

## Alternative Approach to Poverty Measurement: An Experiment with Thai Data

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This short article discusses an experiment with an alternative approach to the measurement of poverty incidence, using household survey data for Thailand. The resulting incidence is presented in the latest, 1999, TDRI Information Kit.

### 1. INTRODUCTION AND RATIONALE

The TDRI has traditionally calculated poverty incidence for Thailand using the method originally developed by the World Bank in the late 1970s.<sup>1</sup> The approach has increasingly been questioned, both for academic reasons and for practical reasons, especially when there are implications for poverty alleviation programs. For academic reasons, the approach ignores several fundamental changes of factors constituting the calculation of poverty incidence, most notably changes in consumption patterns (which reflect changes in living standards over the 30-years since the calculation of the original poverty lines) and the associated prices. To a lesser extent there are demographic changes between and within Thai households. For practical reasons, the rapid reduction of poverty incidence obtained from the World Bank approach implies a poverty level that is unrealistically too low from a policy point of view.<sup>2</sup>

The National Economic and Social Development Board (NESDB) has attempted to correct the weakness of the World Bank method and has issued a new calculation of poverty incidence which employs several recommendations proposed in Kakwani and Medhi (1998).<sup>3</sup> The revised incidence is significantly higher than that obtained with the World Bank method. The most important factor contributing to the differences is the NESDB's much higher food cost to maintain minimum nutritional requirements.<sup>4</sup>

The need for an improved measurement of poverty also prevails at the international level. In 1992, the United States Congress appointed a panel of experts (hereafter referred to as the Panel<sup>5</sup>) to study and recommend new ways to measure poverty.

The approach adopted in this article is based on Kakwani and Medhi (1998), with additional adjustments based on suggestions made by the Panel.

### 2. ALTERNATIVE POVERTY MEASUREMENT: CONCEPTUAL BASIS

It is probably more sensible to view the concept behind the alternative poverty measurement by comparing it to the existing methods. For presentation purposes, let us categorize the existing methods into two schools: those strictly adhering to the original World Bank method, and the method following the recent amendments suggested by Kakwani and Medhi (1998). Somchai and Tiensawang (1999) recount the details of, and comparison between, the two methods.

In summary, Kakwani and Medhi (1998) made the following adjustments to the World Bank method.

1. Slight upward adjustment, on average, of calorie requirements for the Thai population.
2. Heavily upward adjustment of average food costs, resulting from the use of a new consumption basket for the "poor" and new "spatial price indices."

3. A different way of weighting the household samples from the Socio-Economic Surveys from those more widely used.
4. The adoption of a fixed quantity share of food consumption<sup>6</sup> in total expenditure, both temporally and inter-temporally, for households on the poverty line.

This article takes the first two suggestions. In fact, we use Kakwani and Medhi's data on calorie requirements, the consumption basket and the spatial price indices in our calculations. The weighting of the samples is the one used internally by the TDRI.

The most notable departure from the method used by Kakwani and Medhi (1998) is the determination of the food expenditure ratio. Our method goes beyond addressing the question of how to determine the food ratio, but rather to the question of what constitutes "basic need" expenditures. Kakwani and Medhi (1998) did not challenge the World Bank approach that assumes that investigating food sufficiency is adequate to address the wellbeing of the poor. This approach has shortfalls and there is much room for improvement, as suggested by the Panel.

The Panel made two suggestions regarding minimum expenditures. First, it recommended the addition of information on expenditure on other basic need items, other than foods, in the calculation of poverty lines. These basic need items are clothing and shelter (including utilities). After arriving at a minimum expenditure for the basic need items, a small allowance for expenditure on other needs is added, which results in the new poverty lines.<sup>7</sup> Second, the Panel suggested the use of actual expenditure information on basic needs rather than imposing a time-invariant consumption basket. This has the advantage of allowing households to adjust their consumption patterns in response to changing social and economic environments.<sup>8</sup>

Our calculation adopts these two suggestions and applies them to Thailand's data. However, there are three empirical problems.

First is the problem related to medical expenses. The Panel does not include medical expenses as a basic need expenditure. This is perhaps because a substantial portion of families in the U.S. have medical insurance coverage. For out-of-pocket medical expenses, the Panel suggests they be deducted from the family income rather than be included in the basic expenditure. In Thailand, however, households with medical insurance are exceptions rather than the norm; some precautionary savings are thus put aside for medical expenses,<sup>9</sup> which then can be counted as valid expenditure once spent. This article will compare the poverty incidence when medical expenses are treated as part of basic need expenditure and when they are deducted from the household income.

The second problem arises from the use of actual expenditure on basic need items. The question is, "whose expenditure will be used?" The Panel suggests using the actual expenditure of a "reference family," defined as a family of two adults and two children. This article does not adopt this practice for the reason that Thailand's population structure is steadily evolving and is thus less stable than in the United States, making it more difficult to pin down a reference family based on age structure. Instead, the World Bank's method of using the expenditure information of households classified by income level is adopted. While the World Bank uses the poorest one-fifth of households, we examine and compare the two possibilities of using both the poorest and the next-to-poorest one-fifth.

The final problem is the question of the amount of allowance for additional "necessary expenditure." If the allowance is measured in terms of percentage to expenditure on basic needs, the question is then the choice of a "multiplier." The poverty line is the product of this multiplier and the actual basic need expenditure. We will experiment with three values; 1.0, 1.1 and 1.2. This means the additional 0, 10 and 20 percent is added to the reference family's expenditure on basic needs.

### 3. THE CALCULATION OF NEW POVERTY INCIDENCES

Before moving to the poverty incidences calculated with the method described in the previous section, let us examine the structure of Thai household expenditure on basic need items. [Table 1](#) shows the proportions out of total consumption expenditure of expenditures on food, clothing and footwear, shelter and utilities and medical and medical services, of households belonging to the first two quintiles sorted by

income in ascending order (the poorest and the next-to-poorest classes) from 1992 to 1998.

The table shows that low-income households spent most of their expenditure on these four basic need items. The differences between the two groups, in terms of expenditure shares, were not stark as the poorest households spent merely around two percent more of their total expenditures on basic need items.

The structure of basic need expenditure is similar between the two household groups. As expected, food and beverage commanded the lion's share of the basic need expenditure. The next important expenditure belonged to shelter and utilities, and then clothing and footwear. Expenses on medical and medical services were the lowest categories. Comparing the two household groups, the richer the households, the lower the share of food and beverage (the familiar Engel's Law), and the higher the share of shelter and utilities.

The 1992-1998 poverty incidence based on the concept discussed in the previous section is reported in [Table 2](#) and [Table 3](#). Table 2 corresponds to the case where the first quintile households represent the reference family, and Table 3 corresponds to the case where the second quintile households represent the reference family. In each Table, the incidences are calculated for the different treatment of medical expenses, as well as for the different choice of multiplier.

As the Tables show, the differences arising from the different treatment of medical expense are not significant. In fact, the incidences are even equal for some experiments.

The choice of multiplier does cause significant differences. For each 10 percent additional allowance (when the multipliers increase from 1.0 to 1.1 and from 1.1 to 1.2), the increases in calculated poverty incidences ranged from around 4 percent in 1992 to 2.5-2.9 percent in 1998. The declines in the influence of different multipliers over time—which is apparent when comparing figures from 1992 to 1994, 1996 and 1998—is an interesting finding and needs explanation. No explicit investigation is attempted here.

The poverty incidence is also sensitive to the choice of reference family, namely, incidences in Table 2 differ clearly from those in Table 3. The incidence is higher when the second income quintile households are used as the reference family, naturally because these households spend a higher portion of their total expenditure on basic need items than the poorest households do. The differences in incidence range from around half a percentage point to a full two percentage points.

#### 4. RECOMMENDED METHOD

The sensitivity analysis regarding the influence of three empirical decisions in the previous sections provides us the guideline for the recommendation of the poverty measurement.

Since the influence of different treatments of medical expense is small, it is recommended that medical expenses be included as one of the basic need expenditures. We also recommend a multiplier of 1.1, which is, in our view, more appropriate than an either lower or higher allowance. Not allowing for an additional amount might be inconsistent with the fact that a substantial portion of poor households have in-kind income that can be consumed directly but does not appear as expenditure. On the other hand, allowing too high an allowance could pose some problems. As already shown, the four basic need items already make up around 80 percent of total expenditure by the poorest 40 percent of households. A 20 percent upward adjustment for other "necessary expenditures" would result in a "minimum expenditure" that is higher than the total expenditure.

Finally, we recommend using the first quintile households as reference families for the main reason that using their expenditure data will take us closer to the concept of measuring "absolute poverty," whereas using data from the second quintile households would be more consistent with measuring "relative poverty." Given Thailand's level of development as well as her persistent troubles with income distribution, the concern for relative poverty hardly arises.

#### 5. ADDITIONAL REMARKS

The distinct aspects of this alternative measurement of poverty are (a) the widening of the definition of minimum expenditures that put households with these amounts of expenditure on the poverty lines and (b)

the use of actual basic expenditure data rather than the so-called “expert” fixed amount or fixed share. Although hardly free from contention, the first aspect seems desirable. The latter aspect, perhaps, invites more objections, possibly from those taking the view that the measured poverty should reflect the absolute position of the poor. Using the actual expenditure by “reference families” to construct poverty lines fails to capture the absolute poverty because the consumption patterns of these families, by definition, tend to evolve with those of society. The approach is thus more suitable to the measurement of relative poverty. This is a valid point. However, we feel that the benefits of using actual expenditure data outweigh this shortfall for two reasons.

First, the shortfall need not really be a shortfall. In other words, the concept of relative poverty does indeed have welfare implications that have been well recognized by a number of economists.<sup>10</sup> Second, fixing the quantity of food consumption over time and places underestimates the households’ ability to adjust their consumption patterns in response to changes in income and prices. Behrman (1988) finds that income elasticity of nutrition consumption among poor and ultra poor households in many economies was considerably low, implying that the so-called minimum food basket used in the determination of poverty lines can possibly be adjusted to other lower-cost baskets without seriously compromising the nutrition intake. The effectiveness of coping mechanisms adopted by low-income households is probably best illustrated by the less-than-expected social impacts of the current Asian financial crisis.

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