



AgEcon SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Introduction & Objectives

Economic growth, urbanization, and foreign direct investment (FDI) have all contributed to the globalization and rapid rise of multinational supermarkets in developing and emerging economies (Reardon and Berdeque, 2002). The resulting transformation of food chains is having profound effects on the market conditions faced by both producers and consumers.

Despite the important role of supermarkets in the transformation of food markets, few studies have examined their impact on consumers' diets and the related nutritional and health implications. Yet, there is increasing speculation that supermarket penetration is one cause of the dramatic shift in Asian diets towards more Westernized diets, typified by increased consumption of carbohydrates, fats and oils, sugars, and increasingly more processed foods and fewer fresh fruits and vegetables (Asfaw, 2008; Popkin, 2006).

This research sheds light on the relationship between diet transformation and modern retail format usage by consumers in Indonesia. As far as we know, this is the first study to explore the relationship between supermarkets penetration and dietary transformation for Indonesian consumers.

Objectives :

1. Determine changes in Indonesian households' per capita consumption of food categories;
2. Explore the relationship between consumption changes, socio-demographic factors and modern retail outlet usage

Methods

A sample of households from three Indonesian cities, Surabaya, Bogor, and Surakarta, was obtained using systemic random sampling methods based on population, income, and distance to nearest hypermarket or supermarket. Trained enumerators interviewed 1180 households during November, 2010 to January, 2011.

The survey assessed households':

- Food purchase and consumption behavior (including retail format where purchased, expenditures, average monthly consumption and change in consumption over 5 years) of 67 different categories of foods;
- Use, attitudes, and preferences towards modern retail formats versus traditional formats and health concerns and health status;
- Socio-demographic information (assets, income, employment status, age, education etc.).

Analysis methods:

- Multinomial Logit Models (MLMs) were used to examine factors which explain changes in consumption of food categories.
- Food consumption information was aggregated to create 'consumption change (ConsChange_{ij})' variables for 7 categories of food, including traditional food such as rice, fruits and vegetables and more 'Western' food such as bread and cereal, oils, 'sweets' (cookies, chocolate etc., soda) and 'snacks' (e.g. processed potato chips).
- Independent variables include a 'modern food expenditure share (Mrfood_expshare)' variable used to indicate the share of food expenditures at modern markets (hypermarkets, supermarkets and mini-markets).

ConsChange_{ij} = $f(\text{Gender, Age, Education, Household_income, Standardl_change, Mrfood_expshare, Surabaya, Bogor, Heartdisease_diagnosed, Diabetes_diagnosed, Nutrition_concerned, Safety_concerned, Contaminant_concerned, Health_concerned})$

ConsChange_{ij} = 1 if increase in per capita household consumption over 5 years, 0 = no change, and -1 = decrease in consumption.

i = head of household

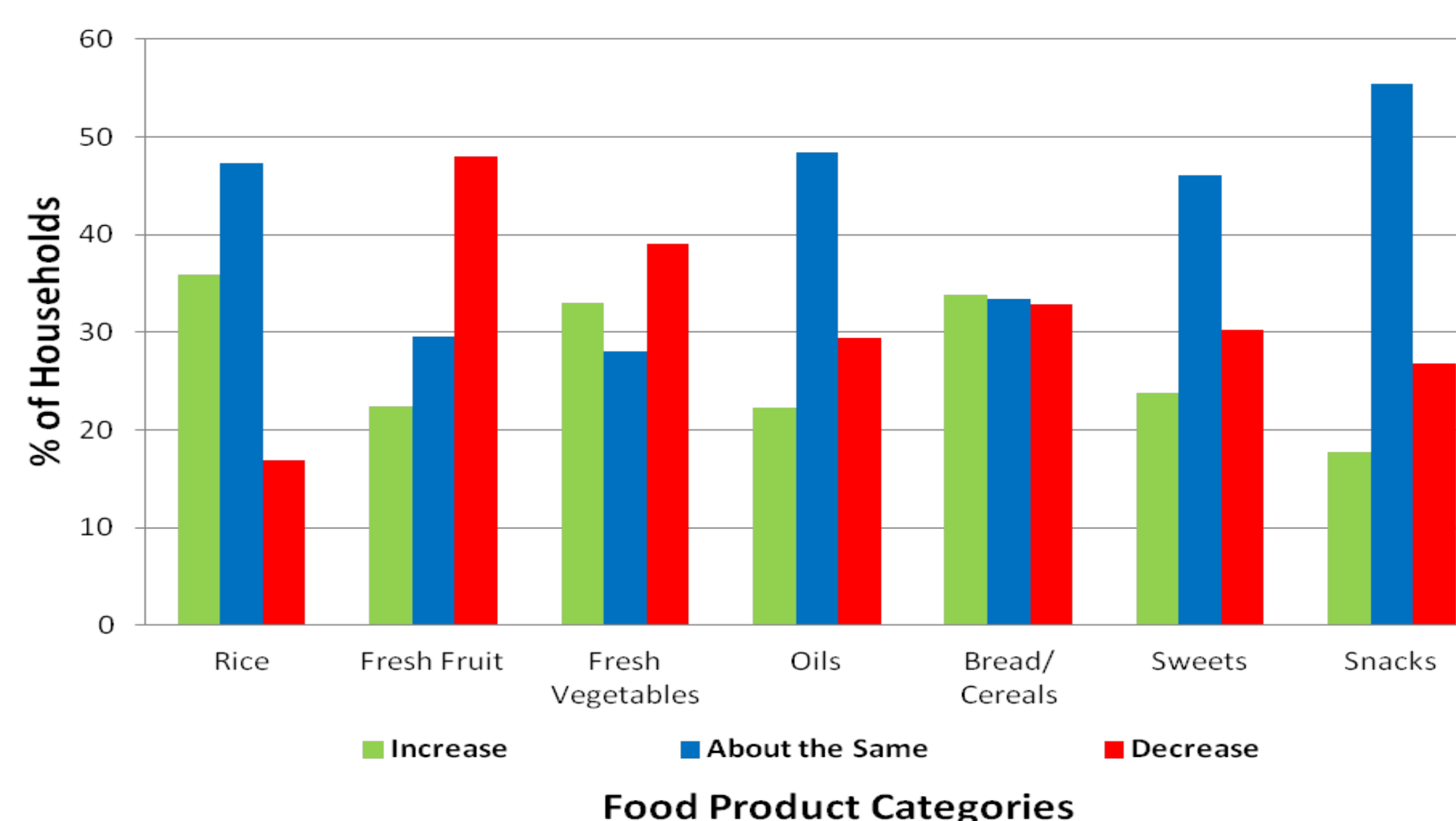
j = rice, bread and cereals, fresh fruit, fresh vegetables, oils, sweets, and snacks



Results & Take Home Messages

- Ø About 30% of households indicated they increased per capita consumption of rice, fresh vegetables and bread/cereals/noodles.
- Ø Over 20% of households indicated their consumption of fresh fruits, oils and sweets had increased.
- Ø Households with a higher share of their food expenditures at modern outlets (hypermarkets, supermarkets and minimarkets) were more likely to have increased consumption of fresh fruit, fresh vegetables, oils, sweets and processed snacks.
- Ø Households who had a member diagnosed with heart disease were more likely to have increased consumption of rice, fresh fruit and bread/cereals.
- Ø However, we cannot say that supermarkets are the *cause* of dietary shifts towards more Westernized diets because increase in households' standard of living were also associated with increases in consumption of all food categories except rice, oils and snacks.
- Ø In fact, household use of modern markets may actually be associated with an increase in consumption fresh fruit and fresh vegetables because consumers may have access to a wider variety of fresh fruit and fresh vegetables.

Share of Households Indicating Consumption Change in Past 5 years (per capita basis, n=1180)



Multinomial Logit, Determinants of Changes in Consumption

Variable	Rice	Fresh Fruit	Fresh Vegetables	Oils	Bread/Cereals	Sweets	Snacks
Decrease (-1)							
Gender	0.069	0.325	0.127	0.255	0.489**	0.248	0.232
Age	0.033***	-0.012**	-0.008	0.014**	-0.001	0.005	0.003
Education	-0.033	-0.022	-0.043**	0.010	-0.018	0.008	-0.014
Household_income	0.073	0.011	0.013	0.056	0.031	0.035	-0.035
Standardl_change	-0.112	-0.083	-0.179**	-0.096	-0.199**	-0.134	-0.187**
Mrfood_expshare	-0.002	-0.007	-0.008	-0.010*	-0.013**	-0.015**	0.001
Surabaya	-0.375*	-0.643***	-0.714***	-0.328**	-0.027	0.344	-0.223
Bogor	0.153	-0.450**	-0.823***	-0.444**	0.033	0.526**	-0.181
Heartdisease_diagnosed	0.850***	0.578**	0.498*	0.328	0.334	0.529*	0.528**
Diabetes_diagnosed	0.211	0.019	-0.418*	-0.164	-0.265	0.013	-0.046
Nutrition_concerned	0.089	0.029	0.082	0.129*	0.214***	0.031	0.023
Safety_concerned	-0.041	0.419**	0.263	0.351**	0.538***	0.133	0.140
Contaminant_concerned	0.203***	0.026	0.021	-0.031	-0.016	-0.079	0.060
Health_concerned	0.128	-0.199**	-0.170*	-0.079	-0.213**	-0.079	-0.067
Constant	-2.480	0.279	0.885	-2.487	-2.016	-2.528	-0.460
Increase (1)							
Gender	-0.286	-0.305	-0.304	-1.042***	-0.363**	-0.556**	-0.523*
Age	-0.035***	-0.029***	-0.032***	-0.018***	-0.017***	-0.030***	-0.025***
Education	-0.045**	0.016	-0.022	0.026	0.023	0.034	-0.005
Household_income	0.135*	0.133	0.190**	0.087	0.103	0.019	0.035
Standardl_change	0.073	0.201**	0.038	0.149*	0.098	0.170**	0.118
Mrfood_expshare	0.010**	0.013**	0.012**	0.011**	0.007	0.012**	0.012**
Surabaya	0.592***	0.396**	0.292	0.823***	0.459**	0.695***	0.460**
Bogor	0.718***	0.187	0.418*	0.928***	0.985***	0.980***	0.950***
Heartdisease_diagnosed	0.103*	0.775**	0.507*	0.010	0.329	0.313	0.295
Diabetes_diagnosed	-0.118	0.049	0.066	-0.436	-0.229	-0.447	-0.703*
Nutrition_concerned	0.019	-0.010	0.085	0.011	0.023	-0.058	-0.120
Safety_concerned	0.019	0.236	0.093	-0.184	0.269	0.266	0.176
Contaminant_concerned	0.044	0.090	0.110	0.030	-0.103	-0.111	-0.188*
Health_concerned	0.043	-0.185*	-0.068	-0.022	-0.055	0.008	-0.082
Constant	0.355	-1.743	-0.224	-0.459	-2.110	-1.783	-1.238
N	1180	1180	1180	1180	1180	1180	1180
LR chi2 (28)	197.78	176.29	185.75	165.32	151.39	147.8	106.36
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	0.082	0.072	0.072	0.067	0.060	0.069	0.046

***, **, and * indicate the level of significance at 1%, 5%, and 10%, respectively.

References & Acknowledgements

- Asfaw, A. (2008). "Does supermarket purchase affect the dietary practices of household? Some empirical evidence from Guatemala." *Development Policy Review*, 26(2):227-243.
- Reardon, T. and Berdegué, J.A. (2002) "The Rapid Rise of Supermarkets in Latin America: Challenges and Opportunities for Development." *Development Policy Review* 20 (4): 317–34.
- Popkin, B.M. (2006). "Global Nutrition Dynamics: The World is Shifting Rapidly toward a Diet Linked with Noncommunicable Diseases." *American Journal of Clinical Nutrition*, 84(2):289-98.

Acknowledgements: We are grateful to the Australian Centre for International Agricultural Research (ACIAR) for funding this research. We would like to thank staff at the Indonesian Centre for Agricultural Socio- Economic and Policy Studies (ICASEPS) for their assistance in survey development and data collection.

Contact author: Dr. Wendy J. Umberger (wendy.umberger@adelaide.edu.au)