Statement of Submission

This submission represents original work that has not been published previously, nor is it currently being considered by another journal. If accepted for *Public Health Nutrition* it will not be published elsewhere in the same form, in English or in any other language, without the written consent of the Nutrition Society. Each author has seen and approved the contents of the submitted manuscript. There is no conflict of interest for any author.

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Abstract

Objective: An investigation into evolving food retail systems in Thailand
Design: Rapid assessment procedures based on qualitative research methods such as interviews, focus groups discussions and site visits
Setting: Seven freshmarkets located in the four main regions of Thailand
Subjects: Managers, food specialists, vendors and shoppers from seven freshmarkets who participated in interviews and focus group discussions.
Results: Freshmarkets are under economic pressure and are declining in number. They are attempting to resist the competition from supermarkets by improving convenience, food diversity, quality and safety.
Conclusions: Obesity has increased in Thailand at the same time as rapid growth of modern food retail formats has occurred. As freshmarkets are overtaken by supermarkets there is a likely loss of fresh, healthy, affordable food for poorer Thais, and a diminution of regional culinary culture, women's jobs and social capital with implications for the health and nutrition transition in Thailand.

Keywords: freshmarkets, supermarkets, low income, nutrition transition, Thailand

Introduction

The nutrition and health transition

Thailand is one of several South-East Asian countries in transition from an agrarian to an industrial and post-industrial economy. Thai socio-economic change is increasing and international and local supermarket chains have integrated themselves into food retail at an unprecedented speed [1]. A nutrition and health transition is underway with mortality, infectious diseases and under-nutrition receding while low birthrates, overweight and obesity emerge [2]. Thais are increasingly urbanized and profound changes in diet include more sugar, oil, fats and animal meat and less vegetables and fruit [2, 3, 4]. Between 1990 and 2008 the estimated daily intake of kilocalories per person in Thailand increased from 2250 to 2540 [5] and over just two decades (1983-2006) sugar consumption almost tripled from 12.7 to 33.2 kilograms per person per year [4]. Dietary changes, less physical activity due to urbanization, sedentary recreation and occupational changes,[6, 7] are affecting body size.

Thai obesity has increased. The second (1997) and third (2004) National Health Surveys show the age-standardized prevalence of adult obesity (BMI = 25 kgs/m^2) increased from 25.6 % to 30.3 % [2]. By 2009 obesity affected 40.7% of women and 28.4% of men [3]. Population weight gain is more pronounced in urban areas and in the more economically developed Bangkok and the Central region and lowest in the poorer North and North Eastern regions [3, 4]. Cardiovascular diseases, non-insulin dependent diabetes mellitus (NIDDM), hormone-related cancers and gall-bladder disease are all expected to surge [5]. Considerable economic and social costs associated with obesity are anticipated, with implications for the health care system; [6] for example in China and India the costs of obesity and related diseases will outstrip the costs of under-nutrition in the next 25 years [7].

The evolving food retail landscape

Thailand now stands out among other South-East Asian nations for its rapid growth in modern food retail outlets [8, 9]. Traditionally, at freshmarkets or nightmarkets stallholders sold meat, fish, fresh vegetables, fruits and herbs [10, 11], and dry goods were bought from locally owned stores. Supermarkets, large self-service retail stores, first appeared in Bangkok in the 1960s [12] and were followed there by an explosion in modern retail formats associated with a booming

economy [13]. Later in 1989, 7-Eleven convenience stores arrived, located near commuter stops [14].

With the 1997 financial crisis, partnerships between Thai and foreign firms were dissolved and the foreign partners took control. These transnational food companies proceeded to expand their operations, for example, from 18 hypermarkets (supermarkets defined as 15, 000 to 20,000 square metres) [13] in 1996, to 148 a decade later. Their diffusion into regional centres occurred as rural incomes rose and rural people became more accustomed to urban-style living. The main companies were Tesco (UK), Carrefour (French) and Big C (French) [15] although Thailand's own CP (Chaoren Pokphand) group owns the 7-Eleven chain [13] (the market leader in this category) [16] and the Siam Makkro chain. The rapid expansion of supermarkets and hypermarkets [14, 15], and the annual loss of around 25000 small retailers [17], has closely paralleled Thailand's urbanisation and industrialization.

Thailand's food retail sector now consists of a traditional sector (freshmarkets and 'mom and pop' stores) that caters to the 'price sensitive' and 'traditional diet' consumers [18] and a modern sector (hypermarkets, supermarkets, and convenience stores) which has dominated the expansionary process since 2000 [19]. The modern retail sector has increased from about 35% of market share in 1999 to 48% in 2005 [20]. In 1996 supermarkets, hypermarkets and convenience stores had 10.5% of the retail food sales and by 2000 their share had increased to 18.4% [13]. New legislation and regulations introduced in the 2000s has slowed the growth of foreign owned supermarkets somewhat [9]. Nevertheless, super/hypermarkets are rapidly gaining ground with their number increasing from 110 in 1997 to 391 in 2007 with a 6 fold growth in convenience stores [9]. This modern food retail growth has corresponded with a national decline in the number of fresh markets, falling from 160 to 50 in the past decade in Bangkok alone [21].

The growth of super/hypermarkets may have a role in the Thai nutrition transition through two mechanisms. First, it has implications for food affordability, particularly for the poorer 55% of the population. In 2004 the average market-basket of goods from a traditional market costs 9% less than the equivalent basket of goods from the three major hypermarket retailers [13]. Recently, in Chiang Mai, it was observed that fresh produce at supermarkets cost between 2 and

4 times more than at freshmarkets [22]. Internationally, it is the wealthier, younger, urban middle-class who tends to shop at supermarkets [23-25].

Second, supermarket expansion could influence food choice, weight and health. Hawkes [15] argues that supermarkets can be both positive by making "a more diverse diet available and accessible to more people – and negative – supermarkets can reduce the ability of marginalised populations to purchase a high-quality diet, and encourage the consumption of energy-dense, nutrient-poor, highly-processed foods" (p.657). They have an impact on the nutrition transition because overall "consumers eat more, whatever the food [15]. Currently, both healthy and unhealthy foods are available at supermarkets, freshmarkets and other venues for urban Thais. However, small fresh produce providers may disappear as supermarkets drive out competitors and gain market share over time, leaving supermarkets to provide an abundance of cheaper processed foods and more expensive fresh foods.

Drawing on consumer and retailer views we discuss how Thai freshmarkets are responding to the growth of supermarkets and what the potential outcomes of their expansion may be. Evidence suggests that the dynamics of nutrition transition may be influenced, and the health and well-being of poorer Thais may be disproportionally affected.

Study methods

Fieldwork was undertaken progressively between 2006-2011 in seven freshmarkets located in each of the north, north-east, central and southern regions (see Table 1 and Figure 1) which represent major cultural, geographical, culinary and socio-cultural variation in Thailand. Central Thailand is the wealthiest area and the north-east or Isan area is the poorest [11]. The freshmarkets were located in major regional centres (including the outskirts of Bangkok) and were selected to represent a variety of freshmarket types, ranging from mainly retail to wholesale, renovated or not, and car or pedestrian focussed.

(insert Figure 1 here)

Figure 1. Map of Thailand showing fieldwork sites

(insert Table 1 here)

The research team of eight people included bilingual Thai and Australian research assistants, a Thai nutrition epidemiologist, an Australian food sociologist and a medical anthropologist. The Thai assistants worked with local people in each city to set up the interviews and focus groups and were present at the markets. Each market was visited over a period extending from one to four days but not every team member was present at each market visit.

Rapid Assessment Procedures [26] consisting of a range of ethnographic research methods adapted for short-term fieldwork including the following were used:

(Insert Table 2 here)

Interviews were either audio-recorded in Thai and later translated into English or Thai researchers provided translations while interviews were occurring which were then spoken into audio-recorders. Participants in focus groups and formal interviews were provided with food and drink. During opportunistic interviews (where prior arrangements had not been made for an interview), English speaking and Thai researchers jointly interviewed participants recording responses in notebooks. The team met at the end of the day to discuss observations, photographs, findings and interpretations. Data were examined for common patterns of responses which were then integrated with researchers' field notes of observations to identify major themes.

Results

Freshmarkets under Threat

Two central region markets typify the impact of Thai economic and social trends on freshmarkets. They illustrate how local communities and freshmarket vendors cannot ignore the economic and cultural consequences of supermarket development.

Nonthaburi, 32 kilometres from Bangkok, has always been farming land and its culture is rooted in home production with a well established reputation for some of the best tropical fruit in the country. Now, construction sites are being built here as migrants working in Bangkok look for housing. Most farmers have sold their land, local orchards have disappeared, and vegetables and fruits from other provinces have replaced local products in the freshmarket.

The Nonthaburi market was run down and dirty and the Nonthaburi Municipal Office was keen to renovate it; however, renovating freshmarkets causes considerable disruption to stall-holders who lose their income while improvements are made. Stall-holders fear that renovations are an excuse to reclaim the freshmarket site and sell it for more lucrative uses. However, without renovations, including access to car parking and a cleaner appearance, such markets have trouble competing with adjacent supermarkets and minimarts. Half the respondents to the survey of consumers at this freshmarket (in the wealthier central region) also shopped at the large modern supermarkets. This mixed mode of shopping contrasted with freshmarkets in other regions where there was less patronage of modern retail outlets.

Sam Chuck freshmarket in Suphanburi provides a contrasting history and appearance. For centuries Suphanburi has been a river market town, and has always sold a wide array of produce. In 2003, the 100 year old wooden market was completely refurbished with a view to becoming a cultural institution and a tourist destination. During the week the major consumers at the market are local residents, while at weekends, tourists arrive in large numbers courtesy of bus tours. The value of the traditional character of the Sam Chuk market is being vigorously protected by stall holders who are threatened by the arrival of a new Tesco Lotus nearby. As in other localities [(22)] they have held public demonstrations against Tesco Lotus and the market site is festooned with a banner objecting to it. Emphasising the threat to the community rather than the individual, a male vendor said:

I don't mind Lotus coming here: its air conditioned, fair price and good quality, but I don't want it to come too close. If it's far and does not affect the community's economy, I'm okay, but otherwise it could be a threat.

Thai freshmarket vendors, with support from their customers, are attempting to resist and compete with major supermarket retailers by drawing on claims of convenience, quality, value and tradition. At the same time supermarkets are adopting some attributes of freshmarkets in their attempts to gain market share [27].

Competing with supermarkets – what freshmarkets do well

The material below encapsulates the key dynamics present across the seven freshmarkets as markets vendors attempt to compete with modern retailing in the following areas:

? A Thai style of 'convenience'

Freshmarket vendors sold pre-cooked and packaged foods, including cooked vegetables, fried goods, and bowls of curries, stir fries, and local regional dishes. Curry pastes and powders are sold in single meal portions as well as in larger quantities, and some stalls also sold one meal sized plastic bags of fresh vegetables designed for soups. Fish are partially prepared by being de-headed and gutted. Small portions of sweets and desserts were also readily available. "Plastic bag housewives" [28] frequently purchased the evening meal in a plastic bag on their way home from work. Vendors sold their produce in flexible amounts, ranging from a 10 kilogram sack of rice or large tins of oil to a single carrot thus catering to individuals and families who may only have enough money to buy provisions for one or two meals at a time [13] or who have little storage capacity. Many freshmarket shoppers typically shopped daily in small quantities, thereby assuring that their food is fresh, easily transportable and affordable. Stall holders agreed that they charge more now per amount than in the past but sell in smaller quantities.

? Food Safety

Due to the common perception that freshmarkets are less hygienic than supermarkets some markets have upgraded their infrastructure, while others are contemplating changes. Local officials monitor standards of hygiene, determining how food can be displayed and issuing instructions to vendors on cleanliness, food handling and storage. For example, at Chiang Mai's Tanin freshmarket the public health department visited stall holders every couple of months.

Stall holders are taught to wash and soak vegetables for 15 minutes with a tablespoon of baking powder dissolved in water to clean them and remove pests, before rinsing thoroughly. Surveyed retailers rated food safety, including anxiety about the use of pesticides and other chemicals as the most important influence on consumers' food choice. Over the preceding decade considerable improvements have been made to freshmarkets to reduce foodborne disease risks [(29)] with one consumer observing that now *sellers are more sanitary in their methods.* Despite these improvements, supermarkets use food safety to claim superiority and create a point of distinction [(30)] particularly for aspiring middle-class Thais [(22)]. They advertise the use of Hazard Analysis and Critical Control Points system; and their western appearance, bright lights and polished floors reinforce perceptions that their produce is safe, modern and convenient. However, in the modern-looking, brightly lit and orderly Tanin freshmarket, stalls were advertising produce that was certified as organic, a trend that is borrowed from the supermarkets. In other freshmarkets many stalls displayed signs saying that they followed food safety standards and occasionally they displayed government certification (usually the Ministry of Agriculture's Good Agricultural Practices)" which can inflate the price of a food considerably in both retail formats [(20)].

? Improved Freshness and Appearance

At the Chiang Mai Gate freshmarket, one focus group stall holder said *if the vegetables don't look good, customers don't eat*. Thus, stall holders attempted to provide good looking fresh produce. However, some vendors argued that the demand for produce that was blemish-free has led to the overuse of pesticides and the use of food colourings and additives. In this regard, many vendors and consumers thought that food may look better but not taste as good as in the past.

? Protecting regional culinary culture

Freshmarkets sell regional products. Sticky rice which is regarded as *heartful* (filling) in the north is available in Chiang Mai markets while in the south, hot and spicy curries are sold. Vendors and purchasers frequently expressed a preference for their regional foods while buyers often sought specific local vegetables [(31)]. Stall-holders also noted that markets were increasingly attracting Thai and international tourists were looking for authentic Thai foods including regional products. Markets also play an important part in the ritual and symbolic routines of regional Thai

life [31]. When we visited the southern regional city of Nakhorn Sri Thamarat the activities associated with an important festival at a nearby Buddhist shrine (the 10th month merit-making festival) were supported by the sale of festival foods in the market. "*Pramahathat*", pagoda-shaped decorated food offerings, sat alongside various types of *Kanom* or pastries that stay fresh longer than other foods. These are offered to monks at the second of the three-month Buddhist period of restraint because the monks rely on foods that store well.

Freshmarkets compete with supermarkets as local tourist attractions [22, 32] with the latter clearly recognising the importance of the cultural dimension by selling regional produce and participating in local festivals. Thai families visit supermarkets on weekends often after payday. Children are given rides or treats while parents buy bulk quantities of mainly dry goods, laundry items, toiletries and clothes.

Implications of supermarket dominance for the Thai nutrition transition, health and well-being

Research elsewhere shows that "as supermarkets 'take over' food retailing they become drivers of the overall food system" ([33] p. 415). This shift in power has implications for health and for local food environments:

? Thais become increasingly exposed to obesogenic foods

Super/hypermarkets have proliferated in Thailand increasing the availability, accessibility and affordability of energy dense foods [34] because they sell processed foods more cheaply than traditional retailers and fresh foods were more expensive [42]. Supermarket shoppers are inclined to value foods such as western style bakery products [27] whereas freshmarket-based respondents rarely ate western foods.

? A potential loss of accessible, plant-based, dietary diversity that is healthy and priced for poorer segments of the population.

Freshmarkets have traditionally sold locally harvested Thai plants in small quantities at affordable prices [29] with credit given to regular shoppers. Recently, an even greater profusion of imported, nationally and locally produced fruit and vegetables has become available in

freshmarkets [29]. Local Thai vegetables and greens are displayed next to carrots from Australia and apples from China. A wider range of red and white meat now complements the traditional protein source of fish. Other traditional fresh produce and wild protein sources (lizards, insects, frogs) are now farmed and sold in freshmarkets but rarely sold in super/hypermarkets.

? Loss of a social capital connected to freshmarkets

All sampled freshmarkets illustrated the complex ways that freshmarkets are integrated into daily rituals and in the process anchor a way of life for many consumers and for vendors. Reflecting on the attributes of the market in comparison to supermarkets, informants commented: "*This is a way of life: always been like this"; "It's a great atmosphere"; 'It brings great relations between producers and consumers'; "We bring a brother-sister relationship between buyers and sellers… its still present, but not as much as the past";* and, *"People of my age, love the relationship with the sellers".* Consumers become inter-connected with market vendors by making daily visits on their way home from work or other activities. As a result, they consolidated relationships with their preferred traders and established social networks based on familiarity and mutual benefit which is similar to what Kirwan [35] described as regard.

? A loss of livelihood particularly for women market retailers.

Most freshmarket stall-holders, and roughly half the wholesalers, are women [36]. They are often closely connected by intertwined kinship, friendship and commercial networks. Stalls were passed down through generations (often from mother to daughter), stall holders bought from and sold to each other, and consumers became part of these networks over many years. Market women's close relationships evolve into support roles which may include: financial sharing and support programs, sickness benefit support, counselling services, assisting abused women, and sharing market information [36]. Thus women are particularly vulnerable to changes in retail food environments.

? Undermining highly valued regional culinary cultures.

Respondents proposed that freshmarkets were the commercial repository of local and regional produce and dishes. In our surveys, safety, health and price were the first consideration in food preferences. 'Culture', meaning regional ingredients and dishes rated second. Sellers and

consumers conceded that recently there was some blurring of the boundaries with other regions' and western dishes being sold.

Discussion and Conclusion

There are many features of freshmarkets that super/hypermarkets cannot replicate. Thais shop and eat at freshmarkets often buying small amounts of mainly fresh foods daily at affordable prices and building health protection through the social capital that follows from strong social ties [37]. The markets supply tens of thousands of often independent livelihoods, particularly to women [36]. In contrast, supermarkets do not establish a strong relationship between staff and consumers and they rely less on local produce. They are less adaptable as evidenced by the 2011 Thai floods when they ran out of stock quickly while freshmarkets continued to operate. Nor are they as attractive for local or international tourists looking for an authentic culinary experience.

A limitation of this study is that we have not yet directly investigated Thai health outcomes associated with supermarket growth. The current ready access to freshmarkets appears to favour poorer Thais, who have lower BMIs than wealthier and more urban Thais [38, 39] and the increase in hyper/supermarkets in Thailand is matched by the rapid growth of obesity [1]. Longitudinal data from our 2005 cohort [40], with ethnography of food retail environments and food consumption will be used to examine these relationships more closely.

It is uncertain whether freshmarkets will continue to dominate the sale of fresh vegetables in Asia [30, 33, 41] in the future. Globally, super/hypermarket chains have been successful at gaining market share over time with mixed public health and economic gains and losses. High fat, sugary and salty foods become more accessible and affordable [17], and may usurp the place of raw staple foods in individual diets [42]. However, results depend on the existing food retail environmental and cultural context of supermarket growth [9, 43]. In Guatemala frequent supermarket shopping is associated with increased purchases of processed foods associated with increased BMI [44] whereas diet quality improved slightly for the well-off in Tunis who used supermarkets [45]. Supermarkets stock large volumes of processed foods and narrow the range of nearby competing food retailers which may sell cheaper, fresh food [43]. A source of fresh, affordable food for poorer Thais may disappear along with freshmarkets' contributions to Thai

culinary culture and to an esteemed and socially valued way of life (social capital) that contributes to positive social health status [37]. Poorer market vendors may suffer financial risk and eventually close as markets attempt to compete with supermarket claims of greater cleanliness, hygiene, food safety and the appeal of modernity itself. Eventually, if freshmarkets disappear, Thai supermarkets may follow the western pattern where they supply healthier diets to the educated and wealthy who can afford them, and cheaper, highly processed foods to the poor, thus increasing health inequalities.

National and particularly foreign-owned supermarket growth has been contentious in Thailand. Responding to their growth in more vulnerable regional centres, Mutebi [8] argues for greater policy intervention in addition to recent government regulations imposed on hyper/supermarkets limiting growth, location, and trading hours. There should also be positive protection for freshmarkets with financial assistance for infrastructural upgrades, cheap credit to stallholders [25], and more government promotion of freshmarkets as safe, healthy food retail outlets.

Ultimately, the decrease in freshmarkets would put food security (dietary needs and food preferences) [46] at risk, particularly for poorer Thais. Other Asian countries, which are also anticipating rapid increases in obesity and weight-related diseases, will be monitoring Thai policy responses and health outcomes closely.

Table 1: Fieldwork Sites

Region	Major City	Markets	Regional Culinary Characteristics
Central	Bangkok	Nonthaburi Provincial Market on Bangkok periphery Sam Chuck Market, 90 kms from Bangkok.	Dishes are influenced by Indian food (ie use of coconut milk in curries) and by the royal cuisine.
Northern	Chiang Mai	Central Market Tanin Market	People use sticky rice, more herbs and less chili. Dishes are influenced by minority group and neighbouring countries' culinary cultures.
North Eastern	Khon Kaen	Bang Lam Poo Market	This is a drier, less fertile area where Isaan food, including sticky rice, hot chilies, fermented fish and insects, is popular.
Southern	Nakhon Sri Thammarat	Kukwang Municipal Market Mae Som Jit Market	In this region. seafood and hot spices, white non-glutinous rice and fresh vegetables are popular (11).

Table 2: Fieldwork Methods

Methods	Description	Number
Key Informant Interviews	Market managers, public health officials, Thai food experts (eg professional cook, food writer, academics), a monk, school teacher, women who are interested in Thai cooking.	13
Focus Groups	Market vendors from a range of stalls (eg fruit and vegetable, pastries, dry goods, fresh meat, spices and fermented goods). Elderly women attending a monastery	5
Brief questionnaire	Face-to-face questionnaire with stall holders at all markets about customer preferences, produce, changes over time, difficulties in being a stall holder and social interactions	110
Consumer Interviews	Consumers from two markets to explore their perceptions of food availability changes and social interactions.	27
Vendor Interviews	Vendors from all markets	15
Photographs	A photographic record was made at every market to cover the types of stalls and range of produce.	100s


Chiang Mai
Central
Tanin
Khon Kaen
Bang Lam Poo
Sam Chuck
Bangkok
Nonthaburi
Nakhon Si Thammarat
Kukwang
Mae Som Jit
0 100 200 km
Thailand
Provinces
Markets

Figure 1

REFERENCES

1. Kelly M, Sleigh A, Banwell C, *et al.* (2010). Nutrition transition, food retailing and health equity in Thailand *Australasian Epidemiologist* **13**: 4-7.

2. Aekplakorn W, Hogan M, Chongsuvivatwong V, *et al*. (2007). Trends in obesity and associations with education and urban or rural residence in Thailand. *Obesity.* **15**: 3113.

3. Aekplakorn W. (2011). *Report on the Thai National Health Examination Survey 2008-09.* Nonthaburi: National Health Examination Survey Office.

4. Ministry of Public Health Thailand Health Profile 2005-2007 (chapter 4) http://www.moph.go.th/ops/health_50/4_8_ENG.pdf.

5. FAO. Energy consumption for countries www.**fao**.org/fileadmin/.../ess/.../ *Food**Consumption**Nutrients_en.xls.*

6. WHO. (2000). *Nutrition in Southeast Asia*. New Delhi: WHO Regional Office for Southeast Asia.

7. Popkin B. (2003). The nutrition transition in the developing world. *Development Policy Review.* **21**: 581-97.

8. Mutebi A. (2007). Regulatory responses to large-format transnational retail in south-east Asia. *Urban Stud*. **44**: 357-79.

9. Shannon R. (2009). The transformation of food retailing in Thailand 1997-2007. *Asia Pacific Business Review*. **15**: 79-92.

10. Lefferts L. (2005). Sticky rice, fermented fish, and the course of a kingdom: The politics of food in northeast Thailand. *Asian Stud Rev*. **29**: 247-58.

11. Seubsman S-A, Suttinan P, Dixon J, *et al*. (2009). In: Meiselman H, ed. *Meals in Science and Practice* Oxford, Cambridge, New Dehli: Woodhead Publishing.

12. Wigglesworth EF, Brotan J. (1996). Retailing Trends in Thailand. *Journal of Retailing*. **Summer**: 41-51.

13. Schaffner D, Bokal B, Fink S, *et al*. (2005). Food retail-price comparison in Thailand. *Journal of Food Distribution Research*. **36**: 167-71.

14. Tokrisna R. (2007). Thailand's changing retail food sector: consequences for consumers, producers, and trade. *PECC - PacificFood System Outlook Meeting*. Kunming China: Pacific Economic Cooperation Council.

15. Kanchoochat V. (2008). In: Phongpaichit P, Baker C, eds. *Thai capital after the 1997 crisis*.85-104 Singapore: ISEAS Publishers.

16. USDA. (2000). *Thailand Retail Food Sector 2000, GAIN Report #TH0116* USDA Foreign Agricultural Service.

17. Hawkes C. (2008). Dietary implications of supermarket development: A global perspective. *Development Policy Review.* **26**: 657-92.

18. USDA. (2004). *Thailand Exporter Guide Annual 2004* GAIN Report #TH4123: USDA Foreign Agricultural Service.

19. Kuipers P. (2007). Thailand after the coup: Struggle between modern and traditional. *Elsevier Food International* **10**.

20. Vandergeest P. (2006). Natural Markets: Remaking food and agriculture in Southeast Asia. *Annual Meeting of the Association of American Geographers.*

21. Sriangura V, Sakseree A. (2009). Tradition strikes back. *Bangkok Post 1 /05/2009.*

22. Isaacs B. (2009). Imagining Thailand in European hypermarkets: New class-based consumption in Chiang Mai's 'cruise ships". *The Asia Pacific Journal of Anthropology*. **10**: 348-63.

23. Gorton M, Sauer J, Supatpongkul P. (2009). Investigating Thai shopping behavior: Wet-Markets, supermarkets and the 'big middle'. *International Association of Agricultural Economists Conference*. Beijing, China, August 16-22, 2009.

24. D'Haese M, Van den Berg M, Speelman S. (2008). A country-wide study of consumer choice for an emerging supermarket sector: A case study of Nicaragua. *Development Policy Review.* **26**: 603-15.

25. Figuié M, Moustier P. (2009). Market appeal in an emerging economy: Supermarkets and poor consumers in Vietnam. *Food Policy*. **34**: 210-7.

26. Manderson L, Aaby P. (1992). An epidemic in the field? Rapid assessment procedures and health research. *Soc Sci Med.* **35**: 839-50.

27. Isaacs B, Dixon J, Banwell C. (2010). Fresh market to supermarket: Nutrition transition insights from Chiang Mai, Thailand. *Public Health Nutr* **13**: 893-7.

28. Yasmeen G. (1996). "Plastic-bag Housewives" and Postmodern Restaurants?: Public and Private in Bangkok's Foodscape. *Urban Geography.* **17**: 526-44.

29. Dixon J, Banwell C, Seubsman S-A, *et al*. (2007). Dietary Diversity in Khon Kaen, 1988-2006 *Int J Epidemiol*. **36**: 518-21.

30. Goldman A, Krider R, Ramaswami S. (1999). The persistent competitive advantage of trandtional food retailers Asia: wet markets' continued dominance in Hong Kong. *J Macromark*. **19**: 126-39.

31. Bunyannupap Y. (2000). Consumer knowledge on local vegetable consumption in the markets of Chiang Mai Municipal Area. *Journal of the National Research Council Thailand.* **32**: 27-52.

32. Euromonitor International. (2008). *Retailing - Thailand*.

33. Reardon T, Henson S, Berdegue J. (2007). 'Proactive fast-tracking diffusion of supermarkets in developing countries: Implications for market institutions and trade. *Journal of Economic Geography*. **7**: 399-431.

34. Hawkes C. (2006). Uneven dietary development: Linking the policies and processes of globalization with the nutrition transition, obesity and diet-related chronic diseases. *Global Health.*

35. Kirwan J. (2006). 'The interpersonal world of direct marketing: Examining conventions of quality at UK farmers' markets'. *J Rural Stud*. **22**: 301-12.

36. Jaibun K. (2006). In: Chaisingkanaon S, ed. *Markets in Life and Life in Markets* Bangkok: Sirinthon Humanities Research Centre.

37. Kawachi I, Kennedy B, Lochner K, *et al*. (1997). Social capital, income inequality, and mortality. *Am J Public Health*. **87**: 1491-8.

38. Banwell C, Lim L, Seubsman S-A, *et al.* (2009). Body mass index and health-related behaviours in a national cohort of 87 134 Thai open university students. *J Epidemiol Community Health.* **63**: 366-72.

39. Lim L, Kjellstrom T, Sleigh A, *et al.* (2009). Associations between urbanisation and components of the health-risk transition in Thailand.A descriptive study of 87,000 Thai adults. . *Glob Health Action*.

40. Sleigh A, Seubsman S-A, Bain C, *et al*. (2007). Cohort Profile: The Thai Cohort of 87 134 Open University Students. *Int J Epidemiol*.

41. Gorton M, Sauer J, Supatpongkul P. (2009). Investigating Thai shopping behaviour: Wet-markets, supermarkets and food quality. *The 83rd Annual Conference of the Agricultural Economics Society*. Dublin: Agricultural Economics Society.

42. Vinkeles MNV, Gomez M, Colagiuri R. (2009). Do socio-economic factors influence supermarket content and shoppers' purchases? *Health Promot J Austr*. **20**: 241-6.

43. White M. (2007). Food access and obesity. *Obes Rev*. **8**: 99-107.

44. Asfaw A. (2008). Does supermarket purchase affect the dietary practices of households? Some empirical evidence from Guatamala. *Development Policy Review.* **26**: 227-43.

45. Tessier S, Traissac P, Maire B, *et al.* (2008). Regular users of supermarkets in Greater Tunis have a slight improved diet quality. *Journal of Nutrition.* **138**: 768-74.

46. World Health Organisation. (1996). *Food Security*. http://www.who.int/trade/glossary/story028/en/.