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Informal sector innovation in Ghana: Data set and descriptive analysis

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Informal sector innovation in Ghana: Data set and descriptive analysis *

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Abstract

While informal enterprises and their activities dominate sub-Saharan African (SSA) economies, data on 'informal' innovation activities remain lacking. This paper presents descriptive statistics from survey data collected in 2016, on the types of innovations informal enterprises adopt and/or adapt in urban Ghana (Accra and Tema). Using zones defined in the Ghana Informal Enterprise Survey (GIFS) of the World Bank as area-based frame, and randomly selecting and canvassing 17 zones, the study identified and interviewed 513 informal enterprises. The analysis reveals that informal enterprises do innovate. Innovations, as found in formal enterprises as well, are not big swings, that is, not radical but incremental, and are found to occur over several years. These suggest that incremental innovations, notwithstanding, are important to the survival of sampled informal enterprises.

Keywords: Innovation; Informal Sector; Survey; Ghana; sub-Saharan Africa.

JEL Codes: C83, D22, H32, L11, O17, O31.

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1 Introduction

Recent decades have seen growing interest in the promotion of innovation activities at all levels of governance in Africa. The most recent of these policies is the 'Science, Technology and Innovation Strategy for Africa 2024 (STISA-2024)', a short-term strategy adopted by the African Union in 2014. These policies, in general, are laudable in the attempt to promote and foster innovation-led development thinking in Africa. They, however, tend to ignore the 'dualistic' economic structure, and the economic and social significance of 'hidden' innovations in the informal sector. Given the economic significance of the informal economy in Africa, particularly sub-Saharan Africa (SSA), examining informal sector innovations is critical for SSA's economic and social progress (Iizuka et al., 2015). While some evidence now exists on innovations in the informal sector in SSA (Bull et al., 2016; Essegbey and Awuni, 2016; Kraemer-Mbula, 2016; Fu et al., 2015; Gebreeyesus and Mohnen, 2013; Konte and Ndong, 2012; Dawson, 1992, among others), both data and empirical evidence remain sparse. This may be due to little policy and research attention.

The objective of this paper is to present detailed information on a survey conducted in urban Ghana, between May and June 2016, which gathered information on the innovation activities of informal enterprises. The rest of the paper is organised as follows. The survey methodology is presented in the next section (2), followed by descriptive statistics from our informal innovations data set. The last section (3) concludes this descriptive paper.

2 Ghana informal innovations data set

2.1 Survey methodology

Data on informal enterprises and their activities remain scarce in Ghana. The World Bank's Informal Surveys provide data on informal enterprises in several developing countries. The Ghana Informal Survey (GIFS) was conducted in 2013, with the aim of providing information on the level of informal activity and reasons for informality. The GIFS, therefore, lacks information on the innovation activities of informal enterprises. In the GIFS, five urban centres namely Accra, Tema, Takoradi, Kumasi and Tamale were divided into 180 zones from which four interviews were completed per zone. In total, the GIFS contains 729 firms with service and manufacturing firms having equal proportions.

Due to the lack of sampling frame, our survey used zones identified in the GIFS as area-based frame where we randomly selected 17 zones in two urban centers - Accra 9 zones and Tema 8 - at first stage. Zones constructed in the GIFS were deemed convenient to use, and were also found to offer research design advantages thereby helping to minimise errors. Figure 1 presents the heat map of all zones covered, both in Accra and Tema.

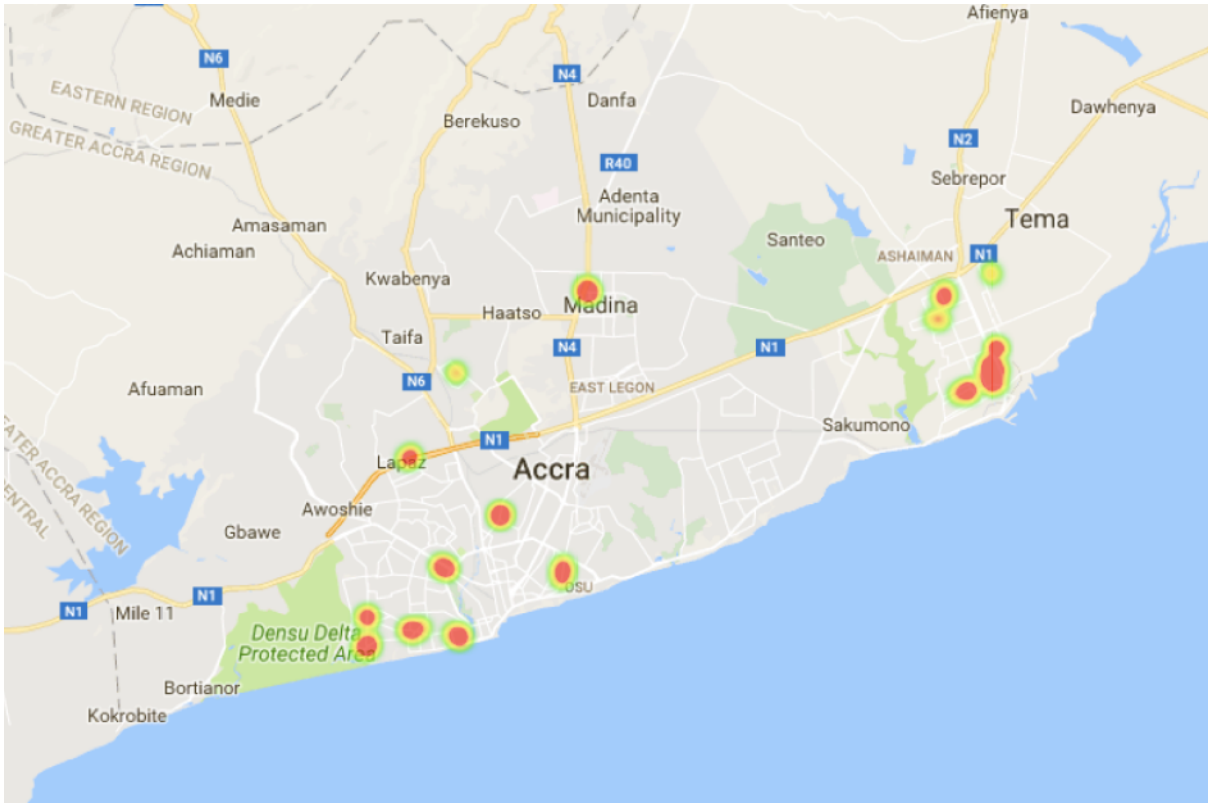

Figure 1: Heat map of all zones.

The second stage of sampling was done by 'canvassing' each selected zone and asking screening questions such as the registration status of the enterprise (see Appendix A, Question number SC.0). This involved knocking, introduction and asking of screening questions to identify informal enterprises at the first level. 'Available' owners/care-takers of identified enterprises were then interviewed at the second level.[1] This approach was found appropriate as it enabled the team to easily differentiate informal enterprises from formal counterparts in locations where such differences were not immediately obvious. This procedure also enabled the team to cover small informal units that are mostly ignored in surveys (International Labour Office (ILO)., 2013). Figure 2 presents the aerial maps of some selected zones in Accra.

[1] As is the case for case studies, owners/care-takers of identified enterprises were not representative of our population from the 'statistical stance'. Our approach used purposive sampling to identify informal enterprises.

Figure 2: Aerial maps of selected zones in Accra.

Based on survey recommendations by Charmes et al. (2016), we conducted face-to-face interviews with owners/assigned care-takers based on a standard semi-structured questionnaire covering a host of issues such as enterprise registration status, sales, cost, business environment, labour, registration and innovation activities.[2] The survey instrument was prepared on the guidelines of the Oslo Manual (3^{rd} edition), with some questions adapted from similar projects such as the NEPAD's African Science, Technology and Innovation Indicator (ASTII) survey; the World Bank's Ghana Informal Surveys (GIFS); the World Intellectual Property Organization (WIPO) project; the Diffusion of Innovation in Low Income Countries (DILIC) project; Essegbey and Awuni (2016); Fu et al. (2014); and Konte and Ndong (2012).[3] The interviews were conducted in 4 languages, namely: English, Twi, Ga and Ewe. The objectives of the survey and questions were explained to field assistants in a meeting in order to ensure common understanding of terms and concepts when translating the survey instrument. The survey used

[2] See Appendix A for survey questionnaire.
[3] Some questions were appropriately modified after pretesting in a zone in Kasoa, Central Region.

modern electronic data collection procedures and software (specifically, SurveyCTO) to collect data. The use of SurveyCTO ensured that the data and other information obtained from the field were of the highest quality in terms of reliability, credibility and utility. This software was chosen because it was cost-effective, secure, efficient and practical for conditions in the field. The survey focused on the innovation activities of enterprises between three-year period, which is 2013-2015.

Table 1 presents the list of zones per city and the number of interviews conducted in each sampled zone. The table shows variations in the number of enterprises interviewed in each zone, mainly due to differences in the degree of informality of sampled zones as well as the availability of owners/assigned care-takers to be interviewed. Some owners/assigned care-takers, also, bluntly declined to participate based on the suspicion that we were agents of the Government of Ghana. Out of 513 enterprises interviewed in both cities, 317 representing about 62% of enterprises are located in Accra while 196 representing about 38% of the enterprises are located in Tema. In terms of the number of interviews conducted in each zone, we found Madina and Community 1 Central Station zones to have the largest number of interviewed enterprises of 47 each across the survey. Tema Driver and Vehicle Licencing Authority (DVLA) zone in Tema, has the lowest number of interviewed enterprises in the data.

Table 1: City, zones and sample sizes

City	Zone	Number of interviews
Accra	Dansoman Market	29
	Dansoman Last Stop	40
	Mamprobi	42
	Osu Oxford Street	32
	Accra New Town	40
	Korle Gonno	28
	Madina	47
	Abeka-Lapaz	21
	Abbosey Okai	38
Tema	General Hospital	25
	Tema Senior High School	34
	Tema DVLA	4
	Community 1 Police Station	14
	Community 1 Post Office	42
	Community 1 Central Station	47
	Rana Motors	20
	Community 11 Police Station	10
Total	**17**	**513**

2.2 Descriptive statistics

This section presents basic descriptive statistics on socio-demographic characteristics, innovation, employment activities, the environment of operation and formalisation of enterprises from

our informal innovations data set.

2.2.1 Enterprise characteristics

Micro enterprises, defined as enterprises with less than 5 employees (owner included), are the most prevalent in our data. Out of 513 enterprises interviewed, 337 representing about 65.7% are micro-sized (<5), while about 32.6% and 1.7% are small-sized (5 &<10) and medium-sized(10 &<20) respectively (see Table 2). Table 2 also shows that the majority of interviewed enterprises are owned by men (about 58%), with the remaining 42% owned by women. In terms of the sector of activity, the data shows informal enterprises operate mainly in the service sector. The descriptive statistics show that about 90% of enterprises in our data set provide services[4] while only about 10% of the enterprises make goods. Decomposing the sectors of economic activity, our data shows 44.8% of enterprises in the service sector operate by selling food and groceries, indicating the prevalence of retail. This could be due to the low entry cost into these activities. The majority of these enterprises selling food and groceries are made up of local food joints and multi purpose container provision shops selling a variety of products from sachet water, Mcvities short bread cookies, 'joy daddy' bitters to red label whisky. From Table 2, we also found that majority of manufacturing informal enterprises make clothes or shoes. Cloth makers are tailoring shops operated by experienced tailors who specialise in sewing dresses, sometimes embodied with local designs. Shoe makers render master shoe repair services, but also produce sandals and 'flip-flops' using locally made machines and raw materials. Family-owned businesses are less represented in our data as well, with only 21.4% prevalence.

[4] Services refers to retail services and non-retail services (other services) following the Enterprise Survey (ES) of the World Bank.

Table 2: Characteristics of informal enterprises

	Number	Proportion in %
Size of business		
Micro (<5)	337	65.69
Small (5 &<10)	167	32.55
Medium (10 &<20)	9	1.75
Sex of owner		
Male	300	58.48
Female	213	41.52
Main activity		
Making goods (Manufacturing)	49	9.55
Clothes or shoes	36	7.02
Baked food	3	0.58
Handcrafts	2	0.39
Furniture	3	0.58
Metal products	3	0.58
Household items	2	0.39
Selling goods or services (Services)	464	90.45
Food or groceries	230	44.83
Clothes or household items	63	12.28
Computer/phone accessories	31	6.04
Transport services	1	0.19
Hairdressing and barbering	48	9.36
Professional services	14	2.73
Repairing services	33	6.43
Other services (not included above)	44	8.58
Family business		
Yes	110	21.44
No	403	78.56

2.2.2 Innovation and innovation activities

The overarching goal of our survey was to gather information on informal enterprises' innovations and innovation activities. As a result, information was collected on various output and input indicators of innovation. While several definitions exist, our survey followed broadly statistical definitions in the Oslo Manual (OECD and Eurostat, 2005, Chapter 3). This section presents the descriptive statistics of some innovation indicators obtained from our survey.

Table 3 shows the descriptive statistics of informal innovation indicators between 2013-2015. Product innovations are prevalent in informal enterprises, with about 73% of interviewed enterprises introducing at least one product innovation. Average percentage sales due to all new products is about 20% during the period under study. Ideas for new products mainly originate in-house, with 88% of sampled enterprises indicating 'enterprise' as the main source of idea for

Table 3: Innovation activities of informal enterprises

	Number	Proportion (%)
Product innovation		
Product innovators	372	72.51
% of sales due to all innovative products (mean)	-	19.516
Source of idea for innovative product		
Other informal businesses	183	49.19
Formal firms	38	10.22
Consumers/clients	295	79.51
Enterprise itself	327	88.14
Attempts to develop new products		
Suspended before completion	157	30.60
Still ongoing	201	39.18
Increase product range innovators	346	93.01
Open new market or increase market share innovators	342	91.94
Process innovation		
Process innovators	172	33.53
Innovative methods of manufacturing products	154	89.53
Innovative logistics, delivery or distribution for products	81	47.09
Supporting activity for processes	72	41.86
Source of idea for innovative process		
Other informal businesses	45	26.16
Formal firms	22	12.87
Consumers/clients	97	56.40
Enterprise itself	139	80.81
Quality-improving innovators	143	83.14
Efficiency-improving innovators (production and offering service)	146	84.88
Efficiency-improving innovators (customer delivery)	142	82.56
Marketing innovation		
Marketing innovators	452	88.11
Packaging	54	12.05
Branding, logo, name or trademark	98	21.83
Products appearance exclusing packaging and branding	72	16.04
Advertising methods	79	17.52
Promotion of the products	79	17.59
Sales channels or sales points	148	32.82
Discount schemes	341	75.61
Pricing strategies, excluding discount schemes	244	53.98
Customer loyalty rewards	419	93.11
Payment schemes	262	58.22
Purchase new equipment/software for innovation activity		
Yes	76	14.84
No	436	85.16

innovative product. Consumers and clients also serve as an important source of ideas for new products for about 80% of interviewed enterprises. Ample proportion of enterprises are still undertaking innovation activities with about 39% of enterprises involved in on-going attempts to introduce new products. Some enterprises, about 30%, have also indicated abandoning innovation activities. This shows that not all innovation activities actually result in innovation. There are several reasons why an enterprise may introduce product innovation. In our data, we found enterprises innovate largely for 2 main reasons. The first is to increase the range of products offered by the enterprise, and the second is to open or improve market share. Our data shows 93% of interviewed enterprises introduced product innovation with the intention of increasing product range, while 92% innovated in order to improve market share.

Process innovation is low in our sampled informal enterprises. Out of the 513 enterprises interviewed, 172 representing about 33.5% of enterprises introduced at least one of three process innovations. Our data show majority of process innovators, about 90%, introduced innovative methods of manufacturing products or offering services. Ideas for process innovations mainly originate from within informal enterprises, with 81% of enterprises acknowledging the role of in-house ideas in generating knowledge for process innovations. Clients and customers also play an important role in generating process innovations. About 56% of interviewed enterprises cited consumers/clients as the source of idea for their innovative process. Process innovations can be intended for several reasons. From our data, we found informal enterprises introduced process innovation mainly to improve quality of products (about 85% of interviewed enterprises), followed by the intention to improve efficiency of the production and serving offering methods (about 83% of interviewed enterprises) as well as improving customer delivery methods (about 83% of interviewed enterprises).

Marketing innovations are widespread in our data. This may be due to the large number of service enterprises in our data. Table 3 shows about 88% of interviewed enterprises introduced at least one type of marketing innovation. Customer loyalty rewards are the most dominant marketing innovation with about 93% of our sampled enterprises introducing it. Discount schemes and payment schemes are as well prevalent marketing innovations in our data.

Innovation is an output that requires innovation inputs. During our survey, we asked if enterprises have purchased new equipment, machinery, or software to develop or produce innovative products and/or processes (see Appendix A, Question E2). Responses from enterprises indicate low levels of input activity with only about 15% of interviewed enterprises acquiring machinery and softwares for innovation.

To further understand the specific innovations introduced by enterprises, we asked innovative enterprises to describe their main product and process innovations (see Appendix A, Questions B.5 and C.4). We identified variations across innovative enterprises with regard to the types of innovations (product and process) developed or adopted.

Table 4: Examples of innovations

Type of innovation	Description of main innovative activity
Product	
Goods	
	Making of 'stuffing' chairs
	New material to produce 'kente' cloth
	Making of new flip-flops for funerals
	Using electronic spare parts to produce wall clock
	New designs to furniture and clothing
	Introduction of a new washing powder
Services	
	Vulganising services
	Remote and home maintenance
	Introduction of home services
	Car alarm services
	House roofing services
	Phone repair services
	Mobile money payment methods
Process	
	Introduction of new machines- carving machines, steriliser, embroidery machine, bead polishing machine, etc.
	Software to keep inventory and records of clients
	Delivery methods - new methods to order 'materials', office delivery, text messages, etc.

Table 4 presents examples of product and process innovations introduced by enterprises, and it indicates that sampled enterprises mainly introduced new-to-enterprise innovations. For example, a manager of an enterprise selling secondhand car tires indicated to have added vulganising services to his business during the period under consideration. An enterprise that produces bathing soaps also indicated to have introduced washing powder entirely based on their existing knowledge and intermediate products. Process innovations such as the introduction of new machines for embroidery, ironing, cutting, and styling hair, were found to be dominant among enterprises engaged in sewing, cutting and dressing of hair. Innovations such as the introduction of office food delivery services (process innovation) and mobile money payment services (product innovation), were found to be most prevalent among enterprises engaged in selling food and groceries.

2.2.3 Labour

The economic significance of informal enterprises in SSA cannot be overemphasised. The informal economy dominates economic activity in SSA. In spite of this, data remain largely scarce on the labour market activities of informal enterprises. In our survey, we gathered comprehensive

information on the employment activities of our sampled enterprises. Descriptive statistics are shown in Table 5. The period under consideration witnessed increase in average total employment in sampled enterprises. Our data show total employment, on the average, increased from 2.44 workers in 2013, to 3.62 workers in 2015. The type of employment created matters. On the average, permanent employment increased from 1.95 in 2013, to 2.6 in 2015. The data, however, indicate a drop in the share of permanent employment in total employment from about 90% in 2013, to 80% in 2015. Temporary employment also increased on the average in all enterprises from 0.5 in 2013, to about 1.1 in 2015. The period also witnessed an increase in the share of temporary employment in total employment, increasing from 10.23% in 2013, to 20.25% in 2015. While we see an increase in all types of employment, our descriptive statistics suggest decreasing share of permanent employment in sampled enterprises over the period under consideration.

Security of employment is important for the welfare of workers. Our survey sought also to find out the proportion of informal workers covered by social security. The data show only 6.48% of enterprise owners have social security, with the proportion decreasing drastically to 1.12% and 0.2% when we consider permanent and temporary workers, respectively.

Table 5: Employment activities of informal enterprises, 2013-2015

	Mean	**Share %**	**Std. Dev.**	**Min**	**Max**
Total employment in 2015	3.62	100	2.37	1	18
Permanent employment	2.56	79.75	1.39	1	11
Temporary employment	1.06	20.25	1.50	0	15
Number of apprentices	.191	3.20	.809	0	8
Total employment in 2013	2.44	100	1.95	1	14
Permanent employment	1.949	89.77	1.33	1	13
Temporary employment	.49	10.23	1.31	0	12
Social security cover					
Owner	.065	6.48	.246	0	1
Permanent workers	.012	1.12	.108	0	1
Temporary workers	.002	0.20	.044	0	1

2.2.4 Business environment

In the course of their daily activities, informal enterprises, like their formal counterparts, face many operational hurdles. These obstacles affect the performance of informal enterprises in diverse ways. While data and empirical evidence remain sparse, our survey gathered information on the degree to which some of these obstacles affect the operations of informal enterprises.

Descriptive statistics reported in Table 6 indicate sampled enterprises face 3 main obstacles: competition from informal enterprises, access to land, and lack of electricity and water. 327 enterprises, representing about 64% of all interviewed enterprises, indicated competition from informal enterprises as an obstacle, with about 75% of these enterprises indicating competition

Table 6: Obstacles to informal enterprise operations

	Number of enterprises	**Proportion in %**
Competition from formal firms	215	41.91
Minor	52	24.19
Moderate	6	2.79
Major	157	73.02
Acces to finance	230	44.83
Minor	36	15.65
Moderate	12	5.22
Major	182	79.13
Access to land	324	63.16
Minor	49	15.12
Moderate	12	3.70
Major	263	81.17
Corruption	42	8.19
Minor	21	50.00
Moderate	3	7.14
Major	18	42.86
Crime, theft, disorder	197	38.40
Minor	88	44.67
Moderate	17	8.63
Major	92	46.70
Poor public insfrastructure	156	30.41
Minor	70	44.87
Moderate	17	10.90
Major	69	44.23
Low demand for products	256	49.90
Minor	52	20.31
Moderate	12	4.69
Major	192	75.00
Lack of electricity and water	296	57.70
Minor	54	18.24
Moderate	12	4.05
Major	230	77.71
Competition from other informal enterprises	327	63.74
Minor	73	22.32
Moderate	8	2.45
Major	246	75.23

from informal enterprises serve as a major obstacle to their operations. This may be due to the fact that informal enterprises mostly tend to be: clustered at the same location, similar in size, and tend to compete for the same customers. Access to land remains an obstacle to informal enterprises. About 63% of enterprises indicated difficulty in accessing land for business. Out of this percentage, about 81% indicated access to land is, actually, a major hurdle to their operations. Frequent outage of power (electricity), locally known as 'dumsor', and lack of flowing water are persistent problems in Ghana. They affect operations of informal enterprises with 296 enterprises, representing about 58%, indicating the lack of power and water as obstacles to their businesses. Our data show 3 obstacles: crime, theft and disorder, poor public infrastructure, and corruption are the least hurdles to the operations of informal enterprises.

2.2.5 Registration

How to formalise informal enterprises in developing countries remain a development question. During our survey, we asked informal enterprises if they would want to formalise, and reasons for their informality (see Appendix A, Section I). Table 7 shows 347 enterprises, making up about 68%, indicated they would like to be registered. Asking why they are not registered, we found: long registration procedure, lack of information about registration, registration fees, taxes, and lack of benefits in registration as some of the main reasons for informality. Of particular interest here, is the obvious disagreement between the proportion of enterprises who would like to register (about 68%) and the proportion who indicated there are no benefits to registration (about 60%). This may be as a result of desirability bias due to the perception that informality is undesirable.

Table 7: Reasons for informality

	Number of enterprises	**Proportion in %**
Register business (formalise)	347	68.31
Reasons for informality		
Lack of registration information	362	72.26
Registration procedure (time)	363	73.19
Rgistration fees	355	71.00
Taxes	333	66.60
Inspections	289	57.57
Bribes	175	34.93
No benefit to enterprise	302	60.28

3 Conclusion

Our informal innovations survey in urban Ghana (Accra and Tema) aimed at providing insights into the innovation activities of informal enterprises, and also to examine research and policy

ideas on how to enhance these innovation activities. This paper presents basic descriptive statistics from the survey.

Randomly selecting 17 zones and canvassing each zone for informal enterprises, we were able to interview 513 enterprises. Our descriptive statistics show our sampled enterprises are mostly micro(<5) in size. Product innovations are found to be pervasive in informal enterprises, with in-house ideas as the main source of innovative products. In terms of employment, we found only few informal workers have social security, with the share of temporary employment in total employment increasing between 2013-2015. Enterprises are found to be affected by 3 main obstacles: competition from informal enterprises, access to land, and lack of electricity and water. While we found enterprises to have the desire to formalise: long registration procedure, lack of information about registration fees, taxes, and lack of opportunities after registration, remain some of the main reasons for informality. Further empirical research exploring the main findings in this paper could be insightful.

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Appendix A

Field Questionnaire

Brief description of study

Recent studies find innovation to be pervasive in the informal economy. This project's overarching goal is to understand the types of innovations informal firms use and adapt to answer customers changing needs and demands. The project also aims to provide evidence on the role of networks and apprenticeship in learning, adopting and adapting innovations in the informal sector and the labour market implications.

This survey aims to collect valuable information on these variables and the information collected from this survey will be used strictly for academic purposes to understand the current situation for improving policy. The study guarantees absolute anonymity of your business and personal details.

Your kind attention and cooperation is much appreciated.

If you have further queries, please contact Elvis Korku Avenyo (avenyo@merit.unu.edu).

QUESTIONNAIRE NUMBER

A. CONTROL AND SCREENING INFORMATION

CONTROL INFORMATION

A.0 City

Accra	1
Tema	2

A.3 Interviewer code

A.1 Zone

Zone of business	

A. 4 Size of business

Micro<5	1
Small >=5 &<10	2
Medium>=11&<20	3
Large>21	4

A.2 Language

English	1
Twi	2

A.5 Time interview begins

Day	Month	Year	Hour	Minutes

A.6 Year business began operations

Year	
Don't know	-9

A.7 Sex of the owner

Male	1
Female	2

A.8 Is this business a (part of a) family business?

No	0
Yes	1

A.9 What is your position?

Position	
Don't know	

SC. SCREENING INFORMATION

SC.0 Is this business registered with the Registrar's General Dept.?

No	0
Yes	1

Terminate Interview

SC.1 What is the main activity of this business?

PLEASE CODE THE DESCRIPTION IN SC.1.

Making goods (Manufacturing)	Manufacturing of clothes or shoes	1
	Manufacturing of baked food (Baker)	2
	Manufacturing of sugar, oil, dry fruits and other processed foods	3
	Manufacturing of handcrafts	4
	Manufacturing of furniture	5
	Manufacturing of metal products	6
	Manufacturing of household items	7
	Manufacturing of tools and instruments	8
	Other manufacturing (not included above)	9
Selling goods or services (services)	Selling of food or groceries	11
	Selling of clothes or household items	12
	Selling of other goods	13
	Selling of business/computer/phone services	14
	Transport Services	15
	Cleaning and washing services	16
	Hairdressers and barber shops	17
	Professional services	18
	Repairing services	19
	Construction	20
	Other services (not included above)	21

B. PRODUCT INNOVATION

I would like to start by asking you some questions about any new or significantly improved product or service introduced by this establishment, where "new" means new to the establishment and not necessarily new to the market. The next questions will refer to this new or significantly improved product or service as an "innovative" product or service.

B.1 During the last three years **(2013-2015)**, has this business introduced **new** or **significantly improved** products or services?

No	0
Yes	1

B.2 From last three fiscal years, how many innovative products or services did this establishment introduce?

Number	
Don't know	-9

B.3 In which year did this establishment introduce the innovative product or service?

Year	
Don't know	-9

B.4 In fiscal year **2015**, what percentage of this establishment's total sales was represented by sales from **all** innovative products or services introduced from fiscal year **2013** thru **2015**?

GHC

Amount	
Don't know	-9

B.5 Please describe in detail the **main** innovative product or service that this establishment introduced.

B.6 How do the innovative product or service compared with all other products and services already produced in this establishment?

	Yes	No	Don't know	Do not apply
Does it have completely new functions?	1	0	-9	-7
Is it cheaper to produce or offer? 1 0 -9 -7				
Is it a better quality product or service?	1	0	-9	-7
Does it use different inputs?	1	0	-9	-7
Is it based on a technology or industrial design not already used by this establishment?	1	0	-9	-7

B.7 Do any of the following describe why this establishment introduced this main innovative product or service?

	Yes	No	Don't know
To replace a product or service offered by this establishment	1	0	-9
To extend the range of products or service offered by this establishment	1	0	-9
To open up new markets or increase market share	1	0	-9
To decrease the cost of production or offering the service	1	0	-9
To deal with a decrease in the demand for other products or service	1	0	-9
To offer products or service already offered by competitors	1	0	-9

B.8 How did this establishment develop the idea for the innovative product or service?

By reproducing/adapting a product or service already sold by another informal business	1
By reproducing/adapting a product or service already sold by a formal firm	2
From consumers/clients	3
This establishment originated this innovative product or service	4

B.9 From last three fiscal years, did this establishment **attempt to develop** an innovative product or service that was:

	Yes	No	Don't know
Abandoned or suspended before completion	1	0	-9
Still ongoing at the end of fiscal year	1	0	-9

C. PROCESS INNOVATION

I would now like to ask you some questions related to any new or significantly improved process introduced by this establishment. The next questions will refer to any new or significantly improved process as an "innovative" process.

C.1 From fiscal year **2013** thru **2015**, did this establishment introduce any innovative methods of manufacturing products or offering services?

No	0
Yes	1

C.2 From fiscal year **2013** thru **2015**, did this establishment introduce any innovative logistics, delivery, or distribution methods for inputs, products, or services?

No	0
Yes	1

C.3 From fiscal year **2013** thru **2015**, did this establishment introduce any innovative supporting activity for processes, such as maintenance systems or operations for purchasing, accounting, or computing?

No	0
Yes	1

C.4 Please describe in detail this establishment's **main** innovative process.

C.5 Do any of the following describe why this establishment introduced the **most important** innovative process?

	Yes	No	Don't know
To increase the quality of products or services	1	0	-9
To increase the total production or amount of services offered	1	0	-9
To increase the flexibility of production or offering service	1	0	-9
To increase the speed of production or offering service	1	0	-9
To increase the speed of delivery to the customer	1	0	-9
To reduce waste or errors (defect rate or rejection rate)	1	0	-9

C.6 How did this establishment develop the idea for the innovative process?

By reproducing/adapting a product or service already sold by another informal business	1
By reproducing/adapting a product or service already sold by a formal firm	2
From consumers/clients	3
This establishment originated this innovative product or service	4

C.7 In fiscal year **2015**, what percentage of this establishment's total sales was represented by sales from **all** process innovations introduced from fiscal year **2013** thru **2015**?

	GHC
Amount	
Don't know	-9

D. MARKETING INNOVATION

D.1 From fiscal year **2013** thru **2015**, did this establishment introduce or significantly change any of the following?

	Yes	No	Don't know	Do not apply
Packaging	1	0	-9	-7
Branding, logo, name, or trademark	1	0	-9	-7
Products' appearance, excluding packaging or branding	1	0	-9	-7
Advertising methods	1	0	-9	-7
Promotion of the product or service	1	0	-9	-7
Sales channels or sales points	1	0	-9	-7
Discount schemes	1	0	-9	-7
Pricing strategies, excluding discount schemes	1	0	-9	-7
Customer loyalty rewards	1	0	-9	-7
Payment schemes	1	0	-9	-7

D.2 From fiscal year **2013** thru **2015**, did this establishment use the services of a marketing firm, consumer research firm, or advertising firm?

No	0
Yes	1
Don't know	-9

D.3 In fiscal year **2015**, what percentage of this establishment's total sales was represented by sales from **all** marketing innovations introduced from fiscal year **2013** thru **2015**?

	GHC
Amount	
Don't know	-9

E. INNOVATION ACTIVITIES

E.1 Did this establishment provide **formal training** to any of its employees specifically for the development and/or introduction of innovative products or services and processes?

No	0
Yes	1
Don't know	-9

E.2 From fiscal year **2013** thru **2015,** did this establishment **purchase new equipment, machinery, or software** to develop or produce any innovative products or services and processes?

No	0
Yes	1
Don't know	-9

E.3 How much did this establishment spend in total on the purchase of that new equipment, machinery, or software last fiscal year?

	GHC
Amount	
Don't know	-9

E.4 Do you think registering your business would affect your innovative activities?

No	0
Yes	1
Don't know	-9

E.5 During the last three years, did this establishment give employees/apprentice some time to develop or try out a new approach or new idea about products or services, business process, business management, or marketing?

No	0
Yes	1
Don't know	-9

F. LABOUR

F.1 How many individuals worked in this business when it began operations?

Number	
Don't know	-9

F.2 How many permanent, full-time individuals worked in this establishment last year?

Number	
Don't know	-9

F.3 Full-time seasonal or temporary individuals who worked in this establishment last year?

Number	
Don't know	-9

F.4 How many individuals worked in this business three fiscal years ago, i.e. 2013?

	Number	Don't know
Permanent, full-time individuals		-9
Seasonal, or temporary individuals		-9

F.5 How many apprentice(s) did you have in your enterprise?

	Number
2015	
2015	

F.6 Have any of your apprentices' been a source of your innovative idea/ideas in the last three fiscal years?

No	0
Yes	1
Do not apply	-7

F.7 Do you pay **social security** for yourself and any of the following categories of employees?

	Yes	No	Don't know	Do not apply
Yourself	1	0	-9	-7
Permanent, full-time workers	1	0	-9	-7
Seasonal, or temporary workers	1	0	-9	-7
Apprentice	1	0	-9	-7

G. SALES

G.1 What is the business's sale in a **regular month**, that is, a month that is neither the busiest nor

the slowest of the year?

	GHC
Amount	
Don't know	-9

G.2 Could you please estimate the business's sales in the **slowest month** of the year?

	GHC
Amount	
Don't know	-9

G.3 Could you please estimate the business's sales in the **busiest month** of the year?

	GHC
Amount	
Don't know	-9

G.4 For last month, please provide the following information about this business:

	Amount GHC	Don't know
a. Total sales		-9
b. Total cost of labor		-9
c. Cost of raw materials/intermediate goods used in production		-9

G.5 For last year, please provide the following information about this business:

	Amount GHC	Don't know
a. Total sales		-9
b. Total cost of labor		-9
c. Cost of raw materials and intermediate goods used in production		-9

G.6 For 2013, please provide the following information about this business:

	Amount GHC	Don't know
a. Total sales		-9
b. Total cost of labor		-9
c. Cost of raw materials and intermediate goods used in production		-9

H. BUSINESS ENVIRONMENT

H. 1 Does the following elements of the business environment, if any, currently represent an obstacle faced by this business.

	YES/NO		
a. Competition from formal firms	( ) **minor**	**1 2 3**	**major**
b. Limited access to finance	( ) **minor**	**1 2 3**	**major**
c. Restricted access to land	( ) **minor**	**1 2 3**	**major**

d. Corruption	(	) **minor**	**1 2 3**	**major**
e. Crime, theft and disorder	(	) **minor**	**1 2 3**	**major**
f. Poor public infrastructure	(	) **minor**	**1 2 3**	**major**
g. Difficult business registration procedures	(	) **minor**	**1 2 3**	**major**
h. Limited demand for product or services	(	) **minor**	**1 2 3**	**major**
i. Lack of electricity and water	(	) **minor**	**1 2 3**	**major**
j. Competition from other informal businesses	(	) **minor**	**1 2 3**	**major**

H.2 Did your business have any relationship with any firm in the formal sector over the last three years?

No	0
Yes	1

H.3 If yes from **H.2**, What was the nature of your business' relationship with formal firms?

	Yes	No	Don't know
Compete for same customers	1	0	-9
Collaborate - produce, sell, buy	1	0	-9

H.4 If yes from H.1a/j, what strategies do you use to compete?

I. REGISTRATION

I.1 Would you like for your business to be registered?

No	0
Yes	1
Do not apply	-7

I.2 Are any of the following the reason you are not registered?

	Yes	No	Don't know
Getting information on what you need to do to register is difficult	1	0	-9
Time to complete registration procedures	1	0	-9
Fees to complete registration procedures	1	0	-9
Taxes on registered businesses	1	0	-9

Potential inspections and meetings with government officials	1	0	-9
Bribes that registered businesses need to pay	1	0	-9
There is no benefit for my business being registered	1	0	-9
Other	1	0	-9

END OF THE INTERVIEW
THANK YOU VERY MUCH FOR YOUR COOPERATION.

A.10 Time interview ends

Day	Month	Year	Hour	Minutes

QUESTIONS FOR INTERVIEWER

A.11 It is my perception that the questions were answered:

Truthfully	1
Somewhat truthfully	2
Not truthfully	3

A.12 Interviewer's general comments:

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