovations; these would be cheaper and better suited to the IE.[179] The common threads among the few suggestions made so far are: lower costs for acquiring and enforcing rights; limited or no registration requirements; weaker rights with a more limited duration of protection; and reduced barriers to licensing or to the use of the protected idea by other entrepreneurs. In particular, a utility model type system with a lower registration threshold, a correspondingly weaker set of rights and lower costs is being promoted in this context. Other proposals go further in considering possibilities for others to reuse a protected idea in a simple and cost-efficient way.[180]

These proposals should be studied in detail to consider their merits and define the shape they might take. Certainly, protection via a utility model system is already in place in many countries, where some policy lessons are emerging. The question is, however, whether anything different is needed to fit the specific needs of the IE. Also, the existing proposals scarcely consider the relevance of other IP forms, such as branding/trademarks, copyright, industrial designs, and whether these IP forms could provide a useful formal appropriation mechanism tailored to innovation in the IE.

[179] See Basheer (2008); Gupta (2012).

[180] See Basheer (2010) suggested the creation of an easy-to-use and affordable registration system, wherein the only criterion for registration is that the applicant must disclose a useful "new technical advance". Protection would be afforded for a limited duration (five years), and one difference from the standard utility model scheme is that these inventions would be subject to compulsory licenses. In other words, the invention could be used by any third party that wishes to make a product based on this right in exchange for royalties.

CONCLUSION

This paper proposes definitions, an analytical framework and a policy spectrum for further empirical research regarding the informal economy, innovation and intellectual property. In so doing, it draws on the rich existing literature on the IE, on the one hand, and on the literature on innovation, on the other hand two hitherto unrelated research streams. It also draws on findings emanating from the international workshop organized in November 2012.

References

Aboagye, **A**. **A.,** (1986), Informal sector employment in Kenya : a survey of informal sector attitudes in Nairobi, Kisumu, and Mombasa. Geneva: International Labour Organization.

ADB., (2011), A Handbook on Using the Mixed Survey for Measuring Informal Employment and the Informal Sector. Mandaluyong City, Philippines: Asian Development Bank.

African Development Bank, OECD, United Nations Development Programme, United Nations Commission for Africa. (2012). Africa Economic Outlook 2012 - Special Theme: Promoting Youth Employment. OECD. Paris.

Aftab, K., (2012), *Employment Creation in Pakistan's Informal Industrial Sector: Constraints and Potential*. Approach paper for the Vision 2030. GC University. Lahore. Retrieved from http://www.pc.gov.pk/vision2030/approach%20paper/t7/theme7-Khalid%20Aftab-1.pdf.

Aftab, K. & Rahim, E., (1986), The emergence of a small-scale engineering sector: T he case of tubewell production in the Pakistan Punjab. *Journal of Development Studies, 23*(1), 60-76.

Aftab, K. & Rahim, E., (1989), Barriers to the growth of informal sector firms: A case study. *Journal of Development Studies, 25*(4), 490-507.

Akbulut, D., (2009), *Informal service offer: Peddling*. Paper presented at the First Nordic Conference on Service Design and Service Innovation.
Oslo. http://www.aho.no/pagefiles/6819/akbulut%20informal%20service%20offering.pdf.

Amin, A.T.M. Nurul, (1989), *Technological Adaptation in Bangkok's Informal Sector*. Geneva: International Labour Organization.

Arundel, A., (2001), The relative effectiveness of patents and secrecy for appropriation. *Research Policy, 30*(4), 611-624.

Arye, G., (1981), The Informal Manufacturing Sector in Kumasi. In S. V. Sethuraman (Ed.), *The Urban Informal Sector in Developing Economies*. Geneva: International Labour Organization.

Aubert, J.-E., (2005), Promoting Innovation in Developing Countries: A Conceptual Framework. *World Bank Policy Research Working Paper 3554*: World Bank.

Banerji, A. & Jain, S., (2007), Quality dualism. *Journal of Development Economics, 84*(1), 234-250.

Basheer, S., (2008), *Creating "informal" IP norms*: live mint & The *Wall Street Journal*.

Basheer, S., (November 6, 2010), Informal Innovators and Fostering More Access to the Patent System. Retrieved from http://spicyipindia.blogspot.ch/2010/11/informal-innovators-and-fostering-more.html.

Becker, K. F., (2004), Fact-finding study -The Informal Economy: Stockholm: Sida Department for Infrastructure and Economic Co-operation.

Biles, J. J., (2009), Informal Work in Latin America: Competing Perspectives and Recent Debates. *Geography Compass, 3*(1), 214-236.

Bhaduri, S. & Kumar, H., (2010), Extrinsic and intrinsic motivations to innovate: tracing the motivation of “grassroot” innovators in India. *Mind & Society*, 10(1), pp.27–55.

Bhaduri, S. & Sheikh, F.A., (2012), Exploring Informal Community Innovations: How new knowledge is generated and managed among Kashmiri Pashmina Shawl communities? Paper presented at *Globelics Academy*. Rio de Janiero.

Bloem, A. M., & Shrestha, M. L., (2000), *Comprehensive Measures of GDP and the Unrecorded Economy (EPub)*: International Monetary Fund.

Blunch, N.-H., Canagarajah, S., & Raju, D., (2001), The informal sector revisited: A synthesis across space and time. *World Bank Social Protection Discussion Papers, 119*.

Bryceson, D. F., (2002), The Scramble in Africa: Reorienting Rural Livelihoods. *World Development, 30*(5), 725-739.

Cassiolato, J. E., & Lastres, H. M., (2008), *Discussing innovation and development: Converging points between the Latin American school and the Innovation Systems perspective?* Paper presented at the Proceedings of the 5th International Ph.D. School on Innovation and Economic Development, Globelics Academy 2008.

C**astells, M. & Portes, A.**, (1989), World Underneath: The Origins, Dynamics and Effects of the Informal Economy. In M. Castells, A. Portes & L. A. Benton (Eds.), *The Informal Economy: Studies in Advanced and Less Developed Countries*. Baltimore: John Hopkins University Press.

Charmes, J., (1980), L’Apprentissage sur le tas dans le secteur non structuré en Tunisie. In CNRS (Ed.), *Annuaire de l’Afrique du Nord* (Vol. XXI(1)). Paris.

Charmes, J., (2004), *Data Collection on the Informal Sector: a Review of Concepts and Methods Used Since the Adoption of an International Definition Towards a Better Comparability of Available Statistics*. Working paper.

Charmes, J., (2009), Concepts, Measurement and Trends. In J. P. Jütting & J. R. de Laiglesia (Eds.), *Is Informal Normal? - Towards more and better jobs in developing countries*. Paris: OECD.

Charmes, J., (2011), *Measuring Informal Employment - 40 Years Later: What Has Been Done in Terms of Measurement of Informal Employment? What Are the Gaps? Where Are the New Frontiers?* Paper presented at the WIEGO - RESEARCH CONFERENCE, Cape Town, South Africa.

Charmes, J., (2012), The Informal Economy Worldwide: Trends and Characteristics. *Margin: The Journal of Applied Economic Research, 6*(2), 103–132.

Chen, M., (2005), *Rethinking the informal economy: Linkages with the formal economy and the formal regulatory environment*: Research Paper, UNU-WIDER, United Nations University (UNU).

Chen, M. A., Jhabvala, R. & Lund, F., (2001), Supporting Workers in the Informal Economy: A Policy Framework. *Paper Prepared for ILO Task Force on the Informal Economy*: Women in Informal Employment - Globalising & Organising.

Chesbrough, H., (2003), *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Boston, MA: Harvard Business School Publishing.

Chesbrough, H., Vanhaverbeke, W. & West, J., (2006), *Open Innovation: Researching a New Paradigm*. Oxford: Oxford University Press.

Cling, J. P., Razafindrakoto, M. & Roubaud, F., (2011), The informal economy in Viet Nam, Geneva, International Labour Organization.

Conroy, J. D., (2010), A national policy for the informal economy in Papua New Guinea. *Pacific Economic Bulletin - The Australian National University, 25*(1).

Couto, M., Scerri, M., & Maharajh, R., (forthcoming), *Development Challenges in BRICS: Inequality and National Innovation Systems'* London: Edward Elgar.

Dahlander, L. & Gann, D. M., (2010), How open is innovation? *Research Policy, 39*(6), 699-709.

Daniels, S., (2010), *Making Do: Innovation in Kenya's Informal Economy*. Analogue Digital Publishing.

De Mel, S., McKenzie, D. J. & Woodruff, C. M., (2008), Who are the Microenterprise Owners? Evidence from Sri Lanka on Tokman v. De Soto. *ZA Discussion Paper, 3511*.

De Matos, M. P., Soares, M. C. C., & Cassiolato, J. E., (2012), Conceptual and methodological framework of Local Innovative and Productive Systems: guidelines for case studies based on innovation and social inclusion. *RedeSist*.

Demirbas, D., (2011), Formal, Informal, Environment and Skill Barriers for Entrepreneurs: Microeconometric Evidence from 197 Turkish SMEs. *Journal of Business and Policy Research, 6* (No. 2. Special Issue), 13-35.

Dimova, R., Gang, I. N. & Landon-Lane, J. (2011), Revealed Informal Activity. *IZA Discussion Paper No. 5607.*

Drahos, P. & Frankel, S., (2012), *Indigenous Peoples' Innovation: Intellectual Property Pathways to Development*. Canberra: Australian National University E Press.

ESCAP (2006), Poverty and The Informal Sector: Role of The Informal Sector in Poverty Reduction: United Nations Economic and Social Council, Economic and Social Commission for Asia and the Pacific.

European Commission, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, World Bank, (2009), System of National Accounts 2008. New York: United Nations.

Feige, E. L., (1990), Defining and Estimating Underground and Informal Economies: The New Institutional Economics Approach. *World Development, 18*, 989-1002.

Finger, M., J. & Schuler, P., (2004), *Poor People's Knowledge: Promoting Intellectual Property in Developing Countries*. Washington, D.C.: Oxford University Press and World Bank.

Freeman, C., (1987), *Technology Policy and Economic Performance: Lessons from Japan*. London: Pinter.

Gaughan, J. & Ferman, L., (1987), Toward an Understanding of the Informal Economy. *Annals of the American Academy of Political and Social Science,*15-25. .

Gault, F. ,(2010), Innovation and Development. In F. Gault (Ed.), *Innovation Strategies for a Global Economy* (pp. 133-164). Cheltenham: Edward Elgar Publishing.

Gault, F., Bell, M., Kahn, M., Muchie, M. & Wamae, W., (2012), Building Capacity to Develop and Use Science, Technology and Innovation Indicators for Grassroots Innovation. *African Journal of Science, Technology, Innovation and Development, 4*(3), 23-32.

Gault, F. & Muchie, M., (2012), Special Issue on "Building Capacity to Develop and Use Science, Technology and Innovation Indicators". *African Journal of Science, Technology, Innovation and Development, 4*(3).

Gindling, T., (1991), Labor Market Segmentation and the Determination of Wages in the Public, Private-Formal and Informal Sectors in San-Jose, Costa-Rica. *Economic Development and Cultural Change*, 585-603.

Godfrey, P. C., (2011), Toward a Theory of the Informal Economy. *The Academy of Management Annals, 5*(1), 231-277.

Grimm, M., (2012), *Débloquer les potentialités: Lutter contre les contraintes économiques, institutionnelles et sociales de l'entreprenariat informel en Afrique Subsaharienne.* Paper presented at the Conférence de restitution / Unlocking potential: Tackling economic, institutional and social constraints of informal entrepreneurship in Sub-Saharan Africa, Bamako.

Grimm, M., Knorringa, P. & Lay, J., (2012), Constrained Gazelles: High Potentials in West Africa's Informal Economy. *World Development, 40*(7), 1352-1368.

Grimm, M., van der Hoeven, R., Lay, J. & Roubaud, F., (2012), Rethinking the informal sector and entrepreneurship in Sub-Saharan Africa. *DIW Vierteljahreshefte Summary of Bamako conference, Unlocking potential: Tackling economic, institutional and social constraints of informal entrepreneurship in Sub-Saharan Africa, DIW.*

Government of Papua New Guinea (2011), National informal economy policy (2011-2015), Papua New Guinea: Minister for Community Development, at http://www.inapng.com/pdf_files/Pages%20(Black).pdf.

Günther, I. & Launov, A., (2006), Competitive and Segmented Informal Labor Markets. *IZA Discussion Paper No. 2349*. Available at SSRN: http://ssrn.com/abstract=937925.

Gupta, A.K., (2006), From Sink to Source. *innovations*, (Summer), pp.49–66.

Gupta, A. K., (2012a), How to protect the inventions of the poor, from http://www.scidev.net/en/science-and-innovation-policy/supporting-grassroots-innovation/opinions/how-to-protect-the-inventions-of-the-poor.html#

Gupta, A.K., (2012b), Innovations for the poor by the poor. *International Journal of Technological Learning, Innovation and Development*, 5(1/2), pp.28–39.

Gupta, A.K., 2013, This is not Jugaad: a misnomer for majorty of the grassroots innovations. *Anil Gupta's Blog*, http://sristi.org/anilg/comments.php?post_blog_id=365.

Hall, B. H., Helmers, C., Rogers, M. & Sena, V., (2012), The Choice between Formal and Informal Intellectual Property: A Literature Review. *National Bureau of Economic Research Working Paper Series, No. 17983*.

Harris, J. R. & Todaro, M. P., (1970), Migration, unemployment and development: A two-sector analysis. *American Economic Review*, 126-142.

Hart, K., (1973), Informal Income Opportunities and Urban Employment in Ghana. *The Journal of Modern African Studies, 11*(1), 61-89.

Helmers, C., (2011), Firm Size and Intellectual Property Management. Prepared for "Strategic Intellectual Property Management: From Inspiration to Innovation" (WIPO) edited by James Conley.

IDRC (2011), Innovation for Inclusive Development. In I. D. R. Centre (Ed.), *Program prospectus for 2011-2016*. Ottawa: International Development Research Centre.

ILO (1972), Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya. Geneva: International Labor Organisation.

ILO (1991), The Dilemma of the Informal Sector, International Labour Conference, Report of the Director General. Geneva: ILO.

ILO (1992), *Technological Capability in the Informal sector - Metal manufacturing in developing countries,* Geneva: ILO.

ILO (1993), Fifteenth International Conference of Labour Statisticians: Resolution concerning statistics of employment in the informal sector adopted by the Fifteenth International Conference of Labour Statisticians. Geneva: ILO.

ILO (2002a), Decent Work and the Informal Economy. Report VI for the 90th International Labour Conference. Geneva: ILO.

ILO (2002b), Women and Men in the Informal Economy: A statistical picture. International Labor Organisation. Geneva: ILO.

ILO (2003), Guidelines concerning a statistical definition of informal employment adopted by the Seventeenth International Conference of Labour Statisticians. Geneva: ILO.

ILO (2011), Statistical updates on employment in the informal economy. Geneva: ILO.

ILO (2012), Measuring Informality: a Statistical Manual on the informal sector and informal employment. Geneva: ILO.

Joshi, K., Hasan, R., & Amoranto, G., (2009), Surveys of Informal Sector Enterprises-Some Measurement Issues. *Asian Development Bank Economics Working Paper Series*(183).

Kabecha, W. w., (1997), Consumer judgement of the quality of informal sector products lessons for innovative microentrepreneurs. *Technovation, 17*(2), 91-105.

Kabecha, W. w., (1998), Technological capability of the micro-enterprises in Kenya's informal sector. *Technovation, 19*(2), 117-126.

Kawooya, D., (2012), *Diffusion and Transfer of IP-Related Innovation and Technology Between Formal and Informal Sectors in Uganda*. Open African Innovation Research & Training.

Kawooya, D. & Musungu, S., (2010), Intellectual Property Dynamics in Africa's Informal Economies. In IQsensato (Ed.), *Ideas in Development Blog* (Vol. 2012). Geneva: IQsensato.

Khundker, N., (1989), *Technological Adaptation and Innovation in the Informal Sector of Dhaka*. Geneva: International Labour Organization.

King, K. J., (1974), Kenya's informal machine-makers: A study of small-scale industry in Kenya's emergent artisan society. *World Development, 2*(4–5), 9-28.

Konte, A., (2012), *Inclusive innovation in Africa: major players and policy implications*. Paper presented at the MEIDE, Cape Town, South Africa.

Konte, A. & Ndong, M., (2012), The Informal ICT Sector and Innovation Processes in Senegal. *African Journal of Science, Technology, Innovation and Development, 4*(3), 68-92.

Kotala, S., Kuusisto, J. & Päällysaho, S., 157-177. (2010), Finland: Intellectual asset management among high-growth SMEs. In OECD (Ed.), *High-growth SMEs: what governments can do to make a difference* (Vol. OECD Studies on SMEs and Entrepreneurship). Paris: OECD Studies on SMEs and Entrepreneurship.

Kraemer-Mbula, E. & Wamae, W., (2010a), Adapting the Innovation Systems Framework to Sub-Saharan Africa. In E. Kraemer-Mbula & W. Wamae (Eds.), *Innovation and the Development Agenda* (pp. 65-90).

Kraemer-Mbula, E. & Wamae, W., (2010b), The Relevance of Innovation Systems to Developing Countries. In E. Kraemer-Mbula & W. Wamae (Eds.), *Innovation and the Development Agenda* (pp. 39-64). Paris: OECD.

Kucera, D. & Xenogiani, T., (2009), Persisting Informal Employment: What Explains It? In J. P. Jütting & J. R. de Laiglesia (Eds.), *Is Informal Normal? - Towards more and better jobs in developing countries*. Paris: OECD.

Leiponen, A., (2006), Managing Knowledge for Innovation: The Case of Business-to-Business Services. *Journal of Product Innovation Management, 23*(3), 238-258.

Leiponen, A. & Byma, J., (2009), If you cannot block, you better run: Small firms, cooperative innovation, and appropriation strategies. *Research Policy, 38*(9), 1478-1488.

Lemos, R. & Mizukami, P., (2010), From free software to free culture. Case study: the tecnobrega scene of Belém. Learning from the social commons -- Four challenges facing open business. In L. Shaver (Ed.), *Access to Knowledge in Brazil* (pp. 14–35): Bloomsbury Publishing PLC.

Lichtenthaler, U., (2011), Open Innovation: Past Research, Current Debates, and Future Directions. *Academy of Management Perspectives, 25*(1), 75–93.

Livingstone, I., (1991), A reassessment of Kenya's rural and urban informal sector. *World Development, 19*(6), 651-670.

Losby, J. L., Else, J. F., Kingslow, M. E., Edgcomb, E. L., Malm, E. T., & Kao, V., (2002), Informal economy literature review. *Institute for Social and Economic Development (ISED)*

and Microenterprise Fund for Innovation, Effectiveness, Learning, and Dissemination(FIELD).
Available at: http://www.kingslow-assoc.com/images/Informal_Economy_Lit_Review.pdf.

Lund, F. & Skinner, C., (2004), Integrating the Informal Economy in Urban Planning and Governance: A Case Study of the Process of Policy Development in Durban, South Africa. *International Development Planning Review, 26*(4), 431-456.

Lundvall, B. A., (1992), *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London: Pinter.

Maloney, W. F., (2004), Informality Revisited. *World Development*, 1159-1178.

Mashelkar, R. A., (November 21, 2012), *On Building an Inclusive Innovation Ecosystem.* In *Conference on Innovation for Inclusive Development.* Paper presented at the Innovation for Inclusive Developmen, Cape Town.

McCormick, D., (1998), Enterprise Clusters in Africa: On the Way to Industrialization? Nairobi: Unitersity of Nairobi Institute of Development Studies.

Mead, D. C. & Liedholm, C., (1998), The dynamics of micro and small enterprises in developing countries. *World Development, 26*(1), 61-74.

Misati, R. N., (2007), *The role of the informal sector in investment in Sub-saharan Africa*. Kenya Institute for Public Policy Research and Analysis (KIPPRA). Nairobi.

Mlinga, R. S. & Wells, J., (2002), Collaboration between formal and informal enterprises in the construction sector in Tanzania. *Habitat International, 26*(2), 269-280.

Mogotsi, T., (2012), *Policy Perspectives on Informal Economy Policy and the Transition to Informal Economy Innovation Strategies.* Paper presented at the WIPO International Workshop on Innovation, Intellectual Property and the Informal Economy, IERI, Pretoria.

Muchie, M., Lundvall, B.-Å. & Gammeltoft, P., (2003), *Putting Africa First: The Making of African Innovation Systems*. Aalborg: Aalborg University Press.

Municipality, E. U., (2001), Durban's Informal Economy Policy. In E. U. Municipality (Ed.). Durban: EThekwini Unicity Municipality.

Mutua, W. & Mbwana, A., (2012), Innovative Africa: The New Face of Africa, Essays on the Rise of Africa's Innovation Age. *Afrinnivator.com*. Nairobi.

Muwonge, A., Obwona, M. & Nambwaayo, V., (2007), Enhancing contributions of the informal sector to national development: The case of Uganda. In E. P. R. C. (EPRC) (Ed.), Vol. April 2007. Kampala: Economic Policy Research Centre (EPRC).

National Science Foundation (2012), Business Use of Intellectual Property Protection Documented in NSF Survey. In J. E. Jankowski (Ed.), *Info Brief* (Vol. NSF 12-307). Arlington, V.A.: National Center for Science and Engineering Statistics.

Nelson, R. R. (Ed.), (1993), *National Innovation Systems: A Comparative Analysis*. New York: Oxford University Press.

NEPAD (2010), African Innovation Outlook. Pretoria: New Partnership for Africa's Development (NEPAD) and African Union (AU).

South African Local Government Association (SALGA) & United Cities and Local Governments Africa (UCLGA) (2013), Managing Informality: Local government practices and approaches towards the informal economy – Learning examples from five African countries. In S. David, O. Ulrich, S. Zelezeck & N. Majoe (Eds.): South African Local Economic Development Network.

Nordman, C. J. & Coulibaly, S., (2011), *Contraintes sociales des entreprises informelles*. Paper presented at the Dissemination conference "Unlocking potential: Tackling economic, institutional and social constraints ofinformal entrepreneurship in Sub-Saharan Africa", Bamako. http://www.iss.nl/fileadmin/ASSETS/iss/Documents/Conference_presentations/grimm_Nordman_Social_constraints.pdf

OECD (2002), *Measuring the Non-Observed Economy, A Handbook*, Paris: OECD.

OECD (2009a), *Competition Policy and the Informal Economy.* Paper presented at the Global Forum on Competition - Roundtable on Competition Policy and the Informal Economy, Paris: OECD.

OECD (2009b), *Is Informal Normal? Towards More and Better Jobs in Developing Countries*. Paris: OECD.

OECD (2011a), Intellectual Assets and Innovation: The SME Dimension.in OECD, *OECD Studies on SMEs and Entepreneurship*. Paris: OECD.

OECD (2011b), Intellectual Assets and Innovation: The SME Dimension, OECD Studies on SMEs and Entrepreneurship, Paris: OECD.

OECD/Statistical Office of the European Communities, L., (2005), *Oslo Manual*, Paris: OECD.
Ouedraogo, E., Koriko, O., Coulibaly, S., Fall, M., Ramilison, E. & Lavallée, E. (2011). *Les barrières institutionnelles à la formalisation des unités de production informelles (UPI) dans les principales agglomérations des Etats membres de l'UEMOA*, Bamako.

Oviedo, A.-M., (2009), *Economic Informality: Causes, Costs, and Policies: A Literature Survey of International Experience. Background Paper prepared for Country Economic Memorandum (CEM) – Informality: Causes, Consequences, Policies*.

Päällysaho, S. & Kuusisto, J., (2008), *Intellectual property protection in service sector*. Working paper.

Päällysaho, S. & Kuusisto, J., (2011), Informal ways to protect intellectual property (IP) in KIBS businesses. *Innovation: Management, Policy & Practice, 13*(1), 62-76.

Perry, G., Maloney, W., Arias, O., Fajnzylber, P., Mason, A. & Saavedra-Chanduvi, J., (2007), Informality: Exit and Exclusion. Washington, D.C.: World Bank.

Portes, A. & Haller, W., (2005), The Informal Economy. In N. Smelser & R. Swedberg (Eds.), *Handbook of Economic Sociology* (Second ed., pp. 403-425). New York: Russell Sage Foundation.

Portes, A. & Sensenbrenner, J., (1993), Embeddedness and Immigration: Notes on the Social Determinants of Economic Action. *American Journal of Sociology 98*(6), 1320-1350 .

Radjou, N., Prabhu, J. & Ahuja, S., (2012), *Jugaad Innovation: Think Frugal, Be Flexible, Generate Breakthrough Growth*. Hoboken, NJ: Jossey-Bass.

Rizk, N., (2010), Stories from Egypt's Music Industry: De Facto Commons as Alternatives to Copyright. In N. Rizk & L. Shaver (Eds.), *Access to Knowledge in Egypt* (pp. 92–126): Bloomsbury Publishing PL.

Schneider, F., Buehn, A. & Montenegro, C. E., (2010), *New Estimates for the Shadow Economies all over the World.* A background paper for In from the Shadow: Integrating Europe's Informal Labor, a World Bank regional report on the informal sector in Central, Southern Europe and the Baltic countries (Task number P112988).

Rath, A., Diyamett, B. D., Borja, M. F. B., Mendoza, F. P., & Sagasti, F., (2012), Evaluation of Sida's Support to Innovation Systems and Clusters, a Research Cooperation Initiative - Main report. Stockholm: Swedish International Development Cooperation Agency.

Singh, A., Jain-Chandra, S. & Mohommad, A., (2012), Out of the Shadows -- Governments are wise to shrink their underground economy by improving institutions to build inclusive growth. *Finance and Development (International Monetary Fund), 49*(2).

Sheikh, F.A., (2012), *Exploring Community Innovations in the Informal Sector: A Study of Kashmiri Pashmina Shawls*, Master's thesis, Jawaharlal Nehru University.

Srinivasan, R., Lilien, G. L. & Rangaswamy, A., (2008), Survival of high tech firms: The effects of diversity of product–market portfolios, patents, and trademarks. *International Journal of Research in Marketing, 25*(2), 119-128.

Stiglitz, J. E., (1976), The Efficiency Wage Hypothesis, surplus Labor, and the Distribution of Labour in LDCs. *Oxford Economic Papers*, 185-207.

Szogs, A. & Mwantima, K., (2009), Technological Capability Building in Informal Firms in the Agricultural Subsistence Sector in Tanzania: Assessing the Role of Gatsby Clubs. *African Journal of Science, Technology, Innovation and Development, 1*(2&3), 115-135.

Teece, D. J., (1986), Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy, 15*(6), 285-305.

Thetford, T., & Edgcomb, E., (2004), *Microenterprises in the US Informal Economy: Summary Research Findings*: Microenterprise Fund for Innovation, Effectiveness, Learning and Dissemination. *Available at: http://fieldus.org/publications/Field_Forum15.pdf.*

Thomas, J. J., (1995), *Surviving in the city: the urban informal sector in Latin America*. London Pluto Press.

Department of Economic Development and Tourism (2009), *Policy for the Informal Economy of Kwazulu-Natal -- Creating an Enabling Environment for the Informal Economy*. KwaZulu-Natal Province Department of Economic Development and Tourism.

Trulsson, P., (1997), Strategies of Entrepreneurship: Understanding Industrial Entrepreneurship and Structural Change in Northwest Tanzania. *Linköbing Studies in Arts and Science*. Sweden.

UNESCO (2010), *UNESCO Science Report 2010*. Paris: UNESCO.

United Nations (1996), *Informal sector development in Africa*. New York: United Nations.

United Nations (2008), International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4, from http://unstats.un.org/unsd/cr/registry/isic-4.asp

Webb, J. W. e. a., (2009), You Say Illegal, I Say Legitimate: Entrepreneurship in the Informal Economy. *Academy of Management Review, 34*(4), 492–510.

Williams, C., (2007), Entrepreneurship in the Informal economy: a study of Ukraine's hidden enterprise culture. *Journal of Development Entrepreneurship, 12*(1), 119-136.

Wills, G., (2009), South Africa's Informal Economy: A Statistical Profile *WIEGO Urban Policies Research Report Series*.

WIPO (2004a), Intellectual Property (IP) Rights and Innovation in Small and Medium-Sized Enterprises. Prepared by Esteban Burrone and Guriqbal Singh Jaiya (Eds.), *submitted as background document to the Second OECD Ministerial Conference for Small and Medium-sized Enterprises.* SMEs Division, World Intellectual Property Organization.

WIPO (2004b), Intellectual Property Rights and Innovation in Small and Medium Enterprises. Geneva: World Intellectual Property Organization.

WIPO (2008), WIPO Intellectual Property Handbook (WIPO Publication No. 489 (E)). Geneva: World Intellectual Property Organization.

WIPO (2011a), The Economics of Intellectual Property - Old Insights and New Evidence. In W. E. a. S. Division (Ed.), *World Intellectual Property Report 2011 - The Changing Face of Innovation* (pp. 75-107). Geneva: World Intellectual Property Organization.

WIPO (2011b), World Intellectual Property Report -The changing nature of innovation and intellectual property. *The Changing Face of Innovation* (pp. 23-70).

WIPO (2012a), Glossary of key terms related to intellectual property and genetic resoures, traditional knowledge and traditional cultural expressions. *Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore.* Twenty-Third Session, Geneva, February 4 to 8, 2013: WIPO/GRTKF/IC/23/INF/8 November 2, 2012.

WIPO (2012b), Traditional Knowledge and Intellectual Property. *Background Brief, No. 1*.

WIPO & IERI (2012), *International Workshop on "Innovation, Intellectual Property and the Informal Economy"*.
Pretoria. http://wipo.int/edocs/mdocs/mdocs/en/wipo_ip_econ_pre_12/wipo_ip_econ_pre_12_ref_program.pdf

WIPO and ICC (2011), Making Intellectual Property Work - A Handbook for Chambers of Commerce and Business Associations. Geneva and Paris: World Intellectual Property Organization (WIPO) and International Chamber of Commerce (ICC).

Zeng, Douglas Zhihua, (2008), *Knowledge, Technology, and Cluster-Based Growth in Africa*. Washington, DC: World Bank.
https://openknowledge.worldbank.org/handle/10986/6918

Annex I: Project Background

Annex I-A Workshop Agenda

E

INSTITUTE FOR ECONOMIC RESEARCH ON INNOVATION
TSHWANE UNIVERSITY OF TECHNOLOGY

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

International Workshop on "Innovation, Intellectual Property and the Informal Economy"

Implementing Recommendation 34 of the WIPO Committee on Development and Intellectual Property (CDIP)

Pretoria, South Africa, November 19 to 20, 2012

OBJECTIVE OF THE WORKSHOP

The purpose of the workshop is to formally launch the WIPO project while uniting all designated experts and key external stakeholders at IERI.

The first day of the workshop was used to obtain guidance from external experts, non-governmental organizations (NGOs), and government delegates. The second and third days of the workshop were used by the project team and key advisors to fine-tune the substantive approach taken, to agree on common methodologies and to settle details as they relate to an efficient and productive project implementation.

November 19, 2012	**Day 1: Workshop with key experts, external participants and government stakeholders**
9.00 – 9.30	Arrival and registration
9.30 –9.45	Opening and Welcome Rasigan Maharajh, Chief Director, IERI, South Africa Sacha Wunsch-Vincent, Senior Economist, WIPO
9.45– 10.15	Setting the context – Productive systems and innovation in contemporary Africa: implications for evidence-based policy Rasigan Maharajh (IERI) / Mario Scerri (Research Fellow, IERI)
10.15 – 10.50	Introduction to the "IP and the Informal Economy"-project By Sacha Wunsch-Vincent (WIPO) Brief introduction to the three case studies Ghana (George Owusu Essegbey, Director, Science and Technology Policy Research Institute, Council for Scientific and Industrial Research, CSIR, Ghana) Kenya (Christopher Bull, Senior Research Engineer and Senior Lecturer, School of Engineering, Brown University, United States

	of America) South Africa (Erika Kraemer-Mbula, Senior Lecturer, IERI, South Africa)
10.50 – 11.00	Coffee break
11.00 – 12.45	THEME 1: Government and NGO perspectives on the role of innovation in the IE Chair: Jacques Charmes, Research Director, Centre Population et Développement, Université Paris Descartes, Paris Speaker 1: Department of Science and Technology –Technology for Sustainable Livelihoods – Elmary Buis Speaker 2: CSIR Enterprise Creation for Development (ECD) – Ebrahim Wadiwala Speaker 3: SA National Traders' Retail Alliance (SANTRA)-- Edmund Elias Theme 1 will address how innovation takes place in the IE against the backdrop of innovation in the formal sector or in more industrialized economies. IE innovation actors, inputs, processes, linkages, outputs and related obstacles in the IE will be discussed. Importantly, the question will be asked if our traditional national innovation system concepts can be applied to the IE or whether new concepts are required.
13.00 – 14.00	Lunch
14.00 – 15.30	THEME 2: Government and NGO perspectives on knowledge creation, appropriation and transfer in the IE Chair: Dick Kawooya, Assistant Professor, School of Library and Information Science, University of South Carolina, and OPENAIR project, Uganda Speaker 1: Mr. Lungile Dukwana, Acting COO, the Companies and Intellectual Property Commission (CIPC) South Africa Speaker 2: Mr. Trod Lehong, IP Manager, The Technology Innovation Agency Speaker 3: Mrs. Rosemary Wolson, Senior IP Manager, CSIR Theme 2 will address how innovation is appropriated in the context of the IE. Mechanisms of knowledge creation, transfer and protection will be discussed while assessing the tangible costs and benefits of a potential application of traditional IP or other appropriation schemes with a view to generating further employment and growth.
15.30 – 15.45	Coffee break
15.45 – 17.00	THEME 3: Government and NGO perspectives on innovation policies for the IE Chair: Fred Gault, UNU-MERIT and IERI Speaker 1: Tsholo Mogotsi, City of Johannesburg Speaker 2: Shamnad Basheer, Ministry of Human Resource Development, India Theme 3 will address how innovation policy frameworks need to be (re)-designed for the IE. Existing and potential policies in the context of the IE will be discussed, notably with a view to determining if traditional innovation policy approaches are relevant to the informal context or whether a new innovation policy arsenal needs to be devised. Another question will be how to ensure policy coherence between potential innovation policies aimed at the informal sector, other policies targeting the informal sector and the set of innovation policies aimed at the formal sector.

17.00 – 17.20	Conclusion of Day 1 Rapporteur: Jeremy de Beer, Associate Professor, Faculty of Law, University of Ottawa and leader of the Open African Innovation Research (AIR) project on innovation and IP in Africa Farewell and Concluding remarks: Rasigan Maharajh, Chief Director, IERI Sacha Wunsch-Vincent, WIPO

November 20, 2012	**Day 2: Project core team + invited experts**
9.00 -9.15	Arrivals
9.15 – 11.00	Review of existing analytical work on the IE Chair: George Essegbey, CSIR, Ghana Presentations by Jacques Charmes, Directeur de recherche émérite, Centre Population et Développement, Université Paris Descartes, Paris Erika Kraemer-Mbula, IERI This session will review existing definitional, measurement and analytical work on the IE. For a number of decades academic and policy work with the IE at its core has been ongoing. This work has been mainly concerned with issues relating to employment, household incomes, poverty, gender and other social and economic development issues. While some work has focused on "technological capabilities" in the IE, the analysis of innovation in the informal context is a more recent phenomenon. The session is to explore the lessons to be learned from this past work, to better assess available resources and to better apprehend the topic from an historical perspective. Moreover, increasingly the work on the IE has led to surveys and case studies producing large-scale data sets. While these surveys and data collections have not been performed with innovation processes and outputs in mind, it is important to assess whether and how these should be used in the context of our work.
11.00 – 11.15	Coffee break
11.15 -13.00	Conceptualization of informal innovation: What can we learn from current methodologies and surveys? Chair: Rasigan Maharajh, IERI Fred Gault, UNU-MERIT and IERI Mario Scerri, Research Fellow, IERI Lindile Ndabeni, Senior Lecturer, IERI Statisticians and innovation economists have developed concepts, surveys and metrics to assess national innovation systems over the last two decades. The majority of this work is aimed at high-income economies, and has been produced in the OECD context. It has developed a clear understanding on who the innovation actors are, linkages between them, and related innovation inputs and outputs. More recently, innovation in developing countries has gained significant attention. Work is ongoing to make the existing innovation concepts and metrics work more applicable to developing countries. The session will ask the question to what extent existing and newer innovation surveys and metrics work is relevant to the informal sector. Fundamentally the question is whether innovation systems and related surveys and metrics need

	to be reconceptualized to do justice to this different informal context. One of the outputs of the workshop should be the development of a core innovation survey that will be administered in the context of the three different sector studies.
13.00 – 14.00	Lunch
14.00 – 15.30	Session on the conceptual paper Chair: Christopher Bull, Brown University, USA Presentation of the conceptual paper – Jeremy de Beer, Kun Fu (Research Associate, Imperial College), Sacha Wunsch-Vincent A conceptual study is at the heart of this project. It defines the scope of the overall project, and is to set out what characterizes informal economic activity, what type of intangible assets individuals and firms operating in the IE generate, and through what mechanisms those individuals and firms do and do not appropriate innovative efforts. The conceptual study will also provide a common conceptual framework and outline for the country case studies. This session will focus on presenting the existing draft of the conceptual study and on gathering relevant feedback as to its main strengths, weaknesses and omissions. It will also help to decide on how to appropriately frame the scope of the project (in particular with respect to topics such as traditional communities, traditional knowledge and non-economic impacts) and to agree on a joint outline for the country case studies.
15.30 – 16.00	Coffee break
16.00 – 18.00	Session on country case studies Chair: Kun Fu, Imperial College Presentation of case study outline and discussion In-depth presentation and discussion of cases: Ghana (George Essegbey) , Kenya (Christopher Bull), South Africa (Erika Kraemer-Mbula) This session will allow case study authors to present the details of their country case study to fellow experts and authors. The choice of the case studies and their substantive orientation will be discussed against the background of the discussion in the previous session and the case study outline. The key question is how applicable the conceptual framework and outline are to the cases. While the choice of case studies is cast in stone at this point, the expert group will also discuss how representative these cases are for other sectors and countries that are not treated explicitly through a case study.
18.00-18.20	Conclusion of Day 2 Rapporteur Day 2: Erika Kraemer-Mbula, IERI

Annex I-B: Informal Expert Group

- Mr. Jacques Charmes, Research Director, Centre Population et Développement, Université Paris Descartes, Paris

- Mr. Mark Dutz, Leader, Work Program on Innovation and Growth, Economic Policy & Debt Department, Poverty Reduction & Economic Management Network, World Bank

- Mr. Fred Gault, Professorial Fellow, UNU-MERIT, Professor Extraordinaire, TUT/IERI, and former Chair of OECD's NESTI

- Ms. Adriana Mata Greenwood, Department of Statistics, International Labour Organization

- Mr. Johannes Jütting, Principal Economist, OECD

- Mr. Dick Kawooya, Assistant Professor, School of Library and Information Science, University of South Carolina, and contributor to the OPENAIR project, Uganda

- Mr. Almamy Konte, African Observatory for Science, Technology and Innovation, South Africa

- Mr. Sisule F. Musungu, Senior Partner, Sisule Munyi Kilonzo & Associates and President, IQsensato, Kenya

- Mr. Emmanuel Sackey, Chief Examiner, Industrial Property Directorate, African Regional Intellectual Property Organization (ARIPO), Zimbabwe

[ANNEX II FOLLOWS]

Annex Ii: Data and Definitions

Annex Ii-A: Definitions of Informal Sector Enterprises Used by Selected Countries/Organizations

Country/ organization	Definition
Brazil	Household unincorporated enterprises with fewer than six employees and without a complete set of accounts (agriculture excluded)
Mexico	Household unincorporated enterprises that have no complete set of accounts and are not registered (agriculture excluded)
Panama	Household unincorporated enterprises with fewer than five employees (agriculture excluded)
AFRISTAT	Household unincorporated enterprises that are not registered with the national statistical institute or other administrations and/or that do not have formal written accounts according to the standard plan (agriculture excluded)
Ethiopia	Household unincorporated enterprises without an accounts book that have fewer than 11 employees or no license (agriculture included)
Mali	Private enterprises with fewer than 11 persons engaged that are not registered with the National Institute for Social Protection and do not have accounts (agriculture excluded)
United Republic of Tanzania	Household unincorporated enterprises with fewer than 10 employees and without a complete set of accounts (agriculture excluded)
Republic of Moldova	Household unincorporated enterprises that are not registered (agriculture included)
Russian Federation	Household unincorporated enterprises that are not registered as a legal entity or have no legal status (agriculture included)
Turkey	Household unincorporated enterprises paying a lump sum tax or not paying any tax, and with fewer than 10 persons engaged (agriculture excluded)
India	Household unincorporated enterprises with fewer than 10 persons engaged (agriculture excluded)
Pakistan	Household unincorporated enterprises owned and operated by (i) own-account workers or (ii) employers with fewer than 10 persons engaged (agriculture excluded)

Sources: Authors based on Table 2.3 of ILO (2012).

Annex II-B: Definitions of Informal Jobs of Employees Used by Selected Countries

Country	Definition
Brazil	Employees without a formal contract (*carteira assinada*)
Mexico	Employees without access to public or private health services by virtue of their job
Panama	Employees without an employment contract, plus employees with an employment contract who are not covered by social security as directly insured persons (excluding employees who, as retired persons or pensioners, no longer have to contribute to social security)
Mali	Employees for whom the employer does not pay social contributions and who are not entitled to paid annual and sick leave
South Africa	Employees without a written employment contract or for whom the employer does not contribute to the pension/retirement fund or to medical aid benefits
Zambia	Employees not entitled to paid annual leave, or for whom the employer does not contribute to any social security scheme
Republic of Moldova	Employees for whom the employer does not pay social contributions or who do not benefit from paid annual leave (or financial compensation for untaken leave), or who will not be given paid sick leave in the case of illness or injury
Russian Federation	Employees without a labor contract
Turkey	Employees without any social security registration
India	Employees not entitled to social security benefits or paid sick or annual leave (agriculture excluded)
Sri Lanka	Employees not covered by the pension or provident fund
Viet Nam	Employees without a written employment contract, not covered by social insurance or not entitled to paid annual leave/public holidays

Annex II-C: Assessment of Existing Data Sources

(i) Direct Method

The **direct method** of gathering data consists of surveys on informal economic activities with different foci (e.g., various industrial sectors) and levels of coverage (e.g., national or regional levels). Types of surveys include:

Establishment/enterprise surveys: Data on informal economic units are collected based on the economic censuses of established enterprises with a different legal status and size. Micro and small firms can be captured by such surveys. Although the surveys are often carried out on a regular basis across many countries, economic units that are not establishment-based (e.g., unregistered and mobile firms) are largely overlooked in this type of survey. It is therefore difficult to achieve an exhaustive coverage of informal enterprises.

Labor force surveys, income and expenditure surveys or other household surveys: Data on informal economic units are collected through questionnaires and interviews conducted with individual household members who have employment relationships in the informal sector. However, the types and characteristics of IE firms may not be fully revealed by individual respondents in the household survey, as individual employees may not know many or any details of the enterprises for which they work.

Mixed surveys: These surveys combine features of both household and establishment surveys and allow the gathering of information on both informal employment and informal business units. During the survey, individuals involved in the informal sector are identified first in household surveys, following which the individual business owners identified are asked about the characteristics of their businesses and employees.[181] This approach has been adopted by an increasing number of countries since it was introduced in 1989 in Mali and Mexico. Given the drawbacks of the previously mentioned three types of surveys (e.g., non-coverage or resource constraints), mixed surveys were recommended by the 1993 ICLS to capture the informal sector across countries. However, this method saw a decline in use in the 2000s and was replaced by household surveys mainly because mixed surveys do not allow the gathering of detailed data on manufacturing and other services enterprises.[182]

Annex Table 1 summarizes the different data-collection methods adopted by countries across the world at various levels (i.e., national, regional and capital city level).

Annex Table 1: Data Collection Methods Adopted

	Africa	Asia	Latin America	Transition economies	Total
Mixed surveys	14 (9*)	2 (1*)	4 (2*)	1	21 (12*)
Labor force surveys	8 (1*)	7	15 (2*)	5	35 (3*)
Other household surveys	11		5	2	18
Establishment censuses and surveys	11	4			15
Total	44 (10*)	14(1*)	24 (4*)	8	90 (15*)

Note: *surveys on capital cities

[181] See ILO (2012).
[182] See Charmes (2011).

Source: Adapted from Table 3 of Charmes (2004), Data Collection on the Informal Sector: A Review of Concepts and Methods Used Since the Adoption of an International Definition Towards a Better Comparability of Available Statistics

Special Surveys: These focus specifically and directly on economic units and employment relationships in the informal sector. This is therefore a preferred data-collection approach for statistics on the IE. However, conducting such surveys requires a heavy investment of various resources, and this method has been used only in small-scale studies with specific research purposes. The World Bank, for example, is running two types of large-scale surveys on the IE across a number of countries (Box 8).

Annex Box 1: Cross-National Survey on the Informal Economy

One example is the "informality" measure in the standard "Enterprise Survey" conducted by the Enterprise Analysis Unit of the World Bank. There are four indicators used to measure the degree of informality among more than 130,000 firms in the manufacturing industry in 135 countries:

- Per cent of firms competing against unregistered or informal firms;
- Per cent of firms formally registered when they started operations in the country;
- Number of years during which firms operated without formal registration;
- Per cent of firms identifying practices of competitors in the informal sector as a major constraint.

The other example is the "Informal Survey" along with the standard Enterprise Survey carried out in non-agricultural industries in 34 countries by the Enterprise Analysis Unit of the World Bank. There are 34 projects in total at the stage of fieldwork. However, official data from this survey have not yet been released.

Sources: The "informality" measure in the "Standard Enterprise Survey" (World Bank, 2012): http://www.enterprisesurveys.org/Data/ExploreTopics/informality. The "Informal Survey" (World Bank, 2012): http://www.enterprisesurveys.org/Methodology/Current-Projects.

(ii) Indirect Method

The number of countries conducting direct surveys in the informal sector is still relatively small, and those surveys are not carried out regularly. Time-series data are, therefore, rarely available. For many countries, the contribution of the IE to the growth of employment and GDP are often obtained through the **indirect method** (or the residual method). Using this method, informal employment is calculated by subtracting registered employment from total employment,[183] and its contribution to GDP is estimated by macroeconomic modeling or statistical approaches.[184] The most comprehensive data estimated based on the indirect method are provided by Schneider, Buehn and Montenegro[185]. T hey adopt the Multiple Indicators Multiple Causes (MIMIC) model and estimate the shadow economies[186] for 162 countries, including developing, Eastern European, Central Asian and high-income OECD countries for the 1999 to 2006-2007 periods. T he estimates based on this method must be interpreted with caution as part of the shadow economy was already included in the national

[183] See ILO (2002b, 2012).
[184] See Bloem and Shrestha (2000) and Charmes (2012).
[185] See Schneider, Buehn and Montenegro (2010).
[186] The shadow economy includes all market-based legal production of goods and services that are deliberately concealed from public authorities for any of the following reasons:
(1) To avoid payment of income, value added or other taxes
(2) To avoid payment of social security contributions,
(3) To avoid having to meet certain legal labor market standards, such as minimum wages, maximum working hours, safety standards, etc., and
(4) To avoid complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms.

accounts to calculate official GDP.[187]

[187] See Charmes (2012).

Annex II-D: Share of Employment (%) in the Informal Economy in Total Non-Agricultural Employment by Five-Year Period and by Country and Region

Regions/Countries/ Years	**1975-79**	**1980-84**	**1985-89**	**1990-94**	**1995-99**	**2000-2004**	**2005-2010**
Northern Africa	**39.6**		**34.1**		**47.5**	**47.3**	**58.4**
Algeria	21.8		25.6		42.7	41.3	45.6
Egypt	58.7		37.3		55.2	45.9	51.2
Morocco		56.9			44.8	67.1	78.5
Tunisia	38.4	35	39.3		47.1	35	
Sub-Saharan Africa		***67.3***	***72.5***	***76***	***86.9***		***65.9***
Benin				92.9			
Burkina Faso			70	77			
Cameroon							84
Chad				74.2	95.2		
Côte d'Ivoire							*69.7*
Democratic Republic of the Congo (ex-Zaire)		59.6					77
Ghana							65.3
Guinea		64.4		71.9	86.7		
Kenya			61.4	70.1	71.6		
Lesotho							70.7
Liberia							56.4
Madagascar							73.7
Mali	63.1		78.6	90.4	94.1	82.7	
Mauritania		69.4	80				
Mozambique				*73.5*			*87.2*
Namibia							43.8
Senegal		76					
South Africa						46.2	32.7
United Republic of Tanzania						*57.7*	*46.0*
Uganda							73.5
Zambia				58.3			76.3
Zimbabwe						51.6	
Latin America				**52.5**	**54.2**	**55.9**	**57.7**
Argentina				47.5	53.3	60.8	50
Bolivia				56.9	63.5		75.1
Brazil				60	60	51.1	42.2
Chile					35.8		
Colombia					38.4		61.4
Costa Rica					44.3		48.2
Dominican Republic					47.6		48.8
Ecuador					53.5	74.9	53.5
El Salvador					56.6		68.2
Guatemala				56.1			

Haiti					92.6		
Honduras					58.2		75.2
Mexico				55.5	59.4	50.1	54.3
Nicaragua							69.4
Panama					37.6	49.4	44
Paraguay					65.5		70.7
Peru						67.9	71.3
Uruguay						43.4	42.8
Venezuela (Bolivarian Republic of)				38.8	46.9	49.4	48.1
South and Southeast Asia			***52.9***	***65.2***	***69.9***		***69.7****
Bangladesh							76.9
India			76.2	73.7	83.4		84.2
Indonesia			39.2		77.9		
Mongolia							26.3
Nepal							86.4
Pakistan			39		*64.6*	*70*	*73*
Philippines				70.5	72		73.3
Sri Lanka							62.1
Thailand			57.4	51.4	51.5		41.1
Timor Leste							62
Viet Nam							68.5
Western Asia						**43.2**	
Iran (Islamic Republic of)			43.5			48.8	
Lebanon						51.8	
Palestine						43.4	57
Syrian Arab Republic				41.7	42.9	*30.7*	*31.4*
Turkey					30.9	33.2	30.1
Yemen				57.1		51.1	
Transition countries						**20.7****	**22.6****
Armenia							19.8
Azerbaijan							45.8
Kyrgyzstan						44.4	59.2
TFYR of Macedonia							12.6
Republic of Moldova						21.5	15.9
Romania					5.4	22	
Russian Federation						*8.6*	*12.1*
Serbia							6.1
Slovakia						*4.7*	*5.9*
Ukraine						*7*	*9.4*

Source: Table 2 from Charmes (2012).
Notes: (a) Figures in bold and in italics are averages based on a small set of countries. In bold: non-weighted regional averages. (b) Figures in italics refer to the informal sector (and not to employment in the IE). (c)* without Mongolia; and **without Slovakia. Employment in the IE comprises all persons working in informal enterprises, plus all persons working informally in other sectors of the economy, that is, formal enterprises, households with paid employees (domestic workers) or own-account workers producing goods (primary goods or manufactured goods) for the household's own final use.

Annex II-E: Persons Employed in the Informal Sector

Region	Country	Year	% non-agricultural
Sub-Saharan Africa	Côte d'Ivoire	2008	69.7
Sub-Saharan Africa	Ethiopia	2004	41.4
	Lesotho	2008	49.1
	Liberia	2010	49.5
	Madagascar	2005	51.8
	Mali	2004	71.4
	Mauritius	2009	9.3
	South Africa	2010	17.8
	Uganda	2010	59.2
	Zambia	2008	64.6
	Zimbabwe	2004	39.6
South and East Asia	India	2004/2005	68.8
	Pakistan	2003/2004	70
	Sri Lanka	2009	50.5
	Viet Nam	2009	43.5
Middle East & North Africa	West Bank and Gaza	2010	23.2
Latin America & Caribbean	Argentina	2009 IV Qtr.	32.1
	Bolivia (Plurinational State of)	2006	52.1
	Brazil	2009	24.3
	Colombia	2010 II Qtr.	52.2
	Costa Rica	2009 July	37
	Dominican Republic	2009	29.4
	Ecuador	2009 IV Qtr.	37.3
	El Salvador	2009	53.4
	Honduras	2009	58.3
	Mexico	2009 II Qtr.	34.1
	Nicaragua	2009	54.4
	Panama	2009 Aug.	27.7
	Paraguay	2009	37.9
	Peru	2009	50.2
	Uruguay	2009	33.9
	Venezuela (Bolvarian Republic of)	2009 I Qtr.	36.3
Europe & Central Asia	Armenia	2009	10.2
	Kyrgyzstan	2009	59.2
	TFYR of Macedonia	2010	7.6
	Republic of Moldova	2009	7.3
	Russian Federation	2010	12.1
	Serbia	2010	3.5
	Ukraine	2009	9.4

Source: ILO (2011).

Annex Ii-F: Contribution of Informal Sector to GDP in Various Developing Countries

Countries (years)	Total GDP in National Currency*	Currency	Informal Sector GVA (including agriculture) (1)	Informal Sector GVA (excluding agriculture) (2)	(1) in % of Total GDP	(2) in % of Non-agricultural GVA	(2) in % of Total GDP
Benin (2000)	1,656	Billion FCFA	1,185	556	71.6	61.8	33.6
Burkina Faso (2000)	1,729	Billion FCFA	965	375	55.8	36.2	21.7
Cameroon (2003)	7,402	Billion FCFA	4,260	2,664	57.6	46.3	36
Niger (2009)	2,338	Billion FCFA	1,698	679	72.6	51.5	29
Senegal (2000)	3,493	Billion FCFA	1,799	1,227	51.5	48.8	35.1
Togo (2000)	109	Billion FCFA	790	351	72.5	56.4	32.2
Sub-Saharan Africa					**63.6**	**50.2**	**31.3**
Algeria (2003)	4,713,013	Million dinars	1,786,292	1,276,259	37.9	30.4	27.1
Egypt (2008)	855,366	Million EGP	237,690	125,696	27.8	16.9	14.7
Iran (Islamic Republic of) (2007)	2,919,270	Million rials	1,039,140	824,520	35.6	31.1	28.2
Tunisia (2004)	35,148	Million dinars	14,708	10,466	41.8	34.1	29.8
Palestine (2007)	4,115	Million US$	1,568	1,275	38.1	33.4	31
MENA					**36.2**	**29.2**	**26.2**
Bhutan (2006)**	53,688	Million ngultum	10,717	461	20	1.1	0.9
India (2008)	5,313,770	Trillion rupees	2,880,650	2,040,280	54.2	46.3	38.4
Mongolia***(2008)	225,734	Trillion togrik	67,590	21,614	29.9	12.2	9.6
Sri Lanka****(2007)	326,602	Trillion rupees	55,142	26,606	16.9	9.4	8.1
Asia					**30.2**	**17.2**	**14.2**
Without Sri Lanka and Bhutan					**42.1**	**29.3**	**24**
Brazil (2006)	2,034,420	Million reals	438,942		21.6		
Colombia (2006)	395,629	Billion pesos	148,195	116,460	37.5	32.3	29.4
Guatemala (2006)	229,548	Million quetzal	84,751	69,279	36.9	34	30.2
Honduras (2006)	163,927	Million lempira	51,655	34,029	31.5	18.1	20.8
Mexico (2009)	11,339,211	Million pesos	3,505,005		30.9		
Venezuela (Bolivarian Republic of) (2006)	362,151	Billion bolivar	61,723	56,846	17	16.3	15.7

Latin America					**29.2**	**25.2**	**24**
Armenia (2008)	2,878,130	Million dram	792,866	446,755	27.5	19.5	15.5
Azerbaijan (2008)	38,029	Million manat	6,774	4,704	17.8	13.1	12.4
Belarus (2008)	143,624,000	Million roubles	9,584,350	4,940,220	6.7	3.7	3.4
Bulgaria (2006)	40,350	Million lev	8,711	6,076	21.6	16.5	15.1
Estonia (2008)	223,462	Million kroon	23,808	21,847	10.7	10.1	9.8
Kazakhstan (2009)	15,896,700	Million tengue	3,651,800	2,971,658	23	20	18.7
Kyrgyzstan (2008)	168,672	Million som	76,309	34,226	45.2	27.5	20.3
Latvia (2007)	13,060	Million lats	1,470	1,289	11.3	10.2	9.9
Lithuania (2008)	99,640	Million litas	14,087	11,740	14.1	11.8	11.8
TFYR of Macedonia (2008)	357,450	Million denar	80,339	44,407	22.5	14	12.4
Republic of Moldova (2008)	51,774	Million leu	10,355	5,708	20	12.3	11
Russian Federation (2009)	34,161,200	Million rubles	3,626,670	2,814,147	10.6	8.6	8.2
Serbia (2008)	2,722,460	Million Serbian dinar	679,947	25			
Slovenia (2005)	5,769,277	Million tolar	1,127,050	19.5			
Ukraine (2008)	860,714	Million hryvnia	140,774	102,549	16.4	12.9	11.9
Transition countries					**19.5**	**13.9**	**10.7**

Source: Authors based on Charmes (2012).
Note: The GDP estimates used for the calculation of ratios (and noted with*) are obtained by summing up the agricultural GVA and the non-agricultural GVA. They exclude Financial Intermediation Services Indirectly Measured (FISIM) and include taxes less subsidies on products, and statistical discrepancy.
**informal sector only comprises construction and private households with employed persons; ***informal sector does not comprise manufacturing and services; ****informal sector does not comprise trade, transport and services.

[End of Annex II]