Multidimensional Poverty in Japan[*]

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Abstract

Not very much is known about poverty in Japan. Until recently, official figures on the diffusion of income poverty among the population did not exist. The Japanese income poverty rate was first announced in October 2009, almost 40 years after the United States did so. Even less is known about multidimensional poverty and material deprivation. A new multidimensional poverty index, including food, clothing and other living conditions, has been in the making since 2012 but, to the best of our knowledge, no official measure exists as of today. What is the share of the population in non-income poverty? How many Japanese are unable to enjoy the minimum standards of living? And who are they according to demographic and social characteristics? These are some of the questions we answer in this paper. We base our analysis on aspects of material living conditions collected in the Quality of Life Survey in 2012 and 2013 conducted by the Economic and Social Research Institute (ESRI), Cabinet Office of Japan.

Keywords: Multidimensional Poverty, Material Deprivation, Japan.

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1.   Introduction

Not very much is known about poverty in Japan. Until recently, official figures on the diffusion of income poverty among the population did not exist. The Japanese income poverty rate was first announced in October 2009, almost 40 years after the United States did so. One year earlier, the European Union was so alarmed by the phenomenon that its member states decided to join forces in order to fight poverty and to declare 2010 the European Year for Combating Poverty and Social Exclusion. According to Iwata (2012, p.5), prior to this date the Japanese government officially defined poverty just once, in the Annual Report on Health and Welfare published in 1957, as "a state in which 'one cannot secure the minimum cost of living'." The social assistance level was mainly used to define this minimum cost. We refer the reader to Iwata (2012) for an excellent survey of the few studies on income poverty.

Even less is known about multidimensional poverty and material deprivation. A new multidimensional poverty index, including food, clothing and other living conditions, has been in the making since 2012 but, to the best of our knowledge, no official measure exists as of today. What is the share of the population in non-income poverty? How many Japanese are unable to enjoy the minimum standards of living? And who are they according to demographic and social characteristics? These are some of the questions we answer in what follows.

We believe that a study of multidimensional poverty in Japan is of importance for at least two reasons.

As the influential work of some scholars such as Townsend (1979), Streeten (1981) and Sen (1992) has highlighted, the well-being of an individual is dependent on many dimensions of human life, such as housing, living conditions and social relations; income is just one of these dimensions. In this framework, poverty is better defined as a situation that reflects failures in different dimensions of human well-being.

Japan follows, as the EU member states, the relative income poverty line approach. In Japan the poverty line is 50% of the median national disposable income while among the EU member states this percentage is 60%. As opposed to the USA, which endorses an absolute poverty threshold, someone is poor only in comparisons to others without looking at the effective capacity to satisfy basic needs. The measures of multidimensional poverty are based on absolute standards. As such they add an absolute dimension to the study of standards of living complementing relative poverty figures.

2.   The measuring method

Measuring multidimensional poverty has been challenging many scholars in the past decade due to the characteristics of the dimensions of well-being under consideration. Multidimensional poverty is generally measured by means of *discrete* variables, that is, whether or not the individual functioning failure with respect to the dimension under consideration obtains. Thus, poverty measures based on continuous variables are unsuitable in this setting. The most popular approach followed in the

literature is what Atkinson (2003) refers to as the *counting* approach. The counting measure of individual poverty consists of the number of dimensions in which a person is poor, that is, the number of the individual functioning failures.

In the multidimensional framework, each person is assigned a vector of several attributes that represent different dimensions of well-being. For measuring multidimensional poverty, it then becomes necessary to check whether a person has "minimally acceptable levels" of these attributes; see Sen (1992, p.139). These minimally acceptable quantities of the attributes represent their threshold limits or cut-offs that are necessary for an adequate standard of living. Therefore, a person is treated as deprived or poor in a dimension if the requisite observed level falls below this cut-off. In this case we say that the individual is experiencing a functioning failure. Poverty at the individual level is an increasing function of these failures.

The axiomatic literature on the subject has proposed some measures of multidimensional poverty and explored the properties that are at the basis of these indices; see, for example, Chakravarty et al. (1998), Tsui (2002), Bourguignon and Chakravarty (2003), Diez et al. (2008), Alkire and Foster (2011) and Bossert et al. (2013). However, with the exception of Alkire and Foster (2011) and Bossert et al. (2013), the functionings considered in these contributions are expressed by means of continuous variables.

Another important contribution on multidimensional poverty with discrete variables, which we follow closely in this paper, is that of Lasso de la Vega (2010), where counting poverty orderings and deprivation curves are proposed. Following the income poverty literature (see Zheng, 2000) on dominance criteria, Lasso de la Vega (2010) investigates circumstances in which the two matrices representing the deprivations felt by each person may be unanimously ranked regardless of the identification method followed to identify the poor in the population and of the poverty measure chosen to aggregate the available information. The advantage of dominance conditions is the removal of the arbitrariness of these choices.

The identification of the poor in a multivariate framework can be performed according to various criteria. One possible way of regarding a person as poor is if the individual experiences a functioning failure in every dimension, which identifies the poor as those who are poor in all dimensions. This is known as the *intersection* method of identification of the poor. As a less restrictive view, a person may be treated as poor if she is poor in at least one dimension. This is the *union* method of identifying the poor. In between these two extremes lies the *intermediate* identification method which regards a person as poor if she is deprived in at least $m \in \{1, \dots, K\}$ dimensions, where K is the number of dimensions on which human well-being depends. See Mack and Lindsay (1985), Gordon et al. (2003) and Alkire and Foster (2011). Evidently, the intermediate method contains the union and the intersection methods as special cases for $m = 1$ and $m = K$, respectively.

3. Data

In this paper we use a unique dataset, the Quality of Life Survey in Japan for the years 2012 and 2013, conducted by the Economic and Social Research Institute (Cabinet Office). The survey is representative of the entire nation, covering 337 municipalities. The sample was chosen according to registers of residence and is composed of Japanese nationals aged 15 and above. The overall response rate was approximately 62% leaving us with more than 6400 valid questionnaires.

We decided to include the following 14 variables related to material living conditions in the measurement of multidimensional poverty:

1. Individuals answering very difficult or difficult to manage necessary daily expenses;
2. Individuals answering very severe burden or burden imposed on household by total spending including mortgage or rent, bills, insurance and property tax;
3. Individuals being very discontent or discontent about noise in their living environment;
4. Individuals being very discontent or discontent about air pollution in their living environment;
5. Individuals being very discontent or discontent about water quality in their living environment;
6. Individuals being very discontent or discontent about crime and violence in their living environment;
7. Individuals being very discontent or discontent about litter in their living environment;
8. Individuals who cannot afford due to financial reasons a domestic/international holiday longer than one night stay;
9. Individuals who cannot afford due to financial reasons to eat meat or fish (or vegetarian equivalent) every other day;
10. Individuals who cannot afford due to financial reasons to pay 50,000 yen for some emergency;
11. Individuals who cannot afford due to financial reasons to invite friends or family for dinner or drinks;
12. Individuals who cannot afford due to financial reasons to keep themselves warm when it is cold.
13. Individuals who do not have any family members(except parents) to help him/her in case of trouble.
14. Individuals who do not have any friends to help him/her in case of trouble.

We follow the counting approach and the dominance method described in Section 2. We analyse multidimensional poverty for the entire population and for subgroups according to gender, age (8 groups–at most 20, between 20 and 30, and so on until older than 80), number of household

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members (5 groups–single member, 2 members, and so on until more than 5 members), working conditions (2 groups–have worked in any paid work, not have worked at all), highest level of attained education including dropouts (4 groups–primary school, junior high or high school, vocational college or junior college, at least university), annual income including taxes (7 groups–less than 1 million yen, between 1 and 2 million yen, and so on until more than 10 million yen).

4.   Conclusion

Poverty problem is getting more serious in Japan. In this paper we study the problem taking into consideration several dimensions of well-being that can be relevant in the field. We base our analysis on aspects of material living conditions collected in the Quality of Life Survey in 2012 and 2013 conducted by the Economic and Social Research Institute (ESRI), Cabinet Office of Japan. Using nation-wide representative sample, we try to introduce new identification method of the poor and various possible choices of the index. The results on income confirm Abe (2010) with a clear declining pattern with increasing income in both years and for all cut-offs, as expected given the type of dimensions chosen to analyse multidimensional poverty. For household size, single individuals and very numerous households show the highest level of poverty in both years.

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