

Can Food Voucher Assistance Program Enhance the Diversity of Food Consumption? Evidence from a Field Experiment in Korea



Sanghyo Kim, PhD¹; Kyei-Im Lee, PhD¹

¹Division of Food and Marketing Research, Korea Rural Economic Institute

Research Background and Purpose

- The Korean government is designing a food voucher assistance program (FVAP) to improve food consumption and nutrition intake of low-income households and to promote consumption of agricultural products.
- As the Dietary Guidelines for Koreans emphasizes the importance of eating a variety of foods including whole grains, fruits and vegetables and dairy products, the task to design FVAP should pursue not only the quantitative improvement of food consumption (i.e., total food expenditure) but also the quality of food consumption that is often represented by the variety of purchased foods (i.e., Berry or Entropy Index).
- Prior to finalizing the FVAP design, a field experiment was conducted in two regions (rural and urban) for three months in 2018 for approximately 1,200 household recipients (treatment group) and 400 non-recipients (control group) who were asked to report the details of all food shopping.
- Using data from the housekeeping book, this study investigated whether the introduction of FVAP improves the variety of purchased foods measured by the number of items purchased as well as Berry and Entropy Index.
- Furthermore, this study identified the factors associated with the variety of household food consumption by estimating a set of Tobit models, aiming for the most effective FVAP design.
- This study found evidence against that FVAP would enhance the diversity of food consumption for low-income households. Future study needs to identify the factors that influence this behavior to improve the policy design.

Food Assistance Program in Korea

[Overview of Food Assistance Programs in Korea]

- The Korean government has implemented various food assistance programs to support the basic 'right to food' of low-income households who are vulnerable in terms of food consumption, nutrition, and health in general.
- Total annual budget for food assistance was approximately \$1,767 million. More than 80% of entire food assistance are in cash support, while only 15.9% are in-kind assistance. The share of price support program is approximately 3.7%.
- Korea's total budget is less than 2% of the U.S. budget for food assistance programs, suggesting that Korea's food assistance may not be quantitatively sufficient.

Table 1. Budget for Food Assistance Programs of Korea, 2016

Name of Food Assistance Program	2016 Budget (share) (in thousand KRW, US\$1 = KRW1,100)	Percentage of Budget Share (%)				
		Central Government	Metropolitan City	Local Government	Private Sector	
National Basic Livelihood Security (NLS)	1,528,390,452(78.6)	81.1	11.9	7	-	
Emergency Support (Likelihood Security)	35,823,332(1.8)	77.2	9	13.8	-	
Price Support for Rice	71,067,765(3.7)	86	6.5	7.5	-	
For Elderly	Meal Service	54,349,770(2.8)	-	49.8	50.1	0.2
	Food Delivery	36,793,129(1.9)	-	44.3	55.7	-
	Total	91,142,899(4.7)	-	47.3	52.6	0.1
Meal Support Program for Low-Income Children	189,207,939(9.7)	3.1	50.3	46.6	-	
Nutrition-Plus	26,671,555(1.4)	43.1	17.4	39.4	0.1	
Healthy Fruit Basket Program	1,113,415(0.1)	16.8	49.4	33.8	-	
Grand Total	1,943,417,357(100)	69.3	17.1	13.6	0	

[Impact of Cash Assistance on Expenditures: Treatment Effect Model]

- It is highly likely that considerable amount of food assistance supported in the form of NLS(cash) is spent to purchase non-food items. Compared to non-recipients of NLS, NLS recipients spend less money on food by about \$8 per month, while they spend more money on utility, clothing/furniture and education, implying that cash assistance may be ineffective in stimulating food consumption as well as achieving policy goals.

Table 2. Impact of Cash Assistance (NLS) on Expenditure for Low-Income Households

	Food	Utility	Clothing/Furniture	Medicare	Edu-cation	Transportation/Phone/Entertainment
Treatment Effect	-0.8442 *	+2.5931 ***	+1.8568 ***	-4.1339 ***	+2.0767 ***	1.6746

Note : *** p < .01, ** p < .05, * p < .1

Data : 2011~15 Korea Welfare Panel Study

Experiment Design, Data and Methods

[Experiment Design]

- Two administrative districts were selected for the pilot FVAP through inviting public participation: Chuncheon (urban area) and Wanju (rural area).
- Approximately 800 low-income households were registered for the pilot FVAP for each district, and they were randomly divided into four groups by type of support: no support (control group), cash support, in-kind support using paper coupon, and in-kind support using electronic benefit transfer (EBT) card.
- The amount of support per month was decided differently by household size: \$27.3 for 1-person households, \$38.2 for 2-persons households, \$47.3 for 3-persons households, and \$54.5 for more than 4-persons households.
- The pilot FVAP was run for two months beginning October 1, 2018. FVAP recipients could purchase only four food categories (grain, fruit, vegetable, and milk) from a limited set of pre-determined supermarkets.
- Dietary education material was provided to the pilot FVAP participants.

Table 2. Pilot FVAP Participants

	number of participants: # of households (# of individuals)		
	Chuncheon	Wanju	Total
No Support	192 (329)	192 (385)	384 (714)
Cash Support	192 (314)	191 (321)	383 (635)
In-Kind (Paper)	192 (354)	191 (342)	383 (696)
In-Kind (EBT)	191 (333)	191 (379)	382 (712)
Total	767 (1,330)	765 (1,427)	382 (2,757)

[Data and Methods]

- To identify treatment effect of the pilot FVAP, food consumption was observed for the month preceding the first month of the pilot FVAP. FVAP participants were asked to keep a housekeeping book for three consecutive months (one month before the FVAP, and two months during the FVAP).
- In order to figure out satisfaction with the pilot FVAP and its qualitative impacts, three surveys were prepared: baseline survey (Sep. 2018), mid-term evaluation survey (Oct. 2018), and end-line survey (Dec. 2018).
- Data collected from surveys as well as housekeeping book were analyzed based on difference-in-difference framework and using various statistical techniques.



Figure 1. EBT Card Used for the Pilot FVAP



Figure 2. Paper Coupon Used for the Pilot FVAP



Figure 3. Dietary Education Material

Preliminary Results and Discussions

Data for the year of 2020 are being collected, so these results are preliminary!

- The pilot FVAP unexpectedly decreased the diversity of food consumption for EBT card recipients statistically significantly. This finding holds for both urban and rural area, and for both Berry index and Entropy index.
- For the cash assistance and paper voucher groups, the impact of FVAP on the diversity of food consumption is indecisive. The impact is negative for both regions, but it is significant only for Wanju and Berry index.

Table 3. Treatment Effect of FVAP on Diversity of Food Consumption (Berry and Entropy Index)

	Chuncheon (urban)				Wanju (rural)			
	Total	Cash	Paper	EBT	Total	Cash	Paper	EBT
Berry Index	-	-	-	-***	-***	-**	-***	-***
Entropy Index	-	-	-	-***	-***	-	-**	-***

Contact

Sanghyo Kim
Korea Rural Economic Institute
Email: skim@krei.re.kr
Website: www.krei.re.kr
Phone: +82-10-6743-0992

References

- Alice S. Ammerman, Terry Hartman, Molly M. DeMarco. (2017). Behavioral Economics and the Supplemental Nutrition Assistance Program: Making the Healthy Choice the Easy Choice. American Journal of Preventive Medicine, Vol. 52, Issue 2, S145-S150
- Baird, S., McIntosh, C., & Özler, B. (2011). Cash or condition? Evidence from a cash transfer experiment. The Quarterly Journal of Economics, 126(4), 1709-1753.
- USDA Office of Research and Analysis. (1993). The effect of cash-out on food use of food stamp participants: results from four demonstrations. USDA Office of Research and Analysis Report, 53-3198-9-58.
- USDA Food and Consumer Service. (1997) Understanding the Food Choices of Low-Income Families. USDA Food and Nutrition Service Report.
- USDA Food and Nutrition Service. (2005). Assessing the Food Security and Diet Quality Impacts of FNS Program Participation: Final Report. USDA Food and Nutrition Service Report, 53-2198-2-026 Task No. 6.
- USDA Center for Nutrition Policy and Promotion. (2007). Thrifty Food Plan, 2006. USDA Center for Nutrition Policy and Promotion Report, CNPP-19.
- USDA Economic Research Service. (2004). Food Stamp Program Access Study Final Report. USDA Economic Research Service Report, E-FAN-03-013-3.
- USDA Economic Research Service. (2007). Could Behavioral Economics Help Improve Diet Quality for Nutrition Assistance Program Participants?. USDA Economic Research Service Report, Number 43