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The Contribution of Informal Sector to GDP in Developing Countries : Assessment, Estimates, Methods, Orientations for the Future

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The informal sector was internationally defined as a concept of labour force by the XVth International Conference of Labour Statisticians 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 multicriteria 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 analyse and circumscribe the informal sector. Even earlier, at the beginning of the 60s, national accountants had to compile the few available data and to make the numerous assumptions necessary to the estimation of the then-called "traditional sector" without which the GDPs of most newly independent African countries would have been reduced to a tiny figure.

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, maybe 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 recent revision of the System of National Accounts in 1993 (UN, 1993) is rapidly modifying this landscape and figures for the contribution of the informal sector to GDP should be soon made available for countries such as Mexico, Colombia and Peru, at least through the accounts of individual entrepreneurs in the household sector by industrial sector.

We will present, in a first section, the estimates of the contribution of the informal sector in various developing countries and we will explain how they have been calculated from the national sources. In a second section, we will go into further details to show how the activities in the informal sector have been taken into account until recently and how these methodologies could be improved in a near future, on the ground of recent data collection on the informal sector. In a third section we will identify some domains where underestimation still remains and where progress have still to be made, especially in the measurement of women's contribution to GDP, through their informal activities.

1. The informal sector in the National Accounts of various developing countries.

For many years, several sub-Saharan African countries have annually compiled data and formulated assumptions for the measurement of the "traditional sector", including subsistence agriculture. Kenya was already one of the first countries to draft a manual on such compilations (OECD, 1965) and it is somehow paradoxical that this country which had been twice ahead is now rather backward. Burkina Faso (formerly Haute Volta) kept detailed tracks of its estimation procedures, making it possible to present an inventory and assessment of them (Charmes, 1989). In other countries, the methodologies and procedures of estimation remained unwritten or informally and orally transmitted from one generation of national accountants to the other and it is consequently rather difficult and it requires real and patient investigation to know what is in the "black box".

Table 1 below shows the share of informal sector in total GDP and in non-agricultural GDP in comparison with its share in labour force, for various countries in different regions.

Table 1: Informal sector as a share of non agricultural and total employment and as a share of non agricultural and total GDP in various developing countries.

Countries (years)	% non agricultural employment	% non agricultural GDP	% total employment	% total GDP
Tunisia (1995)	48.7	22.9	37.8	20.3
Morocco(1986)		30.7		24.9
North Africa		**26.8**		**22.6**
Benin (1993)	92.8	42.7	41.0	27.3
Burkina Faso (1992)	77.0	36.2	8.6	24.5
Chad (1993)	74.2	44.7	11.5	31.0
Ghana (1988)		58.3		31.4
Kenya (1999)	71.6	25.0	28.8	18.4
Mali (1989)	78.6	41.7	13.3	23.0
Mauritania (1989)	75.3	14.4		10.2
Mozambique (1994)	73.5	44.8	7.6	38.9
Niger (1995)		58.5	27.2	37.6
Senegal (1991)	76.0	40.9		33.0
Tanzania (1991)		43.1	19.6	21.5
South Africa (1995)	18.9	7.2	16.6	6.9
Sub-Saharan Africa*	**77.4**	**40.9**	**19.7**	**27.0**
Philippines (1995)	66.9	32.5	34.3	25.4
Indonesia (1998)**	77.9	31.4 (36.7)	42.9	25.2 (28.6)
Thailand (1994)	51.4		22.7	
Korea (1995)		16.9		15.9
India (1990-91)	73.7	48.1	34.4	32.4
Asia *	**67.5**	**37.3**	**33.6**	**27.7**

Table 2: Informal sector and shadow economy as a share of non agricultural and total GDP in various developing countries.

Countries (years)	Informal sector as % of total GDP	Informal sector as % of non agricultural GDP	Size of shadow economy as % of total GDP 1989-90
Tunisia (1995)	20.3	22.9	45.0
Morocco(1986)	24.9	30.7	39.0
North Africa	**22.6**	**26.8**	**42.0**
Tanzania (1991)	21.5	43.1	31.0
South Africa (1995)	6.9	7.2	9.0
Sub-Saharan Africa*	**27.0**	**40.9**	
Philippines (1995)	25.4	32.5	50.0
Thailand (1994)			71.0
Korea (1995)	15.9	16.9	38.0
India (1990-91)	32.4	48.1	22.4
Asia *	**27.7**	**37.3**	**45.3**
Mexico (1998)			49.0

Sources: Charmes J. (1999) : **Informal sector, Poverty and Gender. A Review of Empirical Evidence,** Background paper for the World Development Report 2001, Washington, The World Bank, 44p.
For the size of the shadow economy, see Schneider F. and Enste D. H. (2000), Shadow Economies: Size, Causes, and Consequences, **Journal of Economic Literature,** Vol XXXVIII (March 2000), pp. 77-114.

For all countries (except India), the size of the shadow economy is bigger than the size of the informal sector which often represents more than half of the shadow economy. The question remains however to know what share of the shadow economy is already accounted for in the official GDPs. For the developing countries, the statistical data of which we have compiled in our estimates (at the exception of Ghana and Kenya), the informal sector is already included, but what share of the shadow economy is also included? And it is also possible that the size of the shadow economy has been overestimated if it has been simply and directly compared with the official figures for GDP.

2. Usual methods and assumptions for compiling and estimating data on the informal sector in National Accounts and possible progress to come.

It generally takes time for national accountants to revise their methodologies and to ground their estimates on recent sources of data. They have of course excuse for this: global estimates cannot vary from one year to the other depending on sources, methods and assumptions used. Once a methodology has been agreed upon, the estimates have to stick to it as much and as long as possible. This is why most of the estimates of the share of informal sector in total GDP presented in table 1 are based on methodologies which do not use the results of recent national surveys on informal sector, or which do not use them completely. The 1993 revision of the System of National Accounts (SNA, 1993) is an opportunity, for many countries, to establish a new base year and fully use the results of mixed surveys carried out in the recent period as a follow up of the 1993 recommendations for the measurement of informal sector.

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:

Production + Imports = Final Consumption + Intermediary Consumption + Exports
(+ 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.

For services the balance method is not always possible and assumptions have often to be made for productivity of labour, based again on anecdotal data collected on a very small number of units.

The recent availability of data on value added per head or per economic unit in the informal sector at national level has generally not questioned these methods: usually the fresh representative data have replaced the anecdotal ones provided that they did not contradict the data on consumption: in this respect, it is interesting to note that national accountants generally preferred the consumption data to the production data.

Once the estimates have been prepared for a base year, there remains the problem of the variation from one year to the other. The least that an be said is that the national accountants generally been short of imagination: trends in the informal sector have followed population growth for trade and eventually services, while they were tracing those of the formal sector in manufacturing. In other words, the trends of informal sector in national accounts are the results of the assumptions of national accountants and are not generally interesting to analyse in details. In this regard, the measurement of employment in the informal sector through annual labour force surveys can provide a useful basis for assessing the trends of its contribution to the GDP, by industrial sector, as it is the case in Asian countries where these surveys are carried out on a regular basis.

For national accounts purposes and for the new base years under preparation in many countries, the most promising data collection systems would certainly be a regular mixed household survey on informal sector undertaken each five year (an establishment survey being attached to a budget-consumption survey in order to reconcile data on production, income and consumption within the same survey) and an annual (or infra-annual) labour force survey with a special section for the measurement of the informal sector.

Despite these progress to come, which probably will increase the share of informal sector in total GDP, there are still major causes of underestimation which have not yet been solved.

3. Remaining gaps in the measurement of informal sector in National Accounts : the underestimation of women's activities.

Measuring women's contribution to GDP is quite an unusual task for national accountants, and until recently it has not been a challenge for them because they aim at classifying output and value added by sector of industries and by institutional sector (household, incorporated, financial, administrative), distinguishing the informal sector within the household sector since the 4th revision of the System of National Accounts in 1993, and eventually trying to disaggregate the data by region to provide information for the decentralisation process which occurs and is encouraged in more and more countries. Although many efforts and much progress have been made since a few years, and particularly since the Beijing Conference in 1995, it is little to say that National Accountants have not been in the position or in the mood of easing the provision of the necessary data for an assessment of the situation. However it might be not their task to do it. And gender economists have got to gather two sets of data: GDP by sector of industry and by institutional sector on the one hand, labour force by sector of industry, by formal/informal sector and by sex on the other hand.

In National Accounts, two different ways or methods may be used for estimating women's contribution to GDP: the most usual – at least the most extensively used, although not so frequently, in anglophone countries – is the estimate from the Income side. It is however obvious that the Production side method is more relevant and more efficient in that it can be used for much more countries and with much less assumptions than the Income side method (see Box 1 hereafter).

Box 1: Two Methods for Estimating Women's Contribution to GDP

The **Production side method** consists in disaggregating the value added by sector of industry and by formal/informal sector (a classification which is more and more widely available in developing countries, although it has frequently to be harmonised on the ground of a common definition, and particularly the new international definition adopted in 1993 by the 15th ICLS) in parallel with the similar disaggregation of the labour force (which is even more often available) provided it is by sex (contrary to the value added).

Women's contribution is then quite easy to calculate, assuming that in a particular industry of the informal sector, there is no reason to believe that women's productivity (or value added per head) is lower than men's. The difference in the contribution of women and men to the value added is only due to the distribution of women and men in the labour force. Such an assumption cannot be made for the whole economy, or the whole sector of industry, (because in most countries, and especially the developing countries, women in the formal sector occupy less skilled jobs, compared to men), but it certainly can be made for the informal sector.

The Production side method consequently needs a detailed disaggregation of value added by sector of industry and by formal/informal sector; value added per head in the informal sector, calculated on this ground, is then applied separately to female (and male) labour force, giving the contribution of each sex to the value added in this particular industry.

For comparative purpose, it should be noted that ownership of dwellings, or imputed rents (usually classified within the informal sector by National Accountants) has to be subtracted because it has no equivalent in the labour force.

The **Income side method** consists in attributing to each sex its share of the various sources of income:

- compensation of employees requires data on salaries and wages by sex in the informal and formal sectors: informal sector surveys can provide these data,

- operating surplus can also be disaggregated by sex and by formal/informal sector through informal sector surveys,

- but income from property (land, ownership of capital) rarely can be distributed by sex, and this is why the income side method is less reliable than the production side method, unless it is assumed that women have no access to these properties, an assumption that may be true in some countries or societies; but still the method greatly underestimates women's contribution because of wage differentials between sexes, and because a great number of women are engaged in the labour force as unpaid family workers, a status hardly taken into account in the compensation of employees.

Finally, for those countries where data are available and the two methods can be applied, the comparison of the results might give a good idea of the importance of the underestimation of their contribution to GDP.

For 9 countries in Africa and in Asia and by major industrial sector, the size (in labour force), the contribution (to GDP) of the informal sector on the one hand, the share of women in informal sector employment and in total GDP on the other hand have been calculated. Table 3 summarises the main findings.

In Africa, women's participation to informal sector employment is everywhere higher than 50 percent (and often more than 60 percent), except in Burkina Faso (41.9 percent). However the figure for this country does not include secondary activities which have been measured in detail and the contribution of which is taken into account in the informal GDP. One can see that in Burkina Faso (table 3), the contribution of women in the informal sector to GDP is significantly far higher than their participation to informal sector employment (61.4 percent compared with 41.9 percent). In Chad where the measurement of pluri-activity has also been attempted, such a discrepancy can be observed as well (62.3 percent against 53.4 percent) and in Mali the contribution of women is similarly very high (68.2 percent).

Table 3: Size of female employment and contribution of women in the informal sector in various countries.

	Percent of women's contribution in			
	Informal sector employment	Informal sector GDP	Total non-agricultural GDP	Total GDP
Benin 1992	59.7	51.1	21.8	14.0
Burkina Faso 1992	41.9	61.4	28.6	19.3
Chad 1993	53.4	62.3	27.8	13.9
Mali 1989	71.9	68.2	26.1	14.8
Kenya 1998	60.3	46.2	10.7	7.9
Tunisia 1994-96	18.1	15.7	3.6	3.2
India 1993	22.7	22.1	10.3	7.2
Indonesia 1998	43.1	39.5	22.9	20.3
Philippines 1995	46.3	44.2	14.4	11.3

Sources: Personal compilations of the author on the basis of official labour force statistics and national accounts.

In Asia, the contribution of women is generally lower than their participation in the labour force, emphasising their lower productivity in the hypotheses of the national accountants or in the results of the surveys.

India and Tunisia are characterised by a very low participation of women and consequently their very low contribution to GDP. In both cases, it is clear that there is a very important under-estimation of women's contribution and participation, due to cultural and methodological reasons: comparisons in table 3 point out those countries where major efforts are still to be made for correcting such an obvious under-estimation.

When looking at the detailed results (which are not presented here), it is clear that in all countries, the informal sector represents a very high proportion of trade employment (73 to 99 percent of total employment in this sector, and the most often more than 90 percent) as well as of trade GDP (50 to 90 percent). In this particular sector, women account for more than 50 percent (and up to more than 90 percent) of the labour force (except in Tunisia and in

India where their small number in these activities, due to the restriction for them to show up in public, explains their small share in overall informal employment).

In the industrial sector, the share of informal sector is also very high for employment (from 55 percent in Kenya to 97 percent in Benin) and for value added (from 33 percent in the Philippines to 71 percent in Burkina Faso, but with a lower contribution for Kenya, 11.8 percent, Indonesia, 16.7 percent and Tunisia, 21.4 percent). Women's participation ranges from 25 percent (in India, Tunisia, Chad) to 88 percent (Burkina Faso).

In services, the share of informal sector is lower, but as much differentiated than in the other sectors, in employment (from 31 percent in Tunisia to 70 percent in Benin and Kenya) and in GDP (from 10 percent in Benin to 57 percent in Burkina Faso).

Finally, at the exception of two countries where their participation and contribution is clearly underestimated (India and Tunisia), women's participation to informal sector employment accounts for nearly 54 percent and women's contribution to GDP to more than 53 percent. For 6 countries where their contribution does not seem too much underestimated (here it is necessary to exclude Kenya, where the figures for females are underestimated in industries and partial in services), the overall contribution to GDP would then reach nearly 16 percent and 24 percent of non-agricultural GDP.

These results highlight 3 major conclusions:

- A better estimate of women's contribution to GDP is obtained in the countries where efforts have been made in order to measure their secondary activities (multiple jobs). Burkina Faso is a typical example of a country where the informal sector is principally urban, tertiary and male as far as the main activities are taken into account, and becomes principally rural, manufacturing and female, when multiple jobs are taken into account. Tables 4 and 5 below illustrate the phenomenon and shows the recent trends of pluri-activity in Burkina Faso. Unfortunately, data on secondary activities are scarce and their collection is still challenging labour statisticians. Labour force surveys and time-use surveys have recently been addressing this issue in more and more countries.

Table 4: The impact of pluri-activity on the size and structure of the informal sector: Burkina Faso 1985.

	MAIN ACTIVITIES *		MULTIPLE JOBS **		TOTAL NUMBER OF JOBS	
	number	per cent	number	per cent	number	per cent
URBAN	120 000	54.5	13 000	2,0	133 000	15,0
RURAL	100 000	45,5	652 000	98,0	752 000	85.0
		100,0		100,0		100,0
MEN	130 000	59.1	145 000	21,8	275 000	31,1
WOMEN	90 000	40,9	520 000	78,2	610 000	68.9
		100,0		100,0		100,0
PRODUCTION	55 000	25,0	405 000	60,9	460 000	52,3
TERTIARY	165 000	75.0	260 000	39,1	425 000	47,7
		100,0		100,0		100,0
TOTAL INFORMAL SECTOR	220 000		665 000		885 000	
PER CENT OF TOTAL LABOUR FORCE		5,5				17.7
PER CENT OF NON AGRICULTURAL LABOUR FORCE		70,0				90.8

Source: Personal calculations from the 1985 Population Census, see: Charmes J. (1998b).
Notes: ***** main jobs held by persons occupied in informal sector.
****** number of secondary or additional jobs in informal sector held by persons occupied in both formal, informal and agricultural sectors.

Table 5: Trends in secondary activity rates in Burkina Faso.

	1985 population census			1991 demographic survey			1994-95 priority survey		
	Men	Women	Total	Men	Women	total	Men	Women	Total
Urban	7.9	7.0	7.6	15.4	12.1	14.3			18.3
Rural	27.2	25.2	26.5	27.7	24.3	26.0			31.6
Total	26.4	24.1	25.1	26.4	23.4	24.9	34.5	25.8	30.2

Source: Charmes J. (1998b).

- Women's contribution is the most underestimated in these countries where labour force surveys (or population censuses) have failed to capture women's participation to the labour force as well as it could be expected (Arab countries or India). In such countries, time-use surveys should provide new perspectives by raising the activity rates of women and their share in the labour force at levels more conform with usual standards. Even in a country where these standards were already reached (such as Benin), a time-use survey allowed to adjust the female activity rate from 71.5 to 76.7 percent in rural areas, and the share of women in the labour force from 42.6 to 53.3 percent (table 6 below).

Tableau 6: Variations in activity rates and share of women in the labour force depending on whether the only market economic activity or the non-market economic activity is taken into account.

	Urban		Rural		Total
	Women	Men	Women	Men	
ACTIVITY RATE					
Main activity	51.5	58.4	49.8	58.2	
Main activity + non market*	59.2	60.5	71.5	76.7	
SHARE OF WOMEN IN THE LABOUR FORCE					
Main activity	49.3		52.3		50.8
Main activity + non market*	51.9		54.6		53.3
Population Census 1992	41.3		43.3		42.6

Source**:** Charmes J. (1999): **Results and lessons of a national time-use survey in Benin, and consequences on re-estimation of women's participation to the labour force and contribution to GDP**, International Association of Time Use Researchers IATUR Conference, University of Essex, Colchester, UK, 6-8 October 1999, 13p.

INSAE/PNUD : ELAM 8, 1998, Time-Use section

MDR/PNUD, Time-Use and Education Survey in Rural Areas, 1998

Note: * activities declared as non-markert by the respondents, but which are part of the economic production as defined by the 1993 SNA.

- The value added by women's activities is generally lower than men's, as illustrated by the difference between the share of women in informal sector employment and their share in informal sector GDP in the countries where multiple jobs are not taken into account (Kenya, Tunisia, Indonesia and Philippines) and this is not due to a lower productivity but rather to an increased difficulty to capture the output, value added and income of female activities, because these activities are more informal, more home-based or street-based, and because women tend to under-declare the results of their activities .

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