Palestinian Central Bureau of Statistics (PCBS)

Measurement of Informal Sector in Adverse Conditions: Relevance of Methods

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Abstract

The informal sector was internationally defined as a concept of labour force by the 15[h] ICLS in 1993 (ILO, 1993). Until now, it is in Africa that estimates of the informal sector in National Accounts are the most frequent and regular. Estimates are also available for various Asian countries and it is only in Latin America that data are scarce (Delhi group, 2000). The contribution of the informal sector to the GDP is known and available for many developing countries. However, these estimates are still often based on hypotheses originating in incomplete sources and not rounded in informal sector surveys. Therefore, informal sector surveys are almost the only reasonable way to estimate the size and characteristics of informal sector. Measurement of informal sector has been approached from social and economic perspectives. The social approach focuses on the characteristics of informal sector as a source for employment, the contribution of the sector to total employment and the work conditions. The economic approach focuses on the contribution to the GDP. A number of methods have been used so far to measure informal employment and informal sector contribution. The 1-2-3 survey, 1-2 survey and parallel mixed economic and social surveys are the most well known tools. But still, informal sector surveys are considered sensitive surveys in which their validity is substantially influenced by adverse conditions, which are usually caused, among other reasons, by civil wars, and in conflict and post conflict situations.

A number of developing countries in Africa and the Middle East suffered from adverse conditions. The Palestinian statistical system for example, passed during the last two decades through severe adverse condition, including the "Intifada" which is an Arabic word for shaking off, though it is generally translated into English as uprising in late 80s and early '90s, and the construction of annexation wall by Israel, and the late political and geographic division of the country caused by the internal Palestinian conflict after 2008 elections. These conditions affected the validity of the main tools of statistical activity, particularly informal sector measurement, including poor frame coverage, poor frame content, difficult survey content, sensitive survey content, inadequate data sources, etc.

This paper discusses the impact of adverse conditions on the implementation of informal sector surveys and the effect of these conditions on the quantitative measurement of the informal sector; particularly the estimation of outcomes and weighting procedure according to demographic and economic variables. The paper provides lessons learned from the Palestinian experience in measuring informal sector under adverse conditions. It shows that adverse conditions might represent a dominant factor affecting the applicability of measurement methods and shows that under adverse conditions parallel survey method is more likely to be an appropriate for measurement, while 1-2 approach is a powerful tool for monitoring afterwards.

Introduction

The informal sector was internationally defined as a concept of labour force by the fifteenth International Conference of Labour Statisticians (ICLS) held in Geneva in 1993 (ILO, 1993). As soon as the early 70s, it was up to the International Labour Office to propose the first multi criteria definition of the notion in its famous report on Kenya for the World Employment Programme (ILO, 1972). But labour economists and statisticians who paid attention to this rising phenomenon in a context of increasing rural-urban migration, urban growth and decreasing employment creation in the modern sector, had not been the first to try to analyze and circumscribe the informal sector.

The word "informal" has also been a source of misunderstanding and confusion. The 17th ICLS (ILO, 2003) defined informal employment as a broader concept, which include "informal" employees working for formal or informal economic units without being registered or declared by their employers. While Informal sector refers to the informal link between the State and the business owner. Informal employement refers to the informal link between employer and employee. Job precariousness/risks/quality/work conditions. While the concept of informal sector refers to production units as observation units, the concept of informal employment refers to jobs as observation units. Jobs rather than employed persons. The criteria is that no written contract, no pay slip, no legal or social protection, outworkers (home-based workers, streets workers), casual/temporary job and absence of labour union

According to the report of Delhi group (2000), most regular and frequent production of informal sector is in Africa. Estimates are also available for various Asian countries and it is only in Latin America that data are scarce, may be because national accounts are there compiled by Central Banks which are indeed concerned by the completeness of GDPs, but less concerned by the identification of this component of the national economy.

The balance between uses and supplies of major products is generally the most common method used for the estimation of informal sector in manufacturing activities. This method requires the availability of data on household consumption and it is true that until now and until the recent development of informal sector surveys, the household budget-consumption surveys or the household living standard surveys were the most sought after.

In the equality that production and imports equals to the final consumption and intermediary consumption plus exports plus stocks variations, the knowledge of household final consumption and of production and intermediary consumption in the formal sector allows to make estimates of production and intermediary consumption in the informal sector subject to controls of the labour force involved in the informal sector (necessary because of the importance of trans-border trade in many countries and for many products).

Once the production of major products is known, assumptions are made on transport costs and trade margins, which distributed between the formal and the informal sector: data on labour force by industrial sector and anecdotal data on value added and margins in the informal sector are always used for controlling.

The contribution of the informal sector to GDP is currently known and available for many developing countries. However, these estimates are still too often based on many hypotheses originating in various incomplete sources and not grounded in recent national informal sector surveys.

2. Adverse Conditions

Adverse conditions are usually caused, among other reasons, in conflict and post conflict situations, they might include poor frame coverage, poor frame content, difficult survey content, sensitive survey content, poor potential response rates, inadequate resources, etc. A statistical service in adverse conditions does not have the option of assuming a typical path in statistical production. It has to tailor the scope and content of its program to realities on the ground, otherwise it becomes irrelevant. For Example, the Palestinian Central Bureau of Statistics (PCBS) tailored its core programme during the last Intifada (uprising)[1] to promote human survival, the alleviation of suffering, and an exposition of the needs of vulnerable groups. Thus, an involved and proactive role includes the responsibility of reporting about the humanitarian needs of vulnerable groups such as children and women, monitoring the impact of socioeconomic policies and practices of both belligerent occupiers and indigenous players, and advocating on the basis of quantitative assessments of the basic needs of a population in conflict for international protection of basic rights, notwithstanding the role of maintaining international visibility of the national struggle. In the case of Palestine for example, statistical activities during the years of Israeli occupation between 1967 and 1994 were confined mainly to measuring deficiencies in the health care system, and sporadic review of Palestinian living conditions. Repeated efforts to establish a more responsive statistical function were faced with tough measures from the Israeli military occupation forces. The newly established statistical system in Palestine faced an outstanding adverse conditions. In late 2000, the Palestinian Intifada erected, and the country was exposed to a very strict political, economic and military measures by Israel, and in June 2007, the situation was severely deteriorated when the country was politically and geographically divided between the Palestinian factions[2].

From statistical point of view, these adverse conditions lead to significant changes at different fronts. On user demand, new user demands arise, and a very well known traditional user demands were weakened and even disappeared. List of priorities of many users and data providers changed. Deterioration in certain fields on the ground accelerated, and users required quick, reliable and detailed statistics. The major challenge in such situation caused by internal and external factors is that the National Statistical Office (NSO) has to seek all options to cope with new situation and maintain relevancy, credibility, integrity of the statistical system, and keeping professional ethics of producing official statistics.

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[1] Intifada is an Arabic word for shaking off, though it is generally translated into English as rebellion. The word "intifada" crystallized in its current Arabic meaning during the first Palestinian uprising in the late 1980s and early '90s. It is seen by many Arabs as a valid term for popular resistance to oppression. The Palestinians were largely unarmed, so the enduring picture of the intifada is one of young men and boys throwing stones and rocks at Israeli troops. The Second Intifada, also known as the al-Aqsa refers to the second Palestinian uprising which began in September 2000.

[2] On 15 June 2007 Islamic Resistance Movement (Hamas) effectively took control of Gaza. Palestinian president Mahmoud Abbas then moved to dissolve the Hamas-led government and established an "emergency" government in the West Bank. This effectively created two Palestinian political entities, one in Gaza led by Hamas and one in the West Bank led by Fatah and the PLO. Sanctions against the Hamas-led government in Gaza by Israel, the European Union (EU) and the United States (USA) further reduced an already low standard of living.

2-1 Relevance of traditional tools

Traditional methods and tools are normally designed to run a statistical service in normal conditions. One challenge, which faces statisticians, is the relevance of traditional tools and their applicability in adverse conditions. This applies to sampling techniques, data collection schemes, organizational procedures and dissemination approach. In particular, sampling frames might not be adequate or might not exist, in this case statisticians and methodologist tends to bring out of box solutions such as master samples. In addition new statistical needs require new sampling frames to be constructed. For example, In Palestine, the household coping strategies and the impact of Israeli measures surveys requires new scheme of area sampling to make sure rational representation of clashing zones. In-out wall zones were introduced as a new sampling domain; more stratification was created to fulfill the dissemination and disaggregation requirements. Some sampling frames were not fixed such as the set of mobile or flying checkpoints, some other frames are not predictable such as curfew days, strike days, raiding days and areas. Telephone interviews became less relevant as people become more skeptical during adverse conditions. Recruitment procedures of temporary fieldworkers and data entry operators become also less relevant, for example during closure days a number of communities become military zones where people from outside the community can not commute, which requires a catchments zone strategy to minimize crossing communities by fieldworkers and data entry operators. Many other different challenges for the traditional tools appear during adverse conditions.

2-2 Relevance internationally accepted concepts, standards and practices

At the technical level new challenges has to be faced as well. For example, the definition of unemployment, and in particular seeking job condition become irrelevant during curfew, closure and raid periods and/or zones. In addition, consumer price index become less relevant to measure inflation for the areas of sanctions such as Gaza during the second half of 2007. The compilation of national accounts was also challenged during the period in which the government was unable to pay salaries for public sector employees. The challenge come from the basis of compiling the accounts namely accrual versus cash. Of course, the international recommendations support accrual basis, but in adverse conditions, this might not be relevant. In the developed world a number of issues related to the compilation of national account on accrual basis has been discussed. In the UK for example, discussions took place about the effects on the UK national accounts of the payments to the government for allowing access to the electromagnetic spectrum by mobile phone companies. These have often been reported in the media as the auction of licenses, although this is a simplification of the reality for public consumption. The payments will have no direct effect on GDP within the UK accounts the government's receipts from the auction will be treated as rent. This is because ONS considers that the electromagnetic spectrum should be classified in a category known as "tangible non-produced assets". International guidance states that receipts from allowing use of such assets should be recorded as rents. The classification of the receipts is still under international discussion, although the asset classification is universally.

This issue has been also discussed from fiscal policy point of view. The Australian director of fiscal framework examined the implications of the government's adoption of accrual budgeting for assessing the impact of fiscal policy on the economy. He concluded that attention should be made to determining which accrual measures are most relevant to government it is important to consider the economic focus that is unique to government. Accrual measures provides a good indication of both the economic impact and the

sustainability of fiscal policy. The standard accrual measures operating balance, change in net assets and net assets can assist in assessing the sustainability of fiscal policy. In addition, the national accounts net lending measure is particularly suited to assessing economic impact. The adoption of accrual budgeting will introduce a suite of new fiscal measures and we need to understand the features of these measures and to take particular care to ensure the different features of government compared to business are taken into account when interpreting the results.

OECD electronic discussion group (EDG) devoted to discussions on the measurement of non-life insurance services, with a special focus on the treatment of catastrophic losses. The output of insurance services as calculated using the SNA 93 algorithm depends on the balance of premiums to claims (on an accrual basis) and can therefore appear extremely volatile (even negative) following major catastrophes. The massive claims generated by the 11 September terrorist attack, is a recent example. It had impacts on GDP and balance of payments (reinsurance). But in Palestine, using accrual basis is a controversial issue particularly when considering domestic circumstances. In fact the compilation of accrual basis does not lead to telling the actual situation of economic performance as the government is dependant in paying the salaries on the donor share which is not certain to be paid at a certain point in time. In addition using cash basis will also lead to tell different story about the economic performance as the employees are working and producing but not getting salaries regularly. Henceforth, while the discussion in the well developed countries are of the form on how to better present the statistics, the situation in the countries under adverse conditions is totally different and textbook approach seems to be less relevant.

An other challenge facing the compilation of national accounts' short term indicators, foreign trade, migration and accommodations statistics is the fact that there is no control on the Palestinian borders with Israel. Once the tourist arrives Israel can reach the Palestinian territory without crossing any boarder checkpoints, which undermines the data sources for registering population mobility. Another example is the estimation of growth rate in construction sector for the sake of compiling the quarterly national accounts, where two indicators are usually used the imported quantities of cement or the change in the number of building licenses. Both indicators are irrelevant in Palestine; because substantial proportion of people build without license particularly in the refugee camps, and active smuggling of cement to the Israeli market.

2-3 Political instability

Census planning has to take into consideration a unique political map of the country, with serious influence on any course of action in the taking. For example, during the implementation of the first population censuses, Israel had the upper hand as an occupying power over much of the country. In those areas, this meant Israeli control over the movement of persons within the country as well as overall security responsibility. At any time, Israel could disturb life in these areas for security reasons, including imposing curfews, preventing movement of persons, confiscating material from the public, raid homes and conduct searches. In fact, many of the census teams in these areas were stopped for questioning, and census questionnaires were confiscated for short periods ranging from hours to days. Using its powers, Israel went as far as outlawing the census[3] in some parts of the country, especially

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[3] On the eve of census day, the Israeli Parliament has passed a law which is called "census law", indicating that census taking in Jerusalem is unlawful exercise, asking the Palestinian public not to cooperate with census

in Jerusalem. The remaining parts of the country were at the time under full authority of the Palestinian government, where census teams were able to work with full freedom. Internally, however, a different set of challenges had to be overcome. These challenges are concerned mainly with the planned coverage of the census. While census was planned to cover the *de facto* population of Occupied Palestinian Territory (OPT) with some exceptions, political parties in the country expected the census to cover all Palestinians including refugees living abroad in refugee camps.

On specifications, additional demands are added to traditional and new demands, including more specified and detailed statistics on certain categories of population or establishments. These changes in content and specifications have special characteristics in developing countries, where culture of using statistics in decision making process is not very well established. Politicians are closer to claim that statistics is not accurate or reliable than changing their positions or to make additional effort to make a case using available statistics.
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3. Impact of adverse condition

The most important effect that adverse conditions might have on internationally recognized measurement methods is the creation of an environment that questions the validity of the basis in which the international standards were built on. These conditions might lead to inability to apply certain sound theoretical approaches due to lack of certain technical tools and conditions such as reliable sampling frame, inability to visit all sampling units in due time, inability to conduct the required training according to plans, etc. They might also lead to question the applicability of certain concept and operational definitions such as formality of production unit, seeking job, etc. Therefore, the applicability of certain approaches to measure informal sector is linked to the sensitivity of these procedures to the conditions on the ground and the technical requirements needed to apply these procedures. Adverse conditions put the survey statistician in a situation where technical compromises have to be taken. For example, in Palestine we faced a situation where survey statisticians were forced to deal with the high mobility in terms of place and turnover of informal sector production units that provides good and services at the mobile checkpoints that the Israeli army establish from time to time at different places. These check point might stay for days or weeks, and once the checkpoint is moved then most of informal sector production units established around the checkpoint vanish. Under this situation the sampling frame was not fixed and survey statistician had to deal with a situation where they count a number of production units during the construction of the frame while these were not found at the data collection stage. On the other hand new production units were established between the time of constructing the frame and the actual data collection.

4. Methods measuring informal sector

4-1 The 1-2-3 and 1-2 survey

The 1-2-3 survey is composed of three basic schemes; socioeconomic household; characteristics informal sector for production units, and consumption and living conditions sub-sample. The survey is implemented in three phases; phase I provides data on

teams, and indicating that persons cooperating with census teams will be fined or jailed, and will lose their residency rights in Jerusalem. This law was passed in a record time in the history of Israel, where the draft law and three readings of the law were passed in one session.

employment and socioeconomic characteristics. During this phase a list of informal sector production units is identified. A sub-sample of production units is selected for phase II which is designed to collect information from informal production units and to link production and consumption at the micro data level. In phase III a more in-depth consumption survey is conducted on a sub-sample of the first phase.

The 1-2 survey develops a unifying definition of the informal sector and formulate an integrated data collection methodology on households unincorporated enterprises production units and to linked production units. In the 1-2 survey, informal economy equals to informal sector in addition to informal employment outside the informal sector. Data are collected in the 1-2 survey in two phases: the Labour Force Survey (LFS) to collect data on employment, adding questions on informal employment, and integrate questions in LFS to identify Household Unincorporated Enterprises for Market (HUEM). The second phase is the HUEMs survey, to use first phase data to construct sampling frame for HUEMs, and to collect data on HUEM. In the 1-2 survey approach, identification of 'informal sector' enterprise is done in the data analysis stage. Informal units typically operate at a low level of organisation, with little or no division between labour and capital as factors of production and on a small scale. Expenditure for production is often indistinguishable from household expenditure. Activities are not necessarily performed with the deliberate intention of evading the payment of taxes or social security contributions, or infringing labour or other legislations or administrative provisions. Labour relations are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees.

The informal sector is a sub-sector of the household institutional sector in the system of national accounts. To be excluded all incorporated enterprises, non-profit institutions serving households, government institutions, and at least some production must be marketed, which excludes production of goods and services exclusively carried out for own final use and own-accounts workers/informal employers. The definition of the HUEM is the Household Unincorporated Enterprises for Market. Therefore, informal sector is part of a HUEMs, where additional criteria is implemented. This includes that the size is under specific threshold, not registered, no specific business name, no separate business bank account and without professional premises.

4-3 The mixed parallel survey

The Palestinian Central Bureau of Statistics (PCBS) designed an independent parallel informal sector survey. The statistical unit for the survey was defined according to the definition of the SNA of 1993 which defines two types of statistical units: Institutional unit; enterprise: an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and transactions with other entities, and establishment: an enterprise or part of an enterprise in which one group of goods and services is produced with the possibility of having secondary activities.

For the purpose of implementing the survey, the informal sector was defined as informal establishment which refers to an establishment which employs less than or equal 5 employees, and they are mostly proprietors, unpaid family members, with low value of capital, lack of complete accounting records, lack of working contracts, etc. Professionals such as doctors, engineers, auditors and all other related professions were excluded from the survey frame. The Informal household project referred to the project established by the household or an

individual to have a source of income, or a job as a result of difficulties in having the working opportunity in the formal economy, where the project is heavily depending on the social relations and other personal relations. The agriculture activities were excluded form the definition and the survey since there is no frame for the agricultural holdings or a holders register (frame) and these activities need special methodology to avoid any duplication in measuring the economic indicators[4].

The sample had been designed in a specific manner to meet the requirements related to the calculation of social and other related economic estimates in the Informal Sector. Assurance has been given to cover all kinds of establishments in this sector (representing all economic activities according to location of work and operator's gender) so that upon completion of the survey reliable independent estimates could be extracted. Thus it becomes possible to study and analyze discrepancies among constituents of the Informal Sector in respect of its capability to generate income, as well as other related variables.

Based on the fact that the objective of the survey is to compile comprehensive data of the informal sector and its different constituents, the methodology of combining household surveys with the establishment Surveys has been resorted to. This way all employers of the informal sector and their economic activities can be covered irrespective of the size of an establishments and its location including the cases of using an owner's residence as a work site. Those with no permanent addresses cannot be covered in an establishments survey solely.

The survey was implemented during one whole year on a quarterly basis. Many difficulties faced the fieldwork data collected at most referred to the person estimations, this decreases the confidence rate of these data. The barriers imposed by the Israeli occupation restrict the free movement between Palestinian regions especially between West Bank and Gaza strip and between West Bank and Jerusalem. The geographical nature of Palestinian territories, which divided into three regions (remaining West Bank, Gaza strip, Jerusalem inside borders), this gives every region special characteristics in: cost of construction and construction material prices, … etc. The difficulties in reaching the statistical unit because of non obvious addresses especially in taxi drivers which in dynamic movement between stops which force the field worker to wait for along time in order to take data.

Surveying the informal sector, households and establishments has availed statistical data (social and economic) about the reality of this sector. In respect of establishments it has provided data on the number of establishments, workers of different categories and their remuneration, value of production and intermediate consumption. In addition it has provided data on the employer, and, the establishment and organization of an establishment. In respect to households, the survey availed data on different social and demographic indicators, beside the numbers of workers according to their categorization in the informal sector and their remuneration, in addition to data on the value of production, intermediate consumption.

5. Comparison between measurement methods

The above mentioned methods for measuring informal sector and informal employment are bound with the technical requirements for designing and implementing the data collection and

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[4] Further difficulties were reported in the compilation of the agricultural holding register due to lack of comprehensive registration on individuals basis.

processing. Generally speaking, the 1-2 and 1-2-3 surveys have less requirements but include stronger assumptions concerning the distribution of informal sector projects when compared with the mixed parallel method. In particular while the 1-2 and 1-2-3 methods require updated household sampling frame, the mixed surveys require updated sampling frame for both households and establishments. Sample is designed once for 1-2 and 1-2-3 compared of two different designs for the mixed parallel surveys method. In addition, 1-2 and 1-2-3 surveys could produce more timely statistics in a cost effective approach, with more integration with running statistical household survey programs. But on the other hand they are bound with the requirements of the ongoing survey programs such as labour force, expenditure surveys, etc, and could be affected by the defects of the ongoing carrier survey, particularly the sampling design problems. In particular, the labour force survey is usually designed using two stage or three stage cluster sampling scheme to represent the households, and does make any reference to the geographic, by type, or by economic activity distribution of informal sector activities. Therefore, attaching an informal sector module to LFS is implicitly assuming an assumption that is not obvious and does not utilize the information available (if any) about the distribution of informal sector projects. Such information could be employed when designing the sample of the mixed parallel surveys.

The 1-2 and 1-2-3 surveys are considered heavy attachment on a quarterly or biannual labour force survey. The real life experience report that LFS is usually used to carry a number of social concern modules. A number of specifications and requirements should be met by any module to be eligible module to the LFS, amongst to be a proxy survey and to be light in terms the number of questions and level of details required. All these specifications are not fully met by both the 1-2 and 1-2-3 modules which makes the eligibility of these modules to be loaded on the LFS questionable.

The main problem in the 1-2 and 1-2-3 surveys appear at the calculation of weights needed to estimate economic indicators such as value added, intermediate consumption, production, and consequently the contribution to the GDP. While the mixed parallel method can produce precise estimates for economic indicators as the sampling frame of economic establishments including informal sector is available before hand, the 1-2 and 1-2-3 sampling scheme is based on strong assumptions which could be argued on the basis of real life experiences, particularly in situation where countries face adverse conditions. To estimates economic indicators, the 1-2 and 1-2-3 surveys requires three steps; calculation of weights for households and standardization for households and individuals so that total weights lead to total population and total number of households. Second, comparison or standardization of informal sector weights so that the total weights gives the total number of informal sector projects, and finally calculation of relative weights to substitute non response at household and informal sector projects level.

Adverse conditions lead usually to less precise technical tools available before hand, this includes lack of good sampling frame, irregular household survey carrier, distortion in the distribution of informal sector projects; inability to measure the impact of attached module on the original carrier survey, etc. All these distortion makes the strong assumption involved in the 1-2 and 1-2-3 surveys more risky and less relevant, particularly in the quantitative measurement on the size and economic contribution of the informal sector for the first time.

From the point of view of national statistical office, The 1-2 and 1-2-3 surveys are heavy modules that the LFS can not afford for long time, which is a requirement to absorb seasonality. For example the original LFS in Palestine include 26 questions while the 1-2

module includes more than 100 questions. Henceforth, using LFS as a carrier is also risky, and designing a separate household survey leads to increasing the cost in a way that the difference between the two parallel mixed model and the proposed 1-2 or 1-23 survey might vanish.

Timeliness is one the main advantages of the 1-2 and 1-2-3 surveys in comparison with the parallel surveys model which usually take more time to produce statistics.

From methodological point of view, both methods use multi-stage (usually two-stage) sampling scheme. A sample of area units is selected at the first stage unit (*fsu*) in both the methods. The methods differ at the second-stage. As per the draft manual on surveys of informal employment and informal sector, in a mixed household-enterprise survey, the sampling frame at the second stage consists of all identifiable HUEM establishments located in the selected area unit, i.e *fsu*, outside the owners' home, household-based HUEMs located within home; and the HUEMs without any fixed premises of operation. A complete list of all the within-scope HUEMs is made by a structure-to-structure visit. The units of latter two categories are listed against and interviewed in the owners' households. The identifiable establishments outside owners' home are interviewed at the premises of the establishments.

The HUEMs included in the business register (or the list frame used for carrying out list-frame based Economic Surveys) are excluded from the list frame for the mixed household-enterprise survey. Within-scope HUEMs without fixed premises or within owner's home are identified through additional questions put to households during listing.

The approach of integrated "1-2" survey produces estimates of informal employment and informal sector employment, at the one hand, and production-related parameters of informal sector on the other. This consists of two phases, first phase: a household survey (LFS) and second phase: an enterprise survey. The first phase is used also for constructing the sampling frame for the enterprise survey. From the households with owner of a HUEM identified in the first phase, the sampling frame of within-scope HUEMs is constructed.

In the 2nd phase, a sample of within-scope HUEMs that are owned by the households is drawn for the informal sector enterprise survey. The within-scope HUEMs selected for survey may either be within the *fsu* without fixed premises, or within the *fsu* with fixed premises or outside the *fsu*. In all these cases, the HUEM is surveyed.

To assess the two methods, let us consider first the sampling error:, let inclusion probability of *fsu*, A, be $p_{1,a}$. Within the *fsu* A, let inclusion probability of a within-scope HUEM be $p_{2,e|a}$ and that of a household within the *fsu* be $p_{2,h|a}$. Thus, in a mixed household-enterprise survey, the inclusion probability of a within-scope HUEM, $p_e = p_{1,a} * p_{2,e|a}$.

While, in a "1-2" survey, since the within-scope HUEMs are identified through the households, the inclusion probability of a within-scope HUEM would be that of the household of its owner, $p_e = p_{1,r} * p_{2,e|r}$, where $p_{1,r}$ is the inclusion probability of the *fsu* where the owner resides.

In the simple case of complete enumeration at the second stage, the inclusion probabilities of the within-scope HUEMs simply becomes the inclusion probabilities of the first stage units, i.e. $p_{1,a}$ for a mixed household-enterprise survey and $p_{1,r}$ for a "1-2" survey. In that case, the

efficiency of an estimate (of informal sector) would depend on how well the inclusion probability of the *fsu*'s ($p_{1,a}$ for a mixed household-enterprise survey and $p_{1,r}$ for a "1-2" survey) are correlated to the *fsu*-level value of the parameter.

In a mixed household-enterprise survey, choice of highly correlated inclusion probabilities can be attempted by using Economic Census (EC) data. In a "1-2" survey, the choice of size variable for *fsu* selection is normally based on distribution of population and not on that of within-scope enterprises.

Thus, generally speaking the "1-2" surveys are expected to yield estimates of production-related parameters like GVA of informal sector with higher sampling error as compared to mixed household-enterprise surveys, with the same size of first stage unit sample.

Now let us consider the operational cost. A mixed household-enterprise survey, usually conducted independently of labour force survey using establishments census data, involves extra cost of enterprise listing, which in a "1-2" survey is done along with the listing for the labour force survey component. On the other hand, while there is virtually no additional cost for listing of HEUMs in "1-2" survey, there are extra costs (mainly in terms of time of the field workers) involved in traveling to the location of the establishments that are outside the sampled *fsu*. In a mixed household-enterprise survey, the entire field operation–from listing to canvassing of detailed enterprise questionnaires–are confined to the geographical boundary of the *fsu*.

As for the comparability of informal employment and informal sector employment estimates, the strategy of conducting independent surveys for informal employment (as a part of labour force survey) and informal sector adopting mixed household-enterprise method yields independent estimates of informal employment and informal sector employment. While 1-2 survey approach, as it uses the same first stage sample for both the components, provides highly correlated estimates of informal employment and informal sector employment. Thus, for the parameters like "share of the informal sector employment in informal employment", the 1-2 survey is likely to produce estimates with smaller sampling error as compared to those provided by independent surveys.

6. Conclusions

Adverse conditions might represent a dominant factor that could affect the applicability of well known methods for measuring informal sector. Therefore, survey statisticians have to consider the applicability of measurement method and make sure that technical compromises do not affect the relevance of measurement method. For the sake of measurement at the first time, the parallel mixed survey method seem to be less likely to be affected by adverse conditions in terms of the technical infrastructure needed for implementation. Once this has been made, the 1-2 approach could be utilized as a machinery for monitoring and tracking changes as this method is less costly, more timely and could utilize ongoing statistical activities in both data collection and analysis stages. A benchmarking measurement might be needed from time to time in order to create the solid basis required to apply the 1-2 method. Finally, both methods need to be adopted and localized in terms of survey content to accommodate local circumstances.

References

Charmes J. (1998a), Progress in Measurement of the informal sector: Employment and Share of GDP. In: UN Statistics Division (1998), Handbook of National Accounting. Household Accounting: Experiences in the Use of Concepts and Their Compilation. Volume1: Household Sector Accounts. New York, 372p. (cf. pp. 171-188).

Charmes J. (1998b), Contribution of Women Working in the Informal sector in Africa: a Case Study. Paper prepared for the United Nations Statistics Division. "Umbrella Gender Statistics Programme" and presented at the Delhi Group Meeting on Informal sector Statistics. Ankara. 28-30th April 1998.

François Roubaud & Mireille Razafindrakoto, 2007. The 1-2-3 Survey, An informal sector, informal employment and labour market monitoring tool. ESCAP, Bangkok.

Hussmans, Ralf, 2004. Measuring the informal economy : From employment in the informal sector to informal employment. Working Paper No. 53 ILO.

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

ILO (1993 a), Statistics of employment in the informal sector, Report for the XVth

ILO (1993 b), Report of the Conference, Report of the XVth International Conference of Labour Statisticians - Geneva 19-28 January 1993, 113 p.

International Conference of Labour Statisticians - Geneva 19-28 January 1993, 91 p.
International Monetary Fund (IMF), 2009. National Accounts Discussion site: Accrual accounting of interest http://www.imf.org/external/np/sta/na/interest/index.htmhttp,

Michael Clark-Lewis, 1997. Assessing Fiscal Policy in an accrual environment. Paper presented by the Australian director of fiscal framework and reporting section, Treasury to the Accrual Budgeting Conference.

OECD, 2008. Stat. Directorate; National Accounts-Electronic Discussion Groups (EDGs): **http://www.oecd.org/document/0/0,3343,en_2649_34245_34093888_1_1_1_1,00.html**

ONS, 2005. National Accounts: Effects of Spectrum Payments. Discussion paper

Sébastien Merceron (DIAL - Insee), 2008. Informal Employment and Informal Sector Data Collection: Strategy, Tools and Advocacy. Amman, 13-15 April 2008. Phase1 of the 1-2 survey:

SHABANEH, Luay, 2008. Operating a Professional Statistical Service Under Adverse Conditions, paper submitted to the 57th ISIS session, 2009.
SNA (1993), System of National Accounts, Commission of the European Communities, IMF, OECD, UN, WB