Measurement of Informal Sector in Adverse Conditions: Relevance of Methods

Lessons Learned from ESCWA Region

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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). 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). Estimates for ESCWA region were produced on ad-hoc basis using different methods. 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.

In ECWA region, a number of countries suffer from adverse conditions and instability; Iraq and Sudan pass through post conflict, Palestine under occupation, and other countries suffer from political instability and revolution of youth (Yemen, Egypt, Syria, etc). For example, the Palestinian statistical system passed during the last two decades through severe adverse condition, including the "Intifada" or uprising, 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 2006 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 ECWA region experiences 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

ILO research into the size, scope and organization of the informal economy began in 1972 when the concept of informal sector was first introduced into ILO discourse. In 1991, after nearly two decades of research into issues surrounding the concept and based on extensive discussions in ILO forums, the informal sector became a central target of research and action. Consequently, between 1991 and 2002, officials at the ILO worked diligently to increase the knowledge-base about the informal economy at the same time as member states, workers and employers engaged in standard setting activities related to precarious employment, adopting new international labour conventions and recommendations on Homework and Private Employment Agencies and discussing the range of potential instruments necessary to address changing employment relationships *(Vosko, 2002)*.

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

Informal sector has been discussed in a number of ILO forums focusing on its legal and institutional frameworks, growth, employment creation, restructuring and linkage with economic crisis and poverty, as well as its demographic factors and the linkage between formal and informal economies. Recently, informal sector employment has been also viewed from decent work lens. For the ILO, the most meaningful way of looking at the situation of those in the informal economy is in terms of *decent work deficits*. Poor-quality, unproductive and un-remunerative jobs that are not recognized or protected by law, the absence of rights at work, inadequate social protection, and the lack of representation and voice are most pronounced in the informal economy, especially at the bottom end among women and young workers. Some of the problems and constraints to decent work faced by workers and enterprises are not confined to the informal economy; they are common to parts of the formal economy. For the ILO and its constituents, decent work is a goal, not a standard, to be achieved progressively. A progressive approach would imply starting with the informal end, where most new job creation in recent years has been taking place, and promoting the transition upwards along the continuum toward the formal, decent and protected end.

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.

The measurement of informal sector involvement at both employment and contribution to the national economy has been a challenging task for official statistics in the ESCWA region. Although it is relatively a small region, it contains different types of economic settings with different levels of labour market organization. One can characterize the economy in the ESCWA member states in five categories in regard to informal sector and level of organization of the labour market. Six **organized** gulf economies with mass production of oil and oil driven economy and well organized and documented mobility of labour force. One **closed** economy totally dependent on international aid (Palestine where formality is a vague concept). Two **post conflict** economies (Sudan and Iraq); Iraq has open boarders and disorganized movement of labour migration, and Sudan poor and less organized in the south; which recently separated into a new economy, and transitional economy from agriculture based into oil driven. One poor **disorganized** economy with political instability (Yemen), and four other **normal** small and medium size economies (Egypt with fragmentation between urban and rural employment, and Jordan, Lebanon, and Syria).

2. Adverse Conditions in ESCWA Region

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) 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 late 2000, the Palestinian Intifada erected, and the country was exposed to 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[1].

This political division was accompanied with economic disorder where traditional economic linkages across different components of economic and social sectors became irrelevant. In

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[1] 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.

fact, a re-definition of what is formal and informal took place. For instance, what is used to be informal and illegal such as smuggling in normal economic conditions became the formal channel of foreign trade in Gaza Strip. This situation created a new concept called "tunnel economy". The de-facto government started to put taxes on the smuggling tunnels between Gaza and Egypt. Furthermore, due to the tension between the recognized government in Ramallah and the de-factor government Gaza, people were advised by the Government not to pay taxes. In such a situation formality becomes a confusing concept from both theoretical and operational angles.

More recently, the unrest in some Arab countries such as Yemen, Egypt, Syria and Tunisia is viewed as a result of the failure of economic policies and political and social exclusion. Unemployment and lack of decent work as well as involvement of youth in the informal sector and bad work conditions were among of other reasons for this political unrest. This suggests a re-visit for the operational definitions of many concepts including informal sector and informal employment as means of finding new approaches for addressing the economic situation in the region.

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.

This has particular significance for informal sector measurement due to the fact that such adverse conditions represent a typical incubator for growing informal sector and ciolence of labour laws, procedures and recognized labour relations and regulations.

2-2 Relevance internationally accepted concepts, standards and practices

In adverse conditions, measurement of the performance of the economy becomes a challenge. For instance, in Egypt, Tunisia and Yemen, a "revolution economy" was introduced; it is consisted of new economic activities that provided services for the setting-in and the demonstrators; its working hours followed the demonstrations agenda and not the labour law

in the country. Egypt statistical office "CAPMAS" faced a big challenge to estimate the losses of the demonstrations and the classification of the new business by formality; some of these activities were extension of regular existing businesses that has been closed due to the revolution, while others are not. This has a significant impact on the sampling frame and calculations of weights.

In post conflict situation like Iraq after 2003, the country has gone through a massive economic shift, accompanied with open borders led to a free and disorganized mobility scheme of people and goods, lack of registration of labour migration, and decentralized not documented exporting (smuggling) of oil by political parties, troops and others in addition to the regional and local governments as well as occupying authorities. Furthermore, due to a fragile security situation, streets were blocked by T-walls in most of the large cities such as Baghdad and Mosel. Consequently the cost of production increased tremendously and time for delivery increased and security oriented informal business were introduced to guard the delivery of goods. This situation pushed for huge shift in the informal transportation means as well as lack of registration due to security and disorder reasons. This has significant impact on the operational definition of informality, weighting, and comparisons of activities across different parts of the country.

2-3 Technical Challenges
At the technical level new challenges has to be faced; for example, the definition of unemployment and in particular seeking job condition become irrelevant during curfew in Palestine, closure and raid periods and/or zones. In addition, consumer price index becomes 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 provide 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. Another challenge facing the compilation of national accounts' short term indicators, foreign trade, and 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.

The above mentioned situations had two-fold challenges; the first one is related to the fact that such an outstanding situation requires out-of-box ideas and approaches, and the second is due to the fact that the ESCWA region lacks a strong and proactive statistical systems. Most of the NSOs apply the international standards as they are even without local customization and adaptation.

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 establishes 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 vanishes. 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. Similarly, during the huge displacement shift took place in Iraq after 2003, sampling frames became irrelevant and formality became a vague concept in these circumstances.

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 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[2].

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

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

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 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 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.

In fact a 1-2 survey was conducted in Palestine in 2009; this survey produced controversial results that on one hand technically sound (methodologically and how data collection and analysis), but presented different story about the Palestinian economy. The survey revealed that despite of the closure of Gaza strip, and despite of the tunnel economy and lack of functional banking system and taxation, the informal sector employment is less than the West Bank which was under direct reform process supervised by the IMF and the World Bank.

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. ESCWA region enjoys a wide spectrum of situations which makes an out-of-box approaches for measuring informal sector a challenging tasks particularly the fact that the region lack regular estimation of the size and structure of the formal sector and its role within the economic policies in the region.

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 seems 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 machinery for monitoring and tracking changes as this method is less costly, timelier 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, and ESCWA might play an important role in this regard.

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