

## **Kenji Nagamatsu**

Thank you very much. I am honored to have the opportunity to participate in this panel discussion.

Since the previous speakers have discussed technological issues, I would like to focus on measures for promoting the dissemination of Environmentally Friendly Vehicles, particularly tax systems. Before I start, I would like to point out that my presentation reflects my personal opinion, not that of my institute.

First I would like to talk about the major categories of policy measures, which are roughly classified into regulatory and economic measures. Regulatory measures may include mandatory emission regulation, fuel economy regulation, and others. Generally speaking, regulatory measures are effective in controlling performance. On the other hand, it should be noted that regulatory measures restrict consumer freedom of choice.

Economic measures have certain advantages. Through market mechanisms, economic measures can direct consumers to EFVs while encouraging consumers to reduce the unnecessary use of their vehicles and providing manufacturers with greater development incentives. As a result, economic measures may complement regulatory measures.

Economic measures include subsidy programs and tax reforms. Considering the current severe budget situation, however, subsidies for acquisition are insufficient for mass dissemination of EFVs.

However, tax reforms can be effective for disseminating EFVs by internalizing the external costs of environmental damage and adding these costs to the operation of the automobile.

Now, I would like to briefly touch upon Japan's current policies. Mr. Nakayama has already talked about regulatory measures, so I'll move on to economic measures.

Focusing on "Green" taxation, the Automobile Tax system was revised in 2001 to encourage the reduction of emissions and to save fuel. The new provisions provided for a reduction in the tax on certain EFVs and an increase in the tax on less environmentally-friendly vehicles. This tax reform was designed to be revenue neutral.

With respect to the Acquisition tax, a reduction of the Acquisition tax on certain EFVs was introduced in 1999.

Even though this "Green" taxation has contributed to the earlier realization of regulatory standards, it has not significantly reduced CO<sup>2</sup> emissions. The reduction of CO<sup>2</sup> emissions for 2002 is estimated to be 0.2%, not a significant number.

Next I'd like to discuss desirable future measures to further popularize EFVs beyond 2010.

With respect to emissions in general, through the implementation of anticipated stricter regulations, there should be almost no problem for new vehicles after 2010. The problems will be with those vehicles already on the road. On the other hand, fuel standards must be reviewed in light of new technological developments, and tighter new standards will be needed.

I believe fundamental reform of the automobile-related tax system and expansion of subsidy programs will be necessary to achieve mass dissemination of EFVs.

Before moving on to the discussion of desirable future tax reform, I would like to provide a snapshot of the current Japanese automobile-related tax system.

As this table shows, 9 different taxes are assessed, at the acquisition, ownership and operation stages. It is very complex. In addition, revenue application is very limited. 5 out of 9 taxes are designated as road resource revenues that are earmarked for road construction and maintenance programs.

The Tax Commission of the Japanese Government made a trial calculation to compare taxes in selected countries, taking a 2,000 cc class passenger car as an example. According to this report, the total amount of the Japanese automobile-related taxes is

higher than the United States, but lower than all three European countries showed in this chart. In addition, the ratio of ownership and acquisition taxes to the total tax is higher than all the other countries except the United States.

Another characteristic is tax rate differentials between different types of fuel, for example, a higher tax rate is imposed on gasoline than diesel. (In Japan 53.8 Yen/liter for gasoline and 36.1 Yen/liter for diesel),

In order to reduce the environmental burden of automobiles, I believe that a new tax system in which the external costs of environmental damage are internalized in the cost of operating the vehicles is necessary.

At the acquisition and ownership stages, a tax system that imposes higher taxes on vehicles with higher emissions (including CO<sub>2</sub>) and lower taxes on vehicles with lower emissions is appropriate. Taking into account the current severe budget situation, maintaining a tax revenue neutral policy is preferable.

At the operation stage, it is considered appropriate to levy heavier fuel taxes because a vehicle emits exhaust gases and other pollutants depending upon the driving distance or fuel consumption. It is also preferable to maintain a tax revenue neutral policy with other types of tax incentives.

This table summarizes the intended effects and problems of the tax reforms at each stage.

At the acquisition and ownership stages, a higher tax on vehicles with higher emissions, and a lower tax those with lower emissions can be an option. This will have the effect of encouraging the purchase of EFVs. However, even if EFVs are selected, when the cost of fuel is low, the use of the vehicles may increase. In comparing the effectiveness of the measures between the acquisition and ownership stages, I expect that taxation at the ownership stage is more effective because the driver will feel the impact each year the vehicle is in use.

At the operation stage, a higher fuel tax should be considered - including elimination of the differential between gasoline and diesel fuel. This type of taxation will not only encourage the purchase of EFVs, but also contribute to fuel savings. However, it should be noted that if the tax is not high enough, its effectiveness will be limited.

I would like to introduce some studies that have analyzed the effectiveness of tax reforms for reducing the environmental burden of automobiles.

The first study I have selected is one conducted by Satoshi Hibiki and Toshihide Arimura in 2001.

This study focuses on air pollution and how the automobile tax system influences air pollution by simulating how people select cars.

Its major findings are,

- NO<sub>x</sub> emissions will be reduced if the fuel tax rate differential between gasoline and diesel is changed to reflect the higher emissions from diesel fuel consumption.
- If the tax on diesel fuel is raised, drivers will shift from high exhaust cars to low exhaust ones.
- If the fuel tax is revised, drivers who tend to go long distances will shift to more environmentally friendly vehicles.

Another study is one conducted by Toru Fujiwara, Katuto Hasuike and Yositungu Kanemoto, in 2002.

This study discusses the results of a simulation study evaluating the impact of various tax policy measures aimed at reducing CO<sub>2</sub> emissions.

Its major findings are

- Revenue neutral changes in ownership and acquisition taxes have very small effects on CO<sub>2</sub> emissions.
- Raising the fuel tax is more effective in reducing CO<sub>2</sub> emissions.

- Combining an increase in the fuel tax with a reduction in the ownership tax substantially reduces CO2 emissions and at the same time yields higher social benefits than other measures

In conclusion, I believe that automobile taxation reform can be an effective measure to encourage consumers to choose EFVs, reduce unnecessary use, and provide incentives to auto manufacturers for the better development of EFVs.

In order to get the best solution, options for automobile taxation reform should be analyzed further on a quantitative basis, such as combining an increase in the fuel tax and a decrease in the acquisition and ownership taxes.

I also believe that tax reform discussions should include consumers, as they, too, are significantly impacted.

My last comment is that broader applications of automobile-related tax revenues should be promoted beyond road-related uses, such as EFV R&D and promotion of increased public transportation use.

Thank you.