AN ANALYSIS OF ENERGY POVERTY IN JAPAN: EVALUATING ITS POTENTIAL FUTURE

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Overview

Japan is now in an unprecedented situation when it comes to energy policy. Following the Fukushima nuclear plant disaster, nuclear power plants have hardly been operating for three years. On top of that, the government strongly encourages renewable energy production using measures such as a feed-in tariff (FIT) scheme. These raise the energy costs, and eventually increase the burden on households. Apart from this kind of "denuclearization" movement, the government introduced a new tax on fossil fuels to tackle climate change, and has plans to raise the consumption tax twice by 2015 to sustain the social security systems. All of these factors soar the energy costs in the present and near future, which sooner or later will be passed on to the households in the form of higher energy prices.

In addition to the imminent energy price hikes, there is another problem: the share of low-income household is increasing due to Japan's aging and sluggish economy. Among them, vulnerable households such as lone-parent-with-dependent-child(ren), elderly, and single-person households are much more sensitive to rising living costs, including higher energy expenses. Viewed in this light, it is becoming increasingly difficult to ignore the problem of energy/fuel poverty in Japan.

Given this background, this research empirically investigates the present situation of energy/fuel poverty in Japan. There have been few studies about the issue in Japan, although the result empirically shows that there are sure signs of energy poverty in low-income and vulnerable households. The research also evaluates its potential future.

Methods

This research uses detailed microdata on household income and expenditure, with a sample of about 50,000 households covering the whole of Japan, in order to perform a full-fledged analysis of the impacts on low-income and vulnerable households. The dataset is created from the anonymized data, which is provided by the National Statistics Center for this research purpose, based on the 2004 National Survey of Family Income and Expenditure. To extend the data to the latest period, this paper also takes advantage of the Family Income and Expenditure Survey, which includes the annual data on the income and expenditure of Japanese households by income decile group.

Results

This research analyzes the issues of energy poverty in Japan, focusing on the period before and after 2011 – the year of the Great East Japan Earthquake. In the paper, I use the energy budget share approach for the definition of energy poverty; specifically, I define households in energy poverty as those that spend more than 10% of their income on energy expenses, namely electricity, gas, and heating oil. The definition is similar to the one of the UK government definitions (DECC, 2013). First, Figure 1 illustrates the proportion of energy poverty households in Japan by income decile group. The figure indicates that the proportion of energy poverty households in the lowest income decile group increases from 30% in 2010 to 36% in the latest year 2013. And the proportion in the second lowest income decile group rises from 5% to 7%. On the other side, proportions of energy poverty households are small in higher income groups and the damage is relatively small. This result shows the severe impact of energy price hikes in recent years on low-income households, especially the lowest income group. Next, Figure 2 depicts the proportion of energy poverty households in Japan by household type. The result indicates that we can categorize mother–child households and single-aged households as vulnerable ones. 16% of mother–child and 16% of single-aged households are energy poor even in 2010 – the period before the earthquake. In 2013, after the earthquake, the proportion of energy poor mother–child households increases to 20%, and that of energy poor single-aged households rises to 19%. The result shows that about one-fifth of mother–child and single-aged households are in energy poverty at present. The analysis clearly shows that the recent energy price hikes stifle the livelihood of low-income and vulnerable households. From the poverty and distributive perspectives, some countermeasures—such as social tariffs—will be

necessary when energy costs still more increase in the future. Furthermore, it is essential to introduce effective measures for promoting energy-saving investments, which particularly target low-income and vulnerable households.

Figure 1 Proportion of households in energy poverty by income decile group

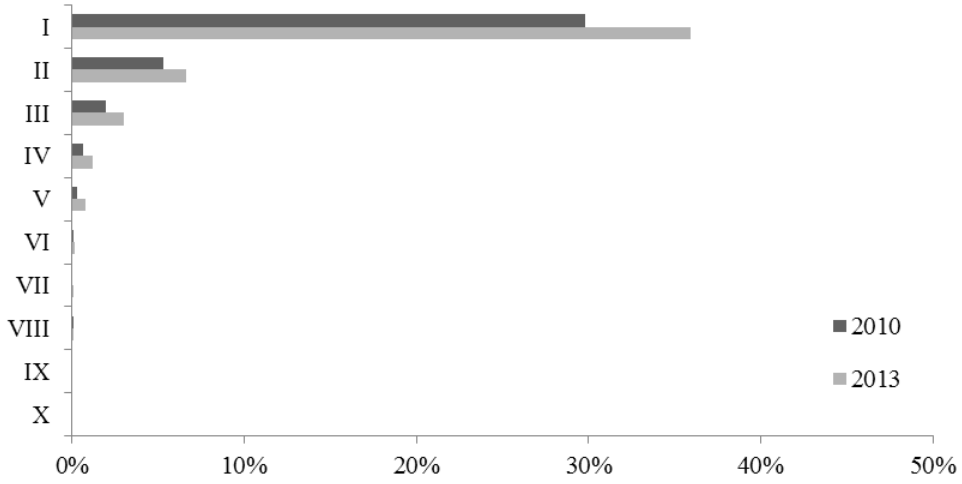
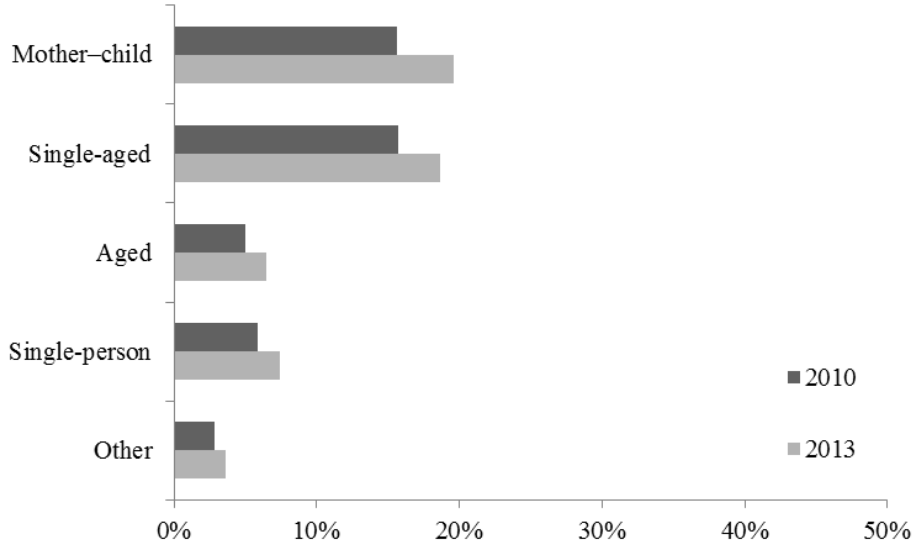


Figure 2 Proportion of households in energy poverty by household type



Note: Mother–child households are composed of a single female parent and an unmarried child (or children). Single-aged households consist of one person who is 65 years old or over. Aged households are households with two or more persons who are 65 years old or over.

Conclusions

This research analyzes the issues of energy poverty in Japan, evaluating its present and potential future. According to the result, energy price hikes in recent years have severe impacts on low-income households, as well as on vulnerable households. Therefore, it is highly possible that some countermeasures against energy poverty will be necessitated, when energy costs go up in the future because of carbon pricing and/or renewable energy promotion.

References

DECC (Department of Energy and Climate Change) (2013), Annual Report on Fuel Poverty Statistics 2013. Department of Energy and Climate Change, Government of UK, London.