Freely Disposable Time: A Time and Money Integrated Measure of Poverty and Freedom

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Summary. — This paper develops, tests, and discusses a metric for livelihood assessment that integrates cash flow and time use households. It expresses how much time the household adults have left after satisfying the household's basic needs (e.g., for food, sleep, care, consumables, and leisure). This "freely disposable time" (*FDT*) may be put to any use available and allowed in the local context, such as above-basic leisure, work to acquire above-basic consumer goods, or investments in the future such as education or soil conservation. Thus, *FDT* represents people's freedoms and a key condition for any out-of-poverty strategy. The *FDT* methodology is illustrated with a number of characteristic livelihood strategies and tested on peri-urban farming livelihoods in India and some typical Dutch households. The *FDT* outcomes, methodology, strengths, and limitations are compared with those of an allied, "Discretionary Time" indicator, paired time/money indicators and purely monetary (e.g., income or expenditure) indicators of poverty and welfare. © 2011 Elsevier Ltd. All rights reserved.

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1. INTRODUCTION

Creating sustainable livelihoods to eliminate poverty is today's adage in rural development (Ellis, 2000; Hussein, 2002). As a format to capture the notoriously complex intricacies of rural livelihoods, the Sustainable Livelihoods approach has evolved from the late 1980s onward, based on Sen's (1981) entitlements and the work of Chambers and Conway (1992), Scoones (1998) and Ellis (2000). Various livelihoods assessment frameworks are now in use, for example, by the FAO, DFID, the World Bank, CARE, and UNDP. Designed primarily as a guide toward qualitative understanding (Scoones, 1998), results of these frameworks cannot be benchmarked against quantitative standards such as poverty lines and cannot be used for comparisons or to trace development over time. This paper aims to enrich the livelihoods approach with a *quantitative indicator that integrates fundamental aspects* of any livelihood. This, in our view, implies that the indicator should integrate money and time. In integrated time/money metric can express fundamental livelihood aspects that separate time or money indicators such as income or expenditure fail to capture. One example is that low-income households that still avail of time that could be spent to generate more income should be assessed as fundamentally better off than households that have the same income but need all their avail-

able time to provide that income. As we will see in Section 2, no metric is available yet that can do this on the level of individual households or household members.

The present paper, therefore, proposes a methodology that integrates all livelihood dimensions that are expressed primarily in monetary terms (e.g., cost of food, healthcare, consumer goods, or school) with those that are expressed primarily in time terms, for example, sleep, care, leisure, work, or community participation. Its synthetic result is named *Freely Disposable Time* (*FDT*). The basic intuition of *FDT* is that it is the time that people have left after the satisfaction of basic needs, and therewith represents the time that people can use to gain additional income, or to invest in the future, or to leisure, or any other choice available in the local context. *FDT* is the time not dictated by the necessities of life. Defined formally, *Freely Disposable Time is the time that a household's productive adults, averaged between them, have left after fulfilling the basic needs*

that they need to supply for themselves and their dependents. Basic needs here relate to the full range of necessities of a decent life, for example, physiological needs, food, shelter and care needs, social obligations, basic consumer goods, and so on. The *FDT* definition implies that in the present paper, we do not differentiate between the productive adult household members; see Section 3 for more details.

Note that *FDT* is not leisure or spare (non-working) time. *FDT* may be put to many types of use, and leisure is only one of those. In fact, most people prefer to work part of their freely disposable hours, for example, in order to acquire luxury goods or send a child to college. Many people in Western societies have much *FDT* but feel time-pressured nevertheless; see Goodin, Rice, Parpo, and Eriksson (2008) on the "time pressure illusion" and Gershuny (2005) on being busy as a status symbol.

As will be exemplified in Section 4, the *FDT* metric is sensitive to many more relevant changes in household livelihoods than separate time or money indicators are. Birth of a child reduces *FDT* because of its care needs. Decreasing food prices improve *FDT* because less hours of work are needed to fulfill the basic food need. The arrival of a solar cooker improves *FDT* because less time is needed to search for firewood. Higher wages improve *FDT*. Old age reduces *FDT* because more time is needed for basic chores and self-care. Maybe just as importantly, Section 4 also shows that *FDT* is *in*sensitive where it should. For instance if people decide to forego of immediate income and/or expenditure in order to invest time and/or money in vocational training or building terraces on the farm, *FDT* does not change, because these are only choices within people's available *FDT*. They are choices of what people decide to do with their time and money. It does not make them poorer, as income or expenditure indicators would suggest.

We have chosen for the time dimension to express the money/time indicator because of time's foundational and universal character. This implies that in the *FDT* calculation, cash flows are converted into their time equivalents through the income per hour (roughly, the wage rate) of the household. This method also enhances the comparability of *FDT* worldwide, since PPP conversion is included in the wage rate.

FDT is conceptually equivalent to Goodin *et al.'s (2008, p. 34)* concept of "Discretionary Time" but differs in methodology, as will be shown later. Like Discretionary Time, the *FDT* concept is applicable to the rich and the poor alike, and may, therefore, be used as a universal poverty or wealth indicator. The fundamental poverty line is when $FDT = 0$, meaning that people need all they can do, that is, all the time they have and all the cash they can generate with it, to satisfy their basic needs. At this level, people are trapped in poverty, with neither time nor cash left to invest in the future.[1] On the other side of the spectrum, very high income implies that the acquisition of basic needs requires only very little time in income generation. Yet, since everybody's day has only 24 h and everybody needs some 10 of those for basic sleep, self-care and leisure, all very high incomes will congregate at around 13–14 h/day of *FDT*. The relatively poor will be found in a much broader range, as Section 5 will show. As Goodin *et al.* (2008, p. 3) put it, the time metric expresses the decreasing marginal utility of income.

Against this background, the objective of this paper is to document, illustrate, test, and discuss a metric of Freely Disposable Time of households. In our examples, some bias will be toward relatively poor farming households because these provide the technically most difficult nut to crunch, for example, due to subsistence production. The paper is structured as follows. Section 2 gives a brief overview of the history

and members of the family of combined time/money indicators. Section 3 then presents the *FDT* methodology. In Section 4, we look at the *FDT* outcomes of various choices of a simplified example household, and compare these to what a number of monetary indicators say about the same choices. Section 5 then presents the outcomes of an empirical *FDT* application on complex, peri-urban livelihoods in India, with some households from the developed world added for comparison. Section 6 provides a broad discussion, comprising a comparison of empirical *FDT* and Discretionary Time outcomes but focusing in particular on issues of metric validity, that is, the value of *FDT* for people's incomes, freedoms, and well-being. Along that line we will not only discover strengths of *FDT* but also two caveats. The paper is rounded off by a summary and a reflection on indicator choice in research.

2. COMBINED TIME/MONEY METRICS

Many livelihood indicators exist already. Most of them focus on the monetary side of livelihoods, such as GNP *per capita* and household income or expenditure measures, sometimes in combination with a cost-of-basic-needs estimate (Ravallion, 1994; Ravallion & Bidani, 1994; Wodon, 1997). Other indicators focus on the time side of livelihoods, such as time poverty in Bardasi and Wodon (2006). Some indicators are of a more multi-dimensional nature, such as the Human Development Index and multi-dimensional poverty indicators. These lack true integration, however, because they aggregate their components in an arbitrary manner, for example, just adding up the various "life satisfactions" (Rojas, 2008). The *FDT* metric on the other hand belongs to recently sprouted family of poverty/welfare indicators that combine time and cash flows. This section supplies an overview.

(a) *Origins: Becker (1965) and Vickery (1977)*

Becker (1965) proposed that a household's resources could be measured by its "full income," defined as what it could earn by devoting all its time to income-generation activities and activities directly necessary to sustain these activities, such as a minimum of sleep. Becker's method has been criticized for failing to take into account that paid work to fill all these hours may be locally unavailable (Folbre, 2004). Vickery (1977) followed subtler course, calculating a combined money/time poverty spectrum. People with little spare time have a higher income poverty line than people who have more time available to compensate low income by searching for bargains, cook food from fresh ingredients, *etc.*; see Douthitt (2000) for an update.

(b) *Land-time budget analysis*

From within the rural development and farming systems tradition, Giampietro (2004) developed "land-time budget analysis" to assess the performance of the time and land budgets that people have available. Starting point of the analysis is the total number of hours per year available in the studied group (society, village, and household). Various categories resembling basic needs are then subtracted, such as the time needed for sleep, leisure, education and chores, the total time of the non-productive household members, and the time needed to farm for auto-consumption, pay taxes, and buy agricultural inputs. The time left can be used to produce cash, either on or off farm. How much "net disposable cash" this can be depends on a parallel system for the availability of land.