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MANAGING RISKS: HOW MALE AND FEMALE HEADED HOUSEHOLDS DIFFER IN SMOOTHING THEIR CONSUMPTION? (CASE: POOR HOUSEHOLDS IN YOGYAKARTA, INDONESIA)

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MANAGING RISKS: HOW MALE AND FEMALE HEADED HOUSEHOLDS  
DIFFER IN SMOOTHING THEIR CONSUMPTION? (CASE: POOR HOUSEHOLDS  
IN YOGYAKARTA, INDONESIA)<sup>1</sup>

—ABSTRACT—

Poor people face covariate risk, inequality and also an idiosyncratic risk that affect to personal belonging. However, how the poor people response to these risk varies with respect to the types of risks, jobs, gender, and others. Understanding on the income and consumption smoothing behavior of the poor helps business and government to formulate necessary policy and other strategic actions.

In many cases male and female headed household have different behavior towards risk. Female headed family may have better access to local informal financial institution such as rotated saving, while male headed family have more access to the market of farm and non farm product. Examining how they are different in managing risk fill the literature gap on this issue.

In this report we examine the practice of saving and depleting assets to achieve consumption smoothing among the poorest household in Yogyakarta, Indonesia. We selected 125 households, representing 25 household in each five regions that meet our research purposes. A closed-questioner is used to collect quantitative data for descriptive causal comparative studies. We found that the behavior varies in response to the types of job, gender, and regions. The sources of the income fluctuation also matter in determining the kind of smoothing the people take.

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## 1. INTRODUCTION

It is widely understood that household engage in agriculture in poor countries often must cope not only with severe poverty, but also with extremely variable incomes. Factors beyond their control such as weather and variability of crop prices can severely affect their income. For households already living close to subsistence level, income risks are especially important because they often result in consumption fluctuations.

Households can accumulate wealth to smooth consumption. Accumulated wealth is clearly important for the survival and advancement of poor households. Although wealth is traditionally associated with those in the upper end of the income distribution, it may play a more pivotal role in the lives of the poor. Recent empirical and theoretical analysis has shown that drawing on wealth can help keep poor households afloat after an income or expenditure shock. Udry (1995), for instance, demonstrated that farmers in Northern Nigeria appear to smooth consumption through depleting wealth after negative income shocks. However, a high proportion of the poor in the world has no or extremely low levels of marketable wealth or limited access to financial institution (insurance or credits) to facilitate their income and consumption smoothing activities, Case (1995), Dercon (1996), Zeller et.al (1997), Robinson (2002), CEPPS and Bank Indonesia (2004), (Roog, 2006), among others. As a consequence, these activities become very expensive and can result in a deeper level of poverty. The ability of households to smooth consumption over time thus reflects a key dimension of well being, for example Morduch (1995), Kinsey et.al.(1998), Wik (1999), Zeller (2000), Skoufias, (2003), Notten & Crombrugghede, (2006), and Laczó (2007).

Although the underlying smoothing mechanisms are similar, diversity in asset choice is important in order to allow households to manage risk in any one period (Aryeetey, 2004). Demographic characteristics will exhibit a significant correlation with their choice between financial and other assets.

Poor households in Yogyakarta face a wide range of risks and shocks similar to those experienced by households all over the world (Newhouse, 2005). However the response is specific that research in this matter still important. This research improves our understanding on the income and consumption smoothing behavior of the poor. Such

information helps business and government to formulate necessary policy and other strategic actions.

## 2. A BIRD EYE VIEW OF THE LITERATURE

The economic literature typically analyzes consumption smoothing behavior following two approaches; the first approach models household behavior using a permanent income model or risk-sharing model and focuses on the overall smoothness of consumption vis-à-vis income flows (see Deaton, 1992). The second approach models and tests particular consumption smoothing mechanisms for specific groups of households or regions (Alessi & Lusardi, 1997; Dercon, 1998; Dubois, Jullien, & Magnac, 2006; Hoogeveen, 2001; Kochar, 2004; Ligon, 1998; Rosenzweig, 1988; Rosenzweig & Wolpin, 1993; Udry, 1994, 1995).

In order to reduce the impact of this risk, households may follow a combination of different consumption smoothing strategies. We can distinguish six strategies or actions that can be grouped under two broader categories; *ex ante* strategies and *ex post* strategies. Each strategy reflects a distinct smoothing mechanism. The *ex ante* or mitigating strategies create alternative funding sources in case future income falls short of what is expected. These strategies imply that part of current income is reserved for future contingencies. The *ex post* or coping strategies are employed to create alternative funding sources after it becomes clear that current income is not sufficient to satisfy basic needs. We can distinguish three different mechanisms; additional income generating activities (i.e. increase labour supply, home production or the selling of home produced goods), seeking credit/loans or seeking transfers (Aryeetey, 2004).

Beside the strategies choice, the poor households have assets choice to accumulate wealth. Accumulated wealth can create a buffer for the most vulnerable. Wealth may significantly enhance a household's prospects of exiting poverty. However, a high proportion of the poor in world has no or extremely low levels of marketable wealth (Rogg 2006). According to Aryeetey (2004), assets of poor households tend to be a concentration in production assets. But, houses are also an important asset of many households. The poor are expected to hold easily liquefiable assets, such as livestock and stored crops. The ease with which liquefaction of assets can take place should reduce as incomes/expenditures rise.

There is a basic difference in household portfolio, that is: households headed by men have a greater concentration of assets in livestock; female headed households tend to focus more on non-farm enterprises. This is not surprising, given the earnings patterns in rural areas. The larger share of loans in the portfolio of women may be associated with



the fact that they are more involved in non-farm enterprise activities that are more likely to attract loans than farms and livestock.

### 3. METHODOLOGY

To guide our analysis we propose a conceptual framework to analyze households' consumption smoothing strategies. Central in this framework is a typology of consumption smoothing strategies which is based on what actions households may take to smooth consumption. Then, we relate these smoothing strategies to possible institutional smoothing partners and the assets that may be required to follow a particular smoothing strategy. We apply this framework to Yogyakarta and empirically explore rich survey data to find out what poor household in Yogyakarta do *at a given point in time* and how these actions may contribute to consumption smoothing.

A non-probability with a purposive sampling is used in this research because the population is difficult to identify. The completeness of sample variation is more important than the same proportion of sample class. With a subjective approach like non-probability sampling, the probability of selecting population element is unknown. There is a variety of ways to choose person or cases to include in this sample. We will select 125 households, representing 25 households in each five regions that meet our research purposes.

### 4. SAMPLE

**Table 1. Sample distribution based on the types of works (persons)**

Types of works	Yogyakarta	Bantul	Kulon Progo	Gunung Kidul	Sleman	Total	%
Farmer	0	4	4	5	5	18	14.4
Fisherman	0	5	5	4	0	14	11.2
Contracted worker	6	4	4	4	5	23	18.4
Uncontracted worker	6	4	4	4	5	23	18.4
Producer	6	4	4	4	5	23	18.4
Trader/Street vendor	7	4	4	4	5	24	19.2
<b>Total</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>125</b>	<b>100.0</b>

Source: primary data

Table 1 shows the number of respondents per district based on the type of works. We limit 25 respondents per districts as the case and try to distribute equally among

different types of jobs. There is limited number of farmers and fishermen in the city of Yogyakarta. Bantul, Kulon Progo and Gunung Kidul have the equitable distribution of respondents for all types of works. These districts have an area near the south coast and agricultural areas, and near the city of Yogyakarta, which many economic activities require workers in the services sector. While in the district of Sleman, respondents were equally distributed according to the type of work being surveyed, except for fishermen, because the district is located in the northern part of Yogyakarta which is closer to the mountains.

## 5. ANALYSIS AND DISCUSSION

Table 2 shows the data of respondents based on income and consumption variations. With a Chi-Square test, variations in income respondents differed significantly, both in terms of fluctuations in the maximum income of each job, minimum income fluctuations in their respective jobs, as well as fluctuations in income range of each job. From the consumption side, the variation was also seen significantly different, measured from the fluctuations in consumption maximum, minimum consumption, as well as fluctuations in consumption range.

Largest fluctuation occurred in the income and consumption of the fishermen. Revenue highest average fisherman reached Rp.1,125,000 per month and the lowest average is Rp.439,286 per month. The incomes of fishermen have fairly large fluctuations. If the season is good and high fish catches, fishermen generate greater income, but usually only lasts about three months. Meanwhile, the fishermen have the highest average consumption reached Rp.1,032,143 per month and the lowest reach Rp.417,857 per month.

**Table 2. Fluctuations in income and consumption, based on average per month in the last year (Rp/month)**

		Producer	Farmer	Street Vendor	Fishermen	Contracted Worker	Uncontracted Worker
Income	Max	773,636	956,677	733,478	1,125,000	886,429	782,381
	Min	467,273	559,444	436,522	439,286	562,857	435,476
	Range	306,363	397,233	296,956	685,714	323,572	346,905
Consumption	Max	823,333	1,042,350	655,455	1,032,143	798,571	782,273
	Min	520,714	554,118	420,455	417,857	536,190	460,682
	Range	302,619	488,232	235,000	614,286	262,381	321,591

Source: primary data

Fluctuations in the lowest income and consumption are owned peddler or street vendor. The highest average income reached Rp.733,478 per month and the lowest reach Rp.436,522 per month. Their income depends on the type of goods sold, season, location, mode of transportation they use, and others. Meanwhile, peddler or street vendor has the highest average consumption reached Rp.655,455 per month and the lowest reach Rp. 420,455 per month. Their earnings are greater than its consumption, this suggests that income can still cover the consumption. The distance between the maximum and minimum expenditure is not too large, this can be an indication of the conditions of life among peddler or street vendor is not much different.

Fluctuations in farmers' income and consumption are in the second position. There is considerable distance between the maximum and minimum income of farmers who show a high significant difference between big farmers and small farmers or farm laborers who cultivate the land owned by others. There are many factors that could affect these fluctuations, such as land area, seed capital and processing systems. Highest farmers' income reached Rp.956,677 per month and the lowest Rp.559,444 per month, the highest consumption Rp.1.042.350, and the lowest Rp.554,118 per month. Farmers with high incomes have a greater consumption than its income so that they will be a deficit of Rp. 85 673. How they cover the deficit? On the other hand, farmers have to survive and needed further capital for their activities. Based on a survey done earlier, farmers in Bantul and Sleman district, most of them consume their own crops for the harvest to the next.

Low-income group of respondents who have the highest deficit is a manufacturer and uncontracted worker. These groups will have problems if there are fluctuations in revenue. Producers' income depends on whether there is any demand for the products he produces. Meanwhile, uncontracted workers, their income is also uncertain. Sometimes they have work, sometimes not.

***Income Fluctuation.*** Table 3 shows the fluctuations in income of respondents by type of job. This table shows season is the factor that most influenced respondents i.e. up to 93.33% of fishermen and 64% of farmers. Both jobs are fairly dependent on the seasonal activities in order to maximize income with some capital used. Farmers rely on seasonal crops, both in quantity and crop yields, especially for crops that are particularly vulnerable to the changing seasons. For the majority of respondents, they use the courtyard house as a land for farming during the dry season arrives. But those who are not, they choose to switch to the seller of services and become a freelance worker, doing any job offer in order to meet the needs of their families.

**Table 3. Source of Income Fluctuations by Type of Work**

Source of Fluctuations	Producers	Farmers	Street Vendor	Fishermen	Contracted Worker	Uncontracted Worker
Seasons	21.62	64	29.55	93.33	12.90	22.92
Natural Disasters	2.70	8	9.09	0.00	0.00	4.17
Contract Completed	0.00	8	2.27	0.00	32.26	10.42
Project Completed	2.70	0	2.27	0.00	22.58	20.83
Low Demand	40.54	4	22.73	6.67	16.13	35.42
Others	32.43	16	34.09	0.00	16.13	6.25

Source: Primary Data. Respondents may fill more than one source of fluctuations

Fishermen in the district of Bantul and Gunung Kidul are highly dependent on seasonal conditions. Changes in weather lately have been forcing them to say more on the land than at the sea. In addition, fishermen also went outside the area, looking for a place that relatively safe. On the shore of Kulon Progo, we met a lot of fishermen from Cilacap (Central Java province), about 400 kilometers west of Kulon Progo fishing in the area.

Completion a contract occupations and project only affects respondents whose jobs determined by contract period and project undertaken. At the time the contract or project is completed, there will be a free time to these people. For example, fluctuations in income of farmers affected by the contract amounted to 8%. When farmers temporary leave and get a job, they could meet the necessities of life, otherwise they need additional backup.

Low demand directly affects the sales and income of respondents. The low demand directly affects the results of production (40.54%), agricultural products (4%), goods sold by traveling salesmen and street vendors (22.73%), and the demand for labor odd jobs or working without a contract (35.42%), which will greatly affect the fluctuations in their income. Uncertain demand will really affect their living.

Savings is the initial strategy to overcome the problem of consumption or unexpected costs. Respondents make savings in several ways. The first way is the most widely practices saving in the form of money at home (56.8%), ie for example by storing money under the mattress, pillow, wardrobe, and drawers. More than half of the respondents did savings at home. This is caused by several factors, such as the amount of money saved is not much, so that administrative costs are paid higher than the bank interest earned. Another factor is the difficult access to formal financial institutions and

also at the time there was a sudden need. Saving in formal institutions (28.8%) and non-formal education (28.8%) are also alternative. But, the other means of saving is assets.

**Table 4. Ex ante Strategy: Saving**

Type of saving	Total	Percentage (%)
Money: in house	71	56.8
Money: Formal financial institution	36	28.8
Money: Informal financial institution	36	28.8
Assets	55	44

Source: Primary Data. Respondents may fill more than one type of saving

Saving in the form of assets contribute up to 44%. People use jewelry, livestock (cattle, goats, chickens, ducks, etc.), and facilities that help their daily activities such as bicycles, motorcycles and cars, including savings in forms of life facilities at home (TV, refrigerator, radio, etc.) as a mean of saving. Statistically also seen that there are different preferences for each type of saving.

Further, table 5 shows the method of saving based on the type of work. Saving at home is preferred by producers (11.2%), peddler or street vendors (9.6%), and contracted workers and uncontracted workers (12%). This differs from the farmers who keep more wealth in the form of assets, and normally in the form of livestock. Almost every farmer also has cattle that are considered as part of agriculture.

**Table 5. Saving Preferences by Type of Work.**

Type of works	Money			Assets
	In house	Formal financial institution	Informal financial institution	
Producers	11.2	6.4	4.8	7.2
Farmers	8	1.6	3.2	9.6
Street vendors	9.6	6.4	7.2	7.2
Fishermen	3.2	6.4	0	4
Contracted Worker	12	2.4	5.6	8.8
Uncontracted Worker	12	5.6	6.4	7.2

Source: Primary data. Respondents may fill more than one type of savings

Almost all the respondents save wealth in the form of assets that are considered more secure to have and easy to sell when they need the money. For farmers, the selected asset is livestock. As for family members of this family worked in other regions or mostly as traders, asset owned are jewelry and valuables because they can be sold when there is sudden demand.

Saving in non-formal institutions is also preferred by the peddler or street vendor because of the frequent demand for money to use as working capital. Social gathering also provide security to these people, since they can borrow from the member group.

Table 6 reports the relationship between ex post strategies and types of jobs. The results show that the producers, peddler or street vendors, and contract workers choose to borrow money as the first strategy to overcome financial problems. Farmers prefer to sell its assets, usually cattle, while fishermen prefer to look for other additional work for a while, which is when they could not sail because of bad weather. For uncontracted workers, they prefer to move from one job to another, looking for another job that provides appropriate wage. At the moment they desperately needed money, they will do any work. However, most respondents are difficult to find additional job. They are constrained by problem of low quality and the skills they have, for example, illiteracy problem and work experience are just as unskilled laborers. Almost all respondents with a variety of jobs have chosen to ask for money transfers from relatives or other family members who work outside as a final strategy.

Table 6. Respondents by Ex post strategies and types of Work

Strategy	Producers	Farmers	Street Trader	Fishermen	Contracted Worker	Uncontracted Worker	Percentage (%)
<b>Finding another job</b>	4.8	5.6	2.4	8.8	6.4	11.2	39.2
<b>Reschedule working load</b>	7.2	1.6	4.8	4.8	1.6	8.8	28.8
<b>Borrowing money</b>	12.8	8	14.4	5.6	12	8.8	63.2
<b>Transfer from relatives/ family members</b>	5.6	7.2	4	2.4	2.4	4.8	27.2
<b>Selling assets</b>	5.6	10.4	7.2	2.4	8.8	9.6	44
<b>Obtaining poor food subsidy</b>	8	6.4	11.2	2.4	10.4	9.6	48

Source: Primary data

Chi-Square test results show that there is no particular preference regarding the ex post strategies that will be taken by each respondent based on the type of job when there is fluctuation in income. Any alternative options would be taken by the respondent

to get additional revenue. Because chances are owned by the respondents is limited, they do not have much choice. Those choices are flexible so that it can be done by those with different abilities.

**Consumption Fluctuation.** Table 7 describes sources of income fluctuations based on the type of work. It seems that there is no clear difference among the different types of jobs. The new school year was the first mentioned by all respondents, even the degree was not high. This is due to the high school costs and rising demand for goods school supplies. The new school year was not too affected farmers and fishermen. Children of poor families will receive free tuition from the government through the BOS (School Operational Assistance).

Income fluctuation of peddler or street vendors are the most affected by sick of family members (16%), because they lost their employment who usually helps sell everyday. Income of fishermen is the group of respondents the least affected if there is a sick family member. This can be caused by a fisherman has a level of strong immune and resilient, and fishermen to work with a partner or a joint system with other fishermen, so they can better help each other. In addition, fishermen are not working full time year round, so when the fisherman was healthy or sick, they still have to look for additional job when the weather is bad.

Table 7. Sources of fluctuations in consumption by types of job

	Producers	Farmers	Street Trader	Fishermen	Contracted Worker	Uncontracted Worker
New School Year	9.6	5.6	8.8	4.8	9.6	11.2
Family member illness	12	9.6	16	3.2	12	12
Moslem Eid Celebration	12.8	7.2	13.6	8.8	14.4	15.2
Contribution to Neighbors	13.6	8	13.6	7.2	14.4	12
Other	0.8	0.8	3.2	2.4	0	2.4

Source: primary data

Holiday celebrations of Islam and contribution to the neighbors as a form of caring about others, almost equally affect all respondents with different types of jobs. This is influenced by religion and habits of the respondents were outstanding in their respective regions, such as social activities and religious activities that are still strong binding. The consumption fluctuations are statistically different for each type of job.

**Gender Perspective.** Table 8 reports the gender perspective. Men and Women head of households are classified into three groups: those who are not working, employed and other family members work. The male household heads work more than female household heads. Female household heads who are not working as much as 1.6%, 15.2% work, and another family member to work 20.8%. This comparison shows that men still play a role as the responsible enough to meet the needs of families.

**Table 8. Job status by gender**

Head of the Household	Job status	Total	Percentage (%)
Male	jobless	1	0.80
	have a job	39	31.20
	family member has a job	38	30.40
Female	jobless	2	1.60
	have a job	19	15.20
	family member has a job	26	20.80
Total		125	100.00

Source: Primary data

Female household heads usually stay with the child and child-law. Most of them are elderly, her husband was dead, and usually works as a laundry worker, farm workers and other jobs that are not too heavy. Statistical analysis showed that there is no clear pattern between gender and occupational status. This means that anyone, male or female, could lose their jobs or have relatives who have a job.

Table 9 shows the number of respondents based on Saving Preference and Gender. Saving money at home is preferred by women (59.57%) and men (55.13%) because it is more easily taken and used for unexpected needs than stored elsewhere. Money can be stored in wallets, cabinets, and drawers, even under the mattress and pillows.

**Table 9. Respondent by Saving Preference and Gender**

Gender	Money			Assets
	in house	Formal financial Institution	Non Formal Financial Institution	
Male	55.13	28.21	25.64	51.28
Female	59.57	29.79	34.04	31.91

Source: Primary data

There are differences between men and women when choosing between saving in the formal or non formal institutions. Men prefer to save in formal institutions (28.21%) compared to non-formal institutions (25.64%). Women prefer to save in non-formal



institutions (34.04%) than to save in formal institutions (29.79%). Men prefer formal institutions for security reasons, while women prefer non-formal institutions for reasons more practical, faster, and easier procedure. The informal institutions, such as the rotated saving is widely used as a savings institution. The informal institutions especially exist in many villages that have not been many formal financial institutions. As a result, the villagers are still difficult to access savings facilities provided by formal institutions. However, the result of statistical test, there were no significant differences between gender and saving preferences. They can save anywhere and in whatever form.

Table 10 shows the relationship between the strategies of respondents to complete the fluctuations in income and gender. There are significant differences in decisions between men and women. Borrowing money is an act that would be done by men (57.69%) and females (72.34%) to overcome the financial problems in the short term.

Real action to solve financial problems is preferred by men, for example by looking for other jobs that are considered better, adding hours of work, and if they need to sell assets that is owned. Women tend to be more likely to survive with any family condition, for example by changing lifestyles and consumption patterns of goods the family needs more affordable, or by seeking additional work as uncontracted worker, for example, laundry workers or keeping child labor, job without money as working capital, and more on providing services. It is also influenced by the attitude of the woman who was more afraid of taking risks.

**Table 10. Respondent by Ex post strategy and gender**

Strategy	Male	Female
Looking for additional job	51.28	19.15
Reschedule working load	35.90	17.02
Borrowing money	57.69	72.34
Transfer from relatives/family members	26.92	27.66
Selling assets	50.00	34.04
Obtaining poor food subsidy and other Subsidies	43.59	55.32

Source: Primary data

Classical problem in this society that should be seen by the government, and further development opportunities could be capable of microfinance institutions is a business partner of the small people. Behavioral strategies such as above a statistically significant difference, that man have a different strategy with women and they have the option of each type of strategy.

## 6. CONCLUSION

This study identifies and analyzes how poor people resolve and anticipate fluctuations in revenue and expenditure (consumption). Research conducted in the district of Kulon Progo, Bantul, Gunung Kidul, Sleman and Yogyakarta City. Respondents consisted of workers in agriculture (farmers), fishermen, contracted workers, uncontracted workers, peddler or street vendor, and producer goods (producers). Total respondents were 125 people, divided into 5 districts and each district has all kinds of jobs you want. Samples are not differentiated based on gender, so the numbers between men and women disproportionately.

Results of analysis concluded that there are fluctuations in income and expenditure (consumption of) experienced by the weak economic communities (farmers, fishermen, contracted workers, uncontracted workers, peddler or street vendor, and producing goods/producer). Fluctuations are different for each type of work, both associated with the maximum income, minimum income, income range, and a maximum of consumption, consumption and the range of minimum consumption.

Strategy differences between men and women, there was no clear pattern of relationship between gender and work status. This means that anyone, regardless of gender, could lose their jobs or have relatives who have a job. Preferences to save money or pursuing a strategy of ex ante between men and women do not differ significantly.

Various findings are described by using a very small sample. If the available data on the distribution of job type and number of workers in each sector (informal) and are available in all areas, the more proportional sampling can be done. However, increasing the number of samples may increase the robustness of this conclusion.

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