



## **Hans H. Ruthenberg-Graduierten-Förderpreis 2010/**

## **Hans H. Ruthenberg Award for Graduates 2010**

Soo Mee Baumann, “Measuring Food Security in Laos. Validation of the World Food Programme’s Food Consumption Score for the Lao Context”

University of Hohenheim, 2009

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### Summary

#### 1. Research Problem

The recent food price boom and the resulting increase of food insecure people have once again shown the presence of wide-spread hunger. In order to fight hunger and contribute where assistance is most needed, valid and reliable measurement tools are required. In this endeavour the UN World Food Programme (WFP) has developed the Food Consumption Score (FCS), a proxy indicator for food security. The FCS was created in Southern Africa in 1996 and its use has been validated in the region through several years of testing and application. Yet, when applied in the Lao context for the first time in 2006 the FCS displayed much lower levels of food insecurity than what was measured by other indicators (FAO, 2009; National Statistics Centre, 2007; WFP, 2007).

The present study is based on the assumption that the FCS underestimates the prevalence of food security in the Lao People's Democratic Republic (Lao PDR). Lao PDR is one of the least developed countries (LDC) in the world with the number of food insecure estimated at around one fifth of the population (FAO, 2008; National Statistics Centre, 2007). Working with a measurement tool which identifies food insecure households more reliably and accurately will help to gear food assistance to those households most in need.

#### 2. Objective and Research Questions

The purpose of the study is to validate the FCS against a benchmark of calorie Consumption to find out whether the assumption of the FCS underestimating the food insecurity level in Laos holds true. The study moreover aims at testing whether changes to the FCS calculation may improve the predictive power of the FCS regarding the benchmark. The basic Lao meal consists of rice complemented by small portions of vegetables and fish (FAO, 2003) with the share of staples in the diet amounting to 72 percent of the dietary energy supply (DES) in 2003-2005 (FAOSTAT). Consequently, the amount of food groups or varieties other than staples is limited. In general, a considerable share of the rural population in Laos has access to a wide variety of wild foods, nowadays mainly from plant origin, but access to these is very

seasonal and amounts are often very small. The FCS though/ does not account for quantities at all and might thus overestimate the food security level by means of the diversity of food groups consumed in Laos.

Furthermore, the CFSVA reveals that staple and vegetable consumption constitute the base of the diet across all consulted households (WFP, 2008). With a daily consumption of staples and vegetables a household obtains a score already at the threshold between food poor and borderline food consumption (WFP, 2007). Consequently, the questions arise whether the thresholds used to create food consumption groups (FCG) are valid for the Lao context or whether and how they should be adjusted.

Hence, the present study aims at validating the FCS against a benchmark and assesses how changes in the FCS calculation may improve the predictive power of the FCS. The research focuses on the following research questions:

1. Does the food security level estimated by the FCS mimic the food security level according to the household calorie consumption benchmark and if so to which extent?
2. Does excluding small amounts improve the predictive power of the FCS?
3. Does changing the thresholds improve the predictive power of the FCS?
4. Which are the thresholds predicting the household calorie consumption benchmark the best?

Apart from providing a validated and adapted indicator for Laos, the study aims at giving recommendations on the suitability of the FCS as outcome indicator for WFP operations in Laos.

### 3. Methodology

For the validation study household interviews were conducted in 96 households, randomly selected out of 8 villages in 3 different agro-ecological zones. The structure of the questionnaire for the calorie consumption assessment was based on IFPRI's comprehensive food consumption module with the single food items taken from the Lao Expenditure and Consumption Survey (LECS) 2002/03. The resulting quantity information was converted into calories with the help of the ASEAN food composition table. The ability of the FCS to mimic the food security level predicted by the benchmark as well as the impact of changes to the FCS on its predictive power with regard to the benchmark of calorie consumption were tested with a range of analytical techniques, in particular, descriptive analysis, scatter plots, correlation analysis, bivariate analysis, cross tabulation and sensitivity-specificity analysis.

### 4. Results

The analysis revealed that the FCS in its original form does underestimate the food insecurity level for the surveyed villages. It displays a comparably strong positive, highly significant correlation with the calorie consumption benchmark but the classification of households into FCGs does not mimic the food security status predicted by the CCGs of the benchmark.

Excluding small amounts has no major impact on the relationship of the two continuous variables. *Calorie Consumption per Adult Equivalent* and FCS, but certainly improves the ability of the FCS to mimic the number of food insecure and/or secure households predicted

by the benchmark. From the findings of this study excluding small amounts for the Lao context seems advisable.

Upon excluding small amounts the original thresholds produce quite acceptable results for the sensitivity-specificity analysis but the prevalence of food security predicted with regard to the benchmark still shows room for improvement. As a compromise between the thresholds suggested by calibration and the results of sensitivity-specificity analysis the lower threshold 25.5 matches most of the mentioned criteria, displaying a prevalence of food poor similar to the benchmark, high total accuracy, unbalanced but nevertheless fairly acceptable sensitivity and specificity and a very low proportion of misclassified. The most suitable upper threshold seems to be the one resulting from calibration. For a threshold of 36.5 the prevalence of food insecure households (poor + borderline) is identical to the benchmark prediction, total accuracy is still acceptable, sensitivity and specificity are fairly balanced and both above 60 percent and the proportion of misclassified is slightly above the acceptable 30 percent. Whether these proposed thresholds are suitable for all parts of Laos may only be assessed through a national representative sample.

The assessment of the suitability of the FCS as outcome indicator for WFP operations and the ability of the FCS to capture changes in the food security level caused by WFP operations revealed that whether the FCS may capture changes or not, largely depends on the type of assistance provided. Moreover, external factors which impact the food security level need to be controlled for.

## 5. References

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