

Assessing economic access, dietary composition and drivers of fruit and vegetable consumption in Vietnam



PhD Research Proposal

*Christian Genova, Wendy Umberger and Suzie Newman
Global Food Studies*

ACIAR Workshop on nutrition sensitive agriculture –
looking through a nutrition lens

1-2 December 2014, Hanoi



Outline

- Introduction
- Previous studies (price, food access, SES, diet quality, diet cost)
- The case of Vietnam
 - Reforms, poverty incidence and emergence of middle class
 - Undernutrition, poverty, F&V intake
 - Poverty and ethnicity
- Research gap
- Research questions
- Methods
- Significance



Introduction

- In 2000: United Nations Millennium Declaration created Millennium Development Goals (MDGs)
- 1st MDG: “eradicate extreme poverty and hunger by halving “between 1990 and 2015, the proportion of people whose income is less than \$1 a day (Target 1.A)” and “the proportion of people who suffer from hunger (Target 1.C)”

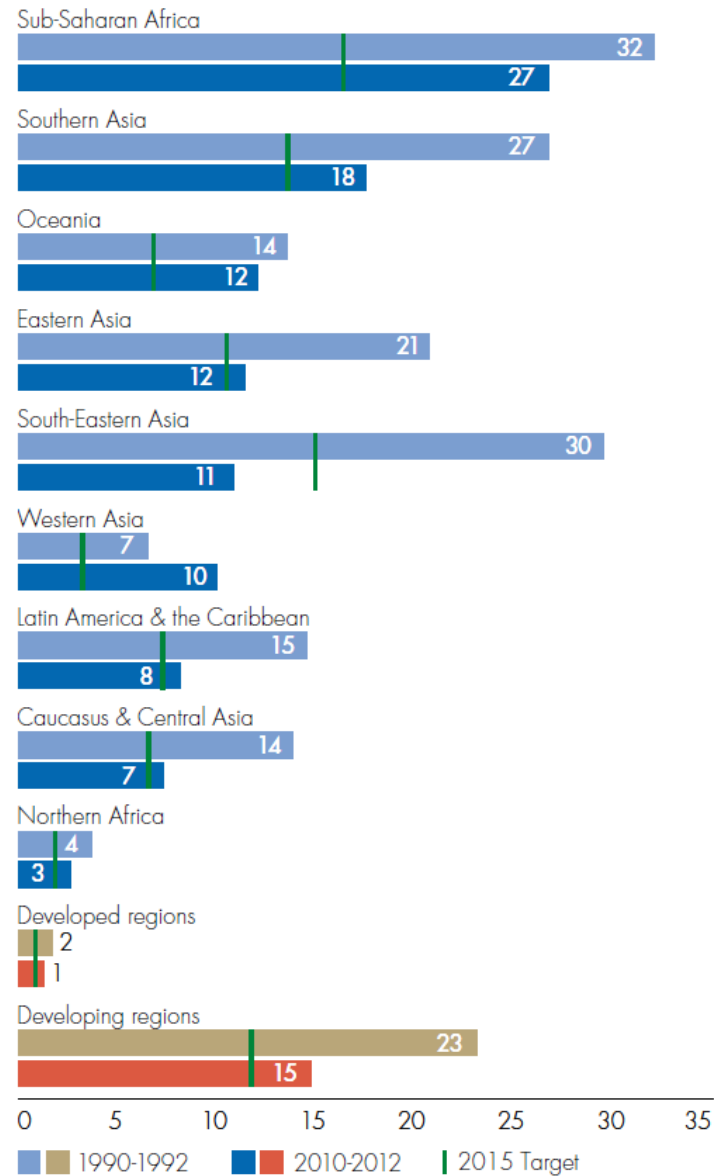
(United Nations 2013, pp. 6 & 10)

- ✓ Poverty eradication (Target 1.A) : 22% from 47%
- ✗ Food security (Target 1.C): ???



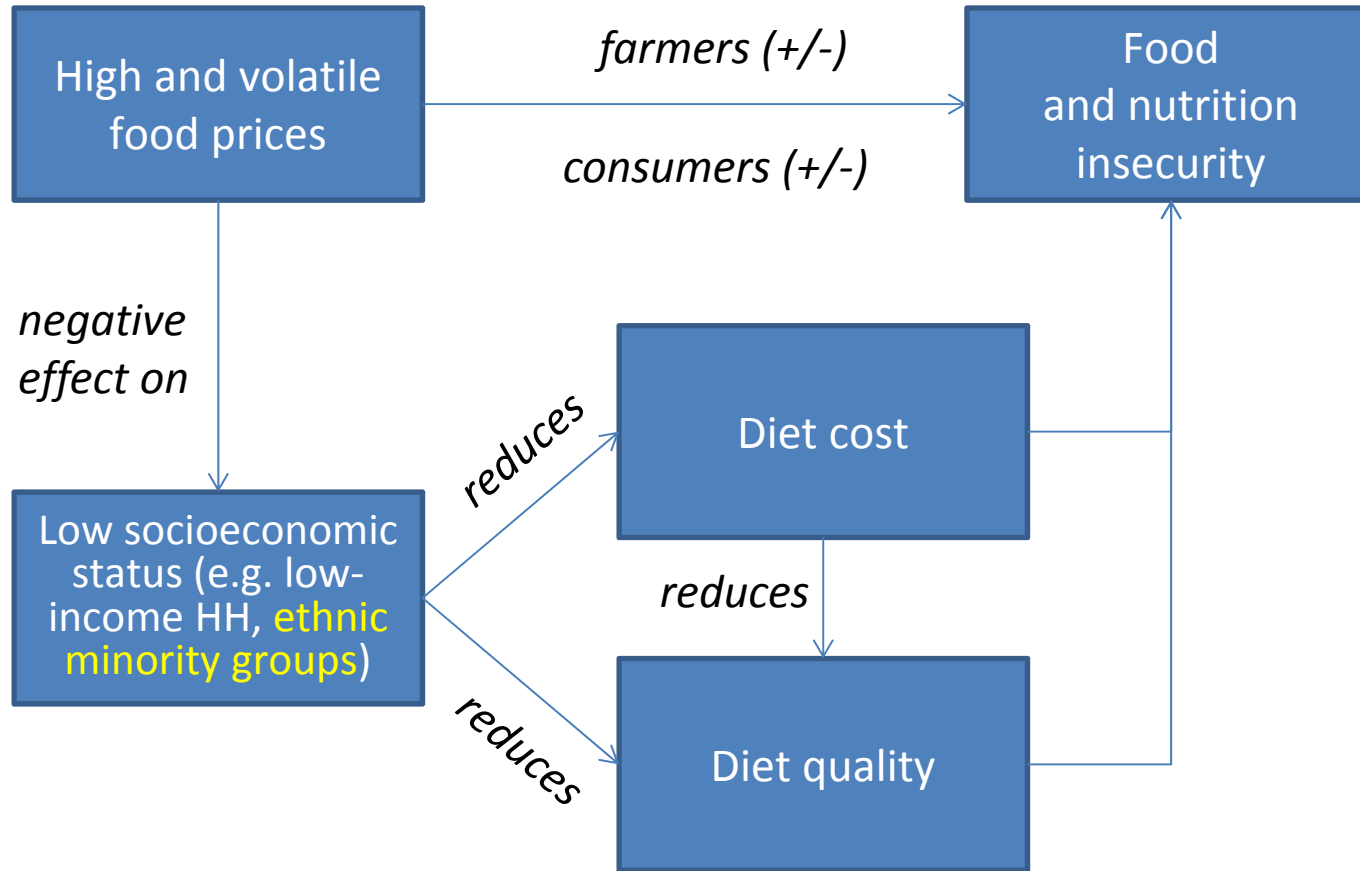
Source: <http://www.un.org/millenniumgoals/>

Proportion of people who are undernourished, 1990-1992 and 2010-2012 (Percentage)



Source: United Nations (2013), p.10.





Food price and access to food

- crucial issue is whether both monetary and non-monetary resources are present to access adequate quantities of food (*Wu et al, 2011*)
- high and volatile prices reduce food availability to households in low-income countries vs. high-income countries – more responsive to price changes (*Iannotti et al 2012; Trostle 2008 as cited by Nah & Chau 2010; Warr 2008*)
- lack of access to sufficient food leads to extreme hunger, malnutrition and illnesses (*de Hoyos & Medvedev 2011; Geok 2008; Iannotti et al. 2012; Ivanic, Martin & Zaman 2012; Robles, M. & Keefe 2011; Robles, Miguel & Torero 2010; World Bank 2012*)
- household food security = can acquire the food needed by its members (*Pinstrup-Andersen, 2009*)



Food price and access to food: An Example

- *Brinkman et al (2010)* showed how food price increases of 2007/2008 affected both urban and rural households in Asia, Africa and Latin America
 - higher food expenditure share
 - reduction in frequency and composition of meals
 - dietary changes
 - lower diet quality
- cost of healthy food basket is higher in very remote rural areas than in major cities (*Chapman et al, 2013; Queensland Government, HFAB 2010*)



Socioeconomic position, diet cost and diet quality

- positive association of a household's **socioeconomic status** with **diet cost** and **diet quality** in developed (US, UK, France, Australia, Canada) and developing countries (Bangladesh, South Africa, Vietnam) (*Lalluka et al, 2010; Mak et al, 2013; Middaugh et al, 2012; Monsivais et al, 2012; Morris et al, 2014; Nguyen et al, 2014; Rashid & Smith, 2011; Temple & Steyn, 2011; Ward et al, 2013; Zarnowiecki et al, 2014*)



Determinants of fruit and vegetable (F&V) intake

- *Di Noia & Byrd-Bredbenner (2014)* did literature review of 58 studies on low-income youths (Australia, Brazil, Canada, Mexico, New Zealand, Philippines, US) and found **3 factors consistently related to intake**:
 - race/ethnicity (more for Hispanics vs white and African-Americans)
 - F&V preferences
 - maternal F&V intake
- **11 consistently unrelated to intake**:
 - age, BMI, home F&V availability, maternal age, maternal BMI, maternal education, maternal employment status, parental food/energy intake, peer modeling/intake, sedentary activity level and sex



Status of healthy diet (high on fruits and vegetables)

- health professionals actively promote healthy and balanced diet, i.e. increasing fruit and vegetable consumption
- most people in developing countries do not meet min. 146 kg/cap/yr (400 g/cap/day) WHO/FAO recommended level (*WHO & FAO, 2004*) because:
 - more expensive compared to other food groups
 - developed countries: US\$1.5/day more = US\$550/yr (*Rao et al, 2013*)
 - least developed countries: US\$0.72-1.27 (*Chastre et al, 2007*)



Healthy diet

- Other studies also found that ...
 - healthy diets are more cost-effective and affordable choice than unhealthy diets [South Africa (*Pretorius & Sliwa, 2011*)]
 - women who perceived poor availability and quality of F&V in their location were more likely to perceive F&V as expensive – psychological mechanisms attached [Australia (*Williams et al 2012*)]



The Case of Vietnam

- one of the Asian tigers that continue to achieve high economic growth due to its reforms (*Doi Moi*) (*Gentilini & Webb, 2008; Le Nguyen et al, 2013*)
- reduced % people living below poverty (17.2% in 2012 from 20.7% in 2010) and % hungry and undernourished (47% decline bet. 1990 and 2008) (*World Bank, 2014; Von Grebmer et al, 2008*)
- increasing no. of middle class demanding greater quality (mimic goods), convenience (supermarkets) and food safety (local fastfood chains vs. street foods) (*Drummond in Nguyen-Marshall et al, 2012, pp.86-88*) – “safe vegetables”
- effects vary by urban and rural areas, by region and by ethnicity (*Epprecht, Muller & Minot, 2011; NIN & UNICEF, 2011*)



Undernutrition, poverty and F&V consumption, by region

Region	Undrwt (%)	Stunt (%)	Wast (%)	Poverty (%)	F&V (kg/ca/yr)
Red River Delta	14.6	25.5	6.1	7.0	48
Northern midland and mountain areas	22.1	33.7	7.4	18.8	32
North central area and Central coastal area	19.8	31.4	7.6	14.0	32
Central highlands	24.7	35.2	8.1	12.4	31
South east	10.7	19.2	8.1	2.3	36
Mekong River Delta	16.8	28.2	11.1	8.5	31

Source: a/ Prevalence of underweight, stunting, wasting and poverty incidence from NIN & UNICEF (2011), pp. 9&21; b/ F&V intake from VHLSS (2012), pp. 279-283



Poverty incidence, by ethnicity

- *Epprecht, Muller & Minot (2011)* studied the relationship of poverty and ethnicity and found that
 - many ethnic minority groups in northern uplands
 - ethnic minority groups are mostly poor due to “spatial poverty trap” (*termed by Ravallion & Jalan, 1997*)
- *Imai et al (2011)* argued that ethnic minorities are poor bec. returns are much lower for them compared to ethnic majority groups (Kinh and Chinese)



Poverty incidence, by ethnicity

- Also, ethnic minorities resist state interventions - cling to traditional knowledge (*Bonnin & Turner, 2012*)
- *Ex:* for the Hmong, to achieve food security, they are faced with the following (*Tinh, 2002*):
 - limited land vs increasing population
 - produce food vs forest and water conservation
 - need for production dev't (S&T) vs low level of education
 - changing forms of livelihood vs traditional customs



Research gap

- many rural HH in northern region grow vegetables mainly for home consumption due to smaller land size (*IFPRI, 2002*)
 - Why is their F&V intake very low compared to the recommended? Is it because of problems with physical access, economic access or other factors?
- no prior consumption/nutrition study done for the ethnic communities in Vietnam, and for a 7-day-food-logs with urban-rural remote comparison



Research gap

Previous consumption studies:

1. Urban and peri-urban Hanoi, Hatay and Hungyen using VHLSS sample (*Ali et al, 2006*)
2. HCM using telephone directories, mail survey (*Hoang & Nakayasu, 2006*)
3. Hanoi biased towards high-income consumers (*Maruyama & Viet Trung, 2007*)
4. Hanoi, HCM and rural provinces looking at pork and meat products (*Toan et al, 2010*)
5. Northern VN looking at rice farm households (*Pandey & Khiem, 2001*)
6. Hanoi and HCM, 800 urban HH (*Fresh Studio*)



ACIAR (AGB/2012/059) Project: Consumer survey

n=1,000



- composition of food demand
- knowledge, attitudes and practices on food quality and food safety
- preferences on different types of retail outlets (modern vs traditional)

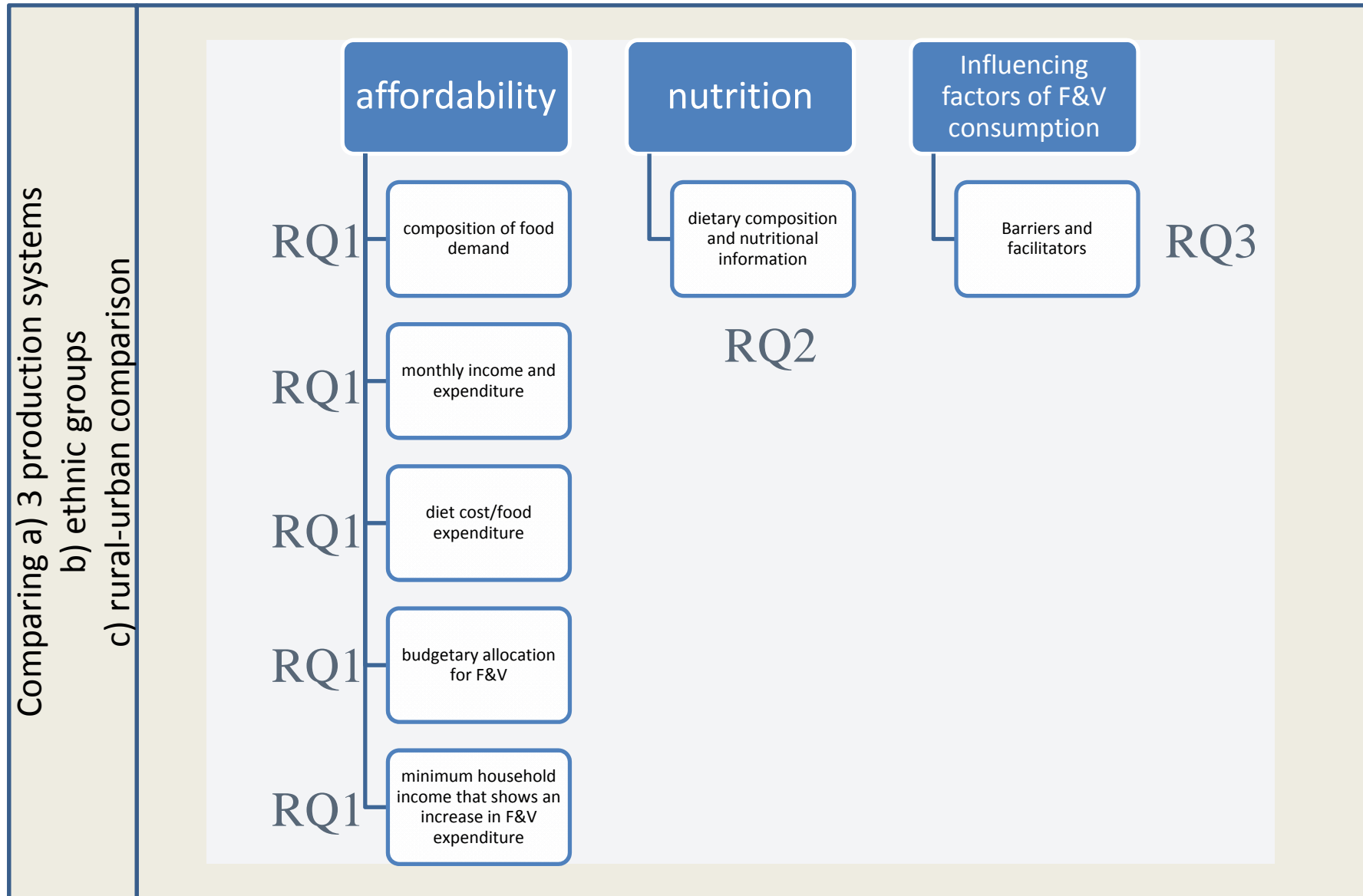


Research questions

1. Is economic access to fruits and vegetables a problem for ethnic minorities in rural and urban Northwest Vietnam?
2. What is the contribution of fruits and vegetables to household nutrition of ethnic minorities in the target areas?
3. What are the influencing factors of fruit and vegetable consumption among ethnic minorities in the target areas?



Improve dietary quality and address nutritional security of ethnic minorities in Vietnam



Methods

- *Data sources:* primary (semi-structured questionnaire) and secondary (NIN Food Composition Tables) data
- *Target population:* ethnic minorities in Lao Cai province (Sa Pa and Bac Ha districts)
- *Sample size:* $n \approx 500$ (300 farming HH from baseline)
- *Data gathering:* tentative April-May 2015



Theoretical framework

24-hour food recall: common method in nutrition economics to estimate food and nutrient intake on basis of people's memory

- Advantages (*Gibson & Ferguson, 1999*):
 - better memory over short period of time
 - itemization of food usually disaggregated in 24-hour food recalls = more detailed assessment of dietary composition
 - calculative adjustments for absorption of micronutrients based on inhibiting and enhancing factors possible
- Disadvantage: only provides a snapshot on one particular day - dietary variation cannot be accounted for (*Foster & Leathers, 1999*)

Plan: 7-day food diary



Theoretical framework

Engel Model: shows relationship between household expenditure and household income

- Engel's Law: the poorer a family is, the larger the budget share it spends on nourishment
- Engel's curve: shows how quantity demanded of a good changes as consumer's income level changes
- ... can help determine the minimum monthly income level to observe increase in F&V consumption



Theoretical framework

Health Belief Model: a psychological health behavior change model developed to explain and predict health-related behaviors

- ... can help answer what influences F&V consumption among ethnic minority groups
- still need to compare with other psychological health behavior change models



Significance

- for those with limited (or no) market access, this research can help understand the link between production, consumption and nutrition, and explain why there is high incidence of malnutrition if physical access is not a problem
- policy perspectives:
 - important to understand how different socioeconomic groups esp. these vulnerable groups are affected by changing supply and prices
 - provide policy recommendations to promote development of an affordable diet in Vietnam looking at “alternative (indigenous)” vegetables that are culturally and socially acceptable esp. to these ethnic minority groups





THE UNIVERSITY
OF ADELAIDE
AUSTRALIA

Thank you for listening!

