

## Household Energy Burden in Japan

### -- Efficient Energy Subsidy Systems Should Be Provided for Low-income Households --

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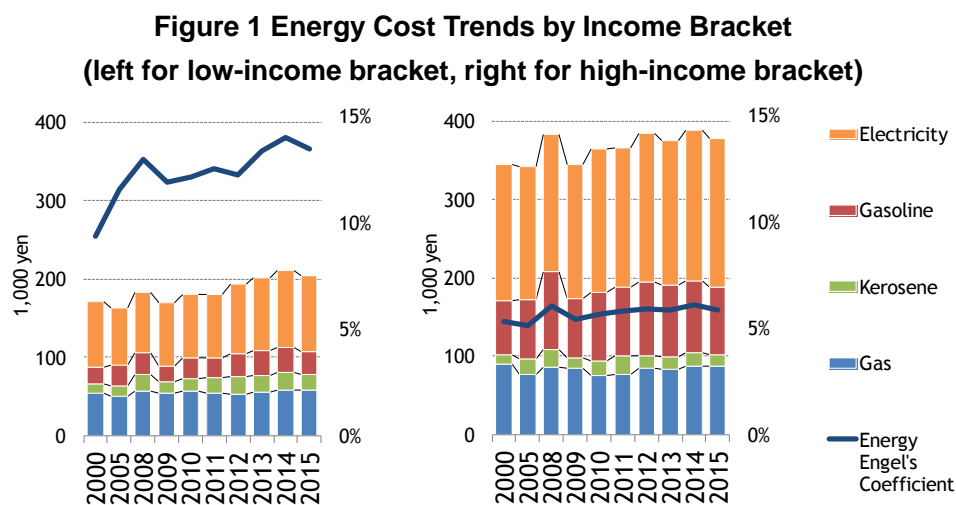
#### ■ Introduction

In Japan, rising household energy costs have been attracting sufficient attention that the government is considering subsidies for kerosene purchases as part of its coming package of economy-boosting measures. Although Japanese households have been saving electricity and other energy, particularly since the Great East Japan Earthquake, the average annual energy costs per household increased beyond 300,000 yen in 2014 for the first time ever (Ikarii, et al., "Economic and Energy Outlook of Japan for FY2015"). In addition, there are region-to-region disparities. Gasoline and kerosene costs for households in small municipalities are higher than in large cities due to transport and heating costs. Region-to-region energy spending gaps should narrow due to the recent crude oil price drops. However, the narrowing will be limited, because consumption expenditure gaps have been expanding. Then, this paper analyzes rising energy costs for each income bracket, a major problem rivaling energy cost growth for average Japanese households and the region-to-region gaps.

#### ■ Energy costs hit record highs for both low- and high-income brackets in 2014

Due to the shutdown of all nuclear power plants and growing fossil fuel imports in value amid the yen's depreciation, Energy Engel's Coefficients indicating energy costs' substantial burdens hit record highs for low- and high-income brackets in common.

In 2014, the average energy costs for households with annual income below 2 million yen (hereinafter referred to as the low-income bracket) came to 210,000 yen, with household spending at 1.50 million yen. Energy costs' share of household consumption expenditure (hereinafter referred to as "Energy Engel's Coefficient") stood at 14.0%. For households with annual income of at least 15 million yen (hereinafter referred to as the high-income bracket), energy costs totaled 389,000 yen against household spending at 6.39 million yen, with the Energy Engel's Coefficient at 6.1%.



(Source) Computed/estimated from "Family Income and Expenditure Survey" by Statistics Bureau, Ministry of Internal Affairs and Communications

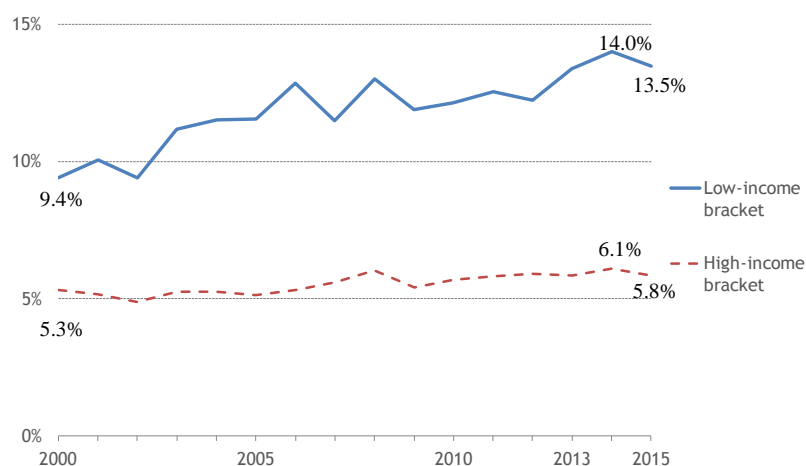
## ■ Energy burdens remain unchanged for high-income households while increasing for low-income ones

Let's focus on the difference between energy burdens for low- and high-income brackets. As indicated by Figure 2, the Energy Engel's Coefficient for the low-income bracket rose from less than 10.0% in 2000 to 14.0% in 2014. In contrast, the coefficient for the high-income bracket remains roughly between 5.0% and 6.0% since 2000. This means that substantial energy costs remain almost unchanged for the high-income bracket, while rising remarkably for the low-income bracket.

High-income households increase energy consumption when energy prices are low and reduce consumption when prices are high. But low-income households consume the minimum necessary energy to continue daily life irrespective of whether energy prices are high or low. Low-income households have thus less room to save energy consumption than high-income households and are vulnerable to retail energy price changes.

In a specific case in 2008 when Japan's crude oil import price hit a record high of \$135/barrel (August), the gasoline cost and its share of overall energy costs for the low-income bracket rose by 3,143 yen and 0.6 percentage points, respectively. In contrast, the gasoline cost for the high-income bracket increased by a smaller 2,701 yen, with the share falling by 0.7 percentage points. During the same period when gasoline prices rose rapidly, the low-income bracket had no choice but to increase gasoline consumption by 1 liter. But the high-income bracket reduced consumption by 57 liters<sup>1</sup>.

**Figure 2 Trends of Energy Engel's Coefficients for Low- and High-income Brackets**



(Source) Computed/estimated from "Family Income and Expenditure Survey" by Statistics Bureau, Ministry of Internal Affairs and Communications

## ■ Conclusion

As crude oil import prices fall in 2015, energy costs will decrease from 2014. But energy costs and the Energy Engel's Coefficient for the low-income bracket will be 205,000 yen and 13.5%, both higher than in 2011 when the Earthquake happened. For the high-income bracket, energy costs will be 377,000 yen with the Energy Engel's Coefficient at 5.8%, also both higher than in 2011. In this way, a decline in the energy self-sufficiency rate and a simultaneous increase in energy import costs effectively raise energy costs particularly for the low-income bracket.

<sup>1</sup> (Sources) Computed from "Family Income and Expenditure Survey" by Statistics Bureau, Ministry of Internal Affairs and Communications and "Petroleum Products Price Survey" by Agency for Natural Resources and Energy

In response to such situation, the government will have to consider a measure for easing energy costs for low-income households particularly in small municipalities along with domestic and external measures to hold down energy costs and stabilize supply. In this sense, subsidies for kerosene purchases in the economy-boosting package can be appreciated as a system for easing energy costs. On the other hand, the government must recognize that most subsidy systems produce waste and other results remarkably affecting efficiency unless it is designed appropriately. We would like to see economical, essential systems that would limit subsidy target households according to income levels and utilize smart or debit cards to limit energy supply to the minimum necessary level for really needy households.

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