

## ANNEX 7

### A MORE FORMAL APPROACH TO “FULL INCOME”

From both a behavioral and a policy point of view, it is relevant to take into formal consideration that decisions made by the household unit are conditional on the information sets related to both the production and consumption side of the household economy. What is often neglected is that the production side of the household economy consists of both farming and domestic activities. Both the extended and full income definitions explicitly recognize the contribution of home activities to the formation of household resources. Farm and “home-produced” incomes are traditionally pooled within the family. In order to derive individual incomes, these sources of income are assigned to each worker in proportion to the amount of contributed labour. Estimates can then be made of the relative contribution of the husband and wife to the paid and unpaid sources of household income and to undertake a gender-specific analysis of the income distributions.

The implementation of the Beckerian notion of full income requires evaluating the time endowment, which is employed in both paid and unpaid working activities and leisure, and measuring non-labour incomes derived from returns on non-farm assets and/or pensions. The accomplishment of this task requires the derivation of total farm household and extended incomes along with the evaluation of leisure time. Both farming and home production are family enterprises, the difference being that farm output is marketable, while domestic output, often composed of public components, is sold within the household at an implicit price.

Each member ( $i$ ) of a farm household of size  $N$  can allocate its time endowment among the following activities  $T = (f_i + o_i + h_i + l_i) + I_i = d_i + I_i$ , where  $f_i$  is hours of time devoted to farm labour activities;  $o_i$  is time devoted to off-farm labour either in agriculture or in other sectors (paid at the market wage) and commuting time;  $h_i$  is time devoted to unpaid home production activities;  $l_i$  is time devoted to pure leisure, such as recreational activities;  $I_i$  is time devoted to rest and personal care. The amount of disposable time is  $d_i = f_i + o_i + h_i + l_i$ .

Traditionally, economists define “unpaid work” as the time spent at home doing housework and producing goods and services for the family. Similarly, for farm households, farm labour supplied by household members is not directly paid to farm operators. Farmers remunerate themselves at an implicit wage. The time contributed by farm operators is often referred to as unpaid farm labour (Huffman 1996). Both farm labour ( $f_i$ ) and domestic work ( $h_i$ ) are defined as unpaid work. The availability of individual time-use data permits separating the time devoted to domestic work from the time allocated to pure leisure.

As summarized in the following formula, total farm household income ( $y^m$ ) is the sum of farm, off-farm, non-labour income and social transfers of the  $N$  household members:

$$\begin{aligned} y^m &= \sum_{i=1}^N w_i^f f_i + \sum_{i=1}^N w_i^o o_i + \sum_{i=1}^N y_i^{nl} + y^{tr} = \\ &= \sum_{i=1}^N y_i^f + \sum_{i=1}^N y_i^o + \sum_{i=1}^N y_i^{nl} + y^{tr} = \\ &= y^f + y^o + y^{nl} + y^{tr}, \end{aligned}$$

where  $w_i^f$  is the gender specific implicit farm wage;  $w_i^o$  is the exogenous market wage of individual  $i$ ;  $y_i^{nl}$  is individual non-labour income derived from non-farm assets and property income;  $y^{tr}$  is social transfers and other money incomes, such as universal benefits and social insurance (non-means-tested) transfers (child allowances, social security or retirement, disability insurance, unemployment compensation, workers’ injuries compensation), cash mean-tested welfare payments, inter-household transfers (e.g., inheritances, alimony and child support paid and received, or other forms of intermittent income in cash or in kind, such as child care by relatives).

Disposable farm household income is obtained by deducting from total farm household income, including the value of self-consumption ( $y^a$ ) “sold” by the farm to the household, the value of farm, personal taxes, and social contributions  $t$ ,  $y^n = (y^m + y^a) - t$ . Gross or net extended income ( $y^e$ ) is derived by adding the valuation of domestic activities ( $y^h$ ) to either  $y^m$  or  $y^n$  respectively. Similarly, for pre- or post-tax full income,  $y^F = y^e + y^l$ , which requires the valuation of leisure ( $y^l$ ).

The way in which the various forms of income relate to each other is shown in table 1.

**Table 1**  
**Definition of Total Farm Household Extended and Full Income and Evaluation Methods**

	Income	Evaluation methods
<b>1. Total farm household income -</b>		
$y^m = y^f + y^o + y^{nl} + y^{tr}$		
a. Net (pre-tax) operating income	<b>Farm income - <math>y^f</math></b>	<ul style="list-style-type: none"> <li>• Accounting</li> <li>• Market - opportunity cost</li> <li>• Shadow wage</li> </ul>
i. From farm self-employment		
ii. From imputed rent for owner-occupied dwellings		
b. Money wage or salary income as <i>dependent</i> employees from off-farm	<b>Off-farm income - <math>y^o</math></b>	<ul style="list-style-type: none"> <li>• Market wage</li> </ul>
i. Agricultural and/or		
ii. Non-agricultural activities and/or		
c. Net income from non-farm self-employment as <i>independent operators</i>		<ul style="list-style-type: none"> <li>• As for 1.a</li> </ul>
Other cash market income (e.g., interests, dividends, rents, private pensions)	<b>Non-labour income - <math>y^{nl}</math></b>	
d. Social transfers or other money income	<b>Social transfers - <math>y^{tr}</math></b>	
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<b>2. In Kind earnings (<i>Home own-consumption</i>)</b>	$y^a$	<ul style="list-style-type: none"> <li>• Market price</li> </ul>
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<b>3. Taxes and contributions - <math>t</math></b>	<b>Disposable farm</b>	
a. Property income paid - (Farm business tax)	<b>Household income - <math>y^n</math></b>	
b. Net direct and payroll taxes - (Off-farm personal tax)	$y^n = (y^m + y^a) - t$	
c. Social contributions		
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<b>4. Value of domestic production - <math>y^h</math></b> (e.g., food preparation, household chores, child care, etc.)	<b>Extended income - <math>y^e</math></b> $y^e = y^n + y^h$	<ul style="list-style-type: none"> <li>• Market or opportunity cost approach</li> <li>• Shadow wage</li> </ul>
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<b>5. Value of leisure - <math>y^l</math></b> (e.g., recreational activities, entertainment)	<b>Full income - <math>y^F</math></b> $y^F = y^e + y^l$	<ul style="list-style-type: none"> <li>• Market or shadow wage</li> </ul>

