

# International Comparison Program

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**[01.02]**

**Note on:**

## **Informal Construction**

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# Informal construction and the ICP<sup>1</sup>

## Introduction

This note discusses how informal construction could be dealt with in the International Comparison Program (ICP). The main purpose of the ICP is to produce Purchasing Power Parities (PPPs) for different components of the economy so as to convert economies and parts of economies to a common currency basis; PPPs are alternatives to market exchange rates and are believed to reflect price level differences across countries more accurately. Currently, the main effort on construction in the ICP is to determine price levels for formal construction work, assumed to be largely undertaken by contractors or state owned construction organisations; some of this will be ‘informal’ by some definition but it will be generally larger scale than purely domestic level activities (as acknowledged below, the distinction between formal and informal construction is not clear cut).

The note reviews definitions of informal construction, discusses how construction output is dealt with in national statistics and considers how construction can be characterised and quantified, and informal construction PPPs calculated.

## Objectives

The main purpose of the proposed work is to calculate country PPPs for a range of ‘informal’ construction types with a range of materials. It is assumed that the broader objectives are to:

- produce PPPs for different informal construction products or processes that reflect price level differences across countries.
- use these PPPs to adjust informal construction output data included in GDP (that would involve weighting the different proportions of formal and informal work).

And, possibly, to:

- contribute to PPPs for the cost of home ownership.
- contribute to sector PPPs, eg. poverty studies or informal housing projects.

## What do we mean by informal?

The United Nations Centre for Human settlements (UNCHS) defines informal construction as construction without building permits. This is, almost certainly, an inadequate definition in much of the developing world; in many countries building permits were only ever issued in major towns so all building outside of the towns would automatically be classed as ‘informal’. Also, in recent years, the process of issuing building permits has become less efficient in many countries so, today, only the most prominent buildings in central business districts may be constructed under permit. This means that many buildings, including multi-storey structures for residential and non-residential use, built of concrete and steel, would be classed as informal.

There are other definitions of informal construction that have been put forward. Wells, for example, goes into some detail in defining informality in construction and tries to bring some

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<sup>1</sup> Acknowledgement is due to Imed Jerbi for his contribution.

clarity to the concept.<sup>2</sup> She describes four dimensions of construction informality: employment of workers, form of enterprise, compliance with procedural requirements and compliance with planning and building regulations. She also explains that formal construction can contain elements of informality: a building may have a building permit but the companies and/ or workers employed in building it may, for example, not have complied with all registration requirements or employment regulations. Wells also points out that, while all definitions may be equally valid, the particular definition that should be adopted will depend on the issue under investigation and the purpose of the analysis.

### Why is it important?

PPPs are intended to deflate all the construction activity included in GDP. In developed countries formal PPPs will cover the majority of construction work, even though it may be partially self-built or built without full permission; it will normally be more or less indistinguishable from so-called formal construction. In developing countries there will be much more building work that falls into the informal category in terms of what is built and how it is built.

There are three important aspects of informality for this work: what does it mean for the physical form, what is it made of, and what work is included in national accounts? The table below uses the terms ‘formal and ‘informal’ to describe the building, and ‘recorded’ and ‘unrecorded’ to indicate whether or not it is likely to be included in national accounts. Issues of built form and materials and products are discussed later.

**Table 1: Formal and informal, recorded and unrecorded construction**

	<b>Recorded</b>	<b>Unrecorded</b>
Formal	The bulk of construction activity in developed countries but probably the minority in less developed countries.	A relatively small proportion of construction activity in both developed and developing countries.
Informal	The proportion of this in developing countries should be high but will depend on the policies and practices of national statistical offices. Developed countries will have some (relatively small amount of) informal activity and should reasonably accurately record this in their national accounts.	The amount of this will depend on the approach taken by national statistical offices. In theory, it should be low in both developed and developing countries.

The table suggests that informal construction might represent the majority of construction activity in at least some developing countries and that, in theory, it should be included in the national accounts. (In Africa, typically 90% or more of rural residential building and more than 50% of urban building is reckoned to be informal.) It is probable, however, that the extent to which informal (and even formal) construction activity is recorded is variable. Methods of estimation vary from country to country but are usually based on population

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<sup>2</sup> Jill Wells, Informality in the Construction Industry, Construction Management and Economics, January 2007, 25, 87 – 93.

growth, adjusted for replacement of older buildings and different rates of occupancy.<sup>3</sup> Work is required to establish what is done in different countries.

### Can we characterise it?

Formal construction covers a wide range of types and sizes of projects including residential, non-residential, civil engineering, and major and minor projects. Although it is very varied in terms of form and appearance, it tends to use similar sets of materials and technologies and procurement and contractual processes; and it is based on regulated relationships between the buyer (the building owner or client) and the seller (the construction contractor).

Informal construction is generally narrower in scope; it is mainly concerned with relatively small scale residential buildings, although these may include space for business activities – shops, workshops, storage, etc. (The term ‘residential construction’ is preferable to ‘houses’ in recognition of the fact that, in many countries, residential buildings are occupied by a number of households and individuals, often using shared facilities.) Informal construction may also, however, include more or less substantial non-residential buildings – hotels, factories, restaurants, etc.

The appearance of informal construction ranges from work that is indistinguishable from formal construction to work that comprises largely natural materials in traditional built forms and, between these two, there is a whole spectrum of form, materials and technologies. But it is not necessarily the product of informal construction that is its defining characteristic; there is a continuum in terms of both product and process that is resistant to simple characterisation. The table below outlines the main characteristics of formal and informal construction. It tends to confirm that what we take as ‘formal’ construction is easier to describe, and to emphasise the difficulty of clearly and succinctly describing ‘informal construction’.

**Table 2: The characteristics of formal and informal construction**

	<b>Formal construction</b>	<b>Informal construction</b>
<b>National location (urban, rural, peri-urban)</b>	Formal construction can be found anywhere but is more common in urban areas, less common in peri-urban areas and least common in rural areas.	The vast majority of construction in most rural areas in Africa is informal; informality is also common in urban and peri-urban areas.
<b>Permanence (short term – permanent)</b>	Most is assumed to be relatively long life – 30 years or more.	Work is often, but is not necessarily, relatively impermanent.
<b>Security of tenure</b>	Security of tenure of either land or property will not normally be an issue.	Insecurity is often a feature and is often correlated with impermanence; the less secure the tenure, the less permanent and formal the structure.
<b>Resource use</b>	Work will normally utilise modern materials and products.	Work can be of entirely natural and free materials or modern market materials, or anything in between. Second hand

<sup>3</sup> There is an interesting 1975 OECD paper by Derek Blades outlining methods used for ‘own-account housebuilding’ (*Non-monetary (subsistence) activities in the national accounts*).

	<b>Formal construction</b>	<b>Informal construction</b>
		materials are also common.
<b>Procurement and contractual processes adopted</b>	Work is usually procured using normal industry and commercial practices.	Procurement arrangements and contracts are often informal (and may well not be legally enforceable).
<b>Compliance with regulations</b>	Work is assumed to comply with all regulatory requirements.	Work may not comply with all regulations.
<b>Timescale and phasing of development</b>	This will normally depend on the time needed to construct but will typically be a matter of months and will usually be in a single phase.	Buildings are often developed progressively over a number of years (floor by floor or room by room, for example).
<b>Construction and property prices</b>	Construction and property prices will reflect prevailing market conditions.	Construction prices will reflect the resources purchased and the process involved as well as market conditions; property prices will be related to formal market values but will be adjusted to reflect the level of security of tenure.
<b>Extent of owner involvement</b>	Owners typically delegate management of construction to consultants and/ or contractors.	Owners are often involved in the management of construction work and can be involved in actual construction work.

It should be noted that, contrary to common assumptions, informal construction is not necessarily cheaper to build than formal construction – materials are bought in small quantities, incurring cost penalties, and projects are developed over time, involving additional temporary works. On the other hand, labour is probably cheaper and mark-ups and profit levels may be lower. Informal buildings may also have lower property values depending not only on quality but also on the perceived security of tenure.

### **How would we calculate PPPs?**

The proposed approach to calculating informal construction PPPs is similar to that recommended for formal construction; it is based on input resource prices and model projects. Average prices will be collected for broad categories of materials and products typically used in informal construction; prices collected will be for local examples in each of the categories. Prices will be for relatively small domestic quantities and will include both new and second hand items.

Informal construction tends to be relatively labour intensive and typically uses little or no construction equipment – projects tend to be small scale and hiring or owning items of equipment is often not feasible. Data on labour hours by type of worker will need to be collected or estimated by type of work for each country. (It is probable that the incidence of progressive development and own labour in informal construction will make the estimation of labour inputs particularly difficult.) Estimates will also need to be made of the mark-ups for overheads, profit, etc. (these may well be lower than on formal work).

Informal buildings tend to be more basic in terms of finishes and services than more formal buildings. The bulk of the resources are used in structure (floor walls and roof) and proportionately less in finishes (except doors and windows) and services (electrical and water

supply and sanitary provision is often minimal). The table below is based on data from the Tanzanian Household Budget Survey (HBS) 2007; it indicates the materials used and access to services in a sample of the national housing stock in different locations in different years.

**Table 3: Housing materials and access to services (percentages)**

	Dar es Salaam		Other urban		Rural		All mainland	
	1991	2007	1991	2007	1991	2007	1991	2007
<b>Floor</b>								
Earth	14.5	8.7	44.6	37.1	90.8	83.1	79.2	67.0
Cement, tiles, etc	84.3	90.4	54.2	61.9	8.0	15.6	19.6	31.8
<b>Walls</b>								
Mud, poles, branches, grass	32.5	9.4	70.7	48.4	90.2	77.3	83.8	65.1
Concrete, cement, stone, bricks	66.9	89.9	29.0	50.6	9.6	21.9	16.1	34.1
<b>Roof</b>								
Grass, leaves, bamboo, mud	1.3	2.5	23.4	14.9	75.9	57.4	63.5	43.9
Concrete, cement	3.4	1.2	0.7	0.0	0.1	0.0	0.4	0.1
Galvanized metal sheets	91.5	94.4	74.2	84.1	23.8	41.8	35.4	55.1
<b>Access to services</b>								
Grid electrical connection	51.4	55.0	21.7	25.9	2.6	2.5	8.5	12.1
Solar electricity		0.7		0.9		0.5		0.6
Piped water in unit	22.1	8.0	20.3	12.6	1.1	0.9	5.2	3.8
Flush toilet	9.3	10.3	3.4	5.6	0.2	1.0	1.3	2.8
Pit latrine	89.3	88.3	94.8	91.5	0.8	2.3	0.6	4.9

The HBS measures the characteristics of the building stock, not those of the latest production. Trends over time can, however, indicate the likely resource use in new construction. The survey indicates a strong trend towards modern materials (burnt bricks and metal roofing) and away from traditional materials (mud and thatch) in all parts of the country. This kind of data could usefully contribute to characterising residential construction but it is not clear at this stage how generally available it is.

Weights or quantities for materials and products will be derived from a limited range of model projects (Appendix A comprises an initial list of items). It is believed that most rural informal construction can be characterised by single storey detached structures comprising aggregations of 3m x 3m 'rooms' in various combinations. Quantities of materials and products per unit area or per person occupying will tend to decline as the number of rooms or total area increases but, since most informal building development is incremental (built in stages of a room or two at a time), actual quantities used will tend to relate to smaller numbers of rooms. (Incremental development tends to involve reworking parts of the pre-existing structure).

Urban informal buildings will sometimes be similar to rural but are often more complex in structure and will probably use more 'modern' materials; they are more likely to be multi-storeyed and (typically concrete) framed but will still be detached and an aggregation of rooms and floors developed incrementally. Most informal residential construction in capital or main cities will be indistinguishable from formal residential construction but, in other urban areas, there may be more 'traditional' construction.

## Appendix A. Initial List of Informal Materials and Products

Material or product	Preferred unit	Alternative unit	Unit price new	Unit price second hand
<b>Modern materials</b>				
Ordinary Portland cement in 50kg bags	Kg			
Sand and gravel for concrete	M3			
Mild steel reinforcing bars, 10-15mm diameter	Kg			
High tensile reinforcing bars, 10-15 mm diameter	Kg			
Shaped stone blocks	M3			
Ordinary clay bricks ?? x ?? x ??mm	Each			
Hollow concrete blocks ?? x ?? x ??	Each			
Structural timber sections, approx. 100 x 50mm	M			
Timber for joinery, approx. 75 x 25mm	M			
Timber boarding, approx. 15cm wide and 20mm thick	M2			
Exterior quality plywood sheets, 18mm thick	M2			
Chipboard sheets, 18mm thick	M2			
10cm steel hinges for doors	Each			
Steel door lock with handles	Each			
Metal window with fittings, unglazed, 1m x 1m	Each			
Clay floor tiles, 15 x 15cm	M2			
White glazed wall tiles, 15 x 15cm	M2			
4 or 5mm sheet glass	M2			
Water based paint for walls and ceilings	Litre			
Oil based paint for wood and metal work	Litre			
Galvanised corrugated steel roofing sheets	M2			
Clay roof tiles	Each			
Asphalt roofing	Litre			
Electrical cable for power circuits	M			
Electrical double power socket	Each			
20mm diameter mild steel water pipes	M			
White glazed fireclay squat toilet	Each			
White glazed western WC and cistern	Each			
Cast iron drain pipe, 100mm diameter	M			
<b>Other materials (please insert other commonly used and important modern construction materials)</b>				

Material or product	Preferred unit	Alternative unit	Unit price new	Unit price second hand
<b>Traditional materials</b>				
Structural timber poles, approx. 50-75mm diameter	M			
Bamboo poles, approx. 50mm diameter	M			
Woven mats	M2			
Roof thatching material	M2			
Lime for mortar or plaster	Kg			
<b>Other materials (please insert other commonly used and important traditional construction materials)</b>				