

# Decoupling Status of Final Energy Consumption from Economic Development in Japanese Prefectures

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## 1. Decoupling strategy and its application to local climate policy

“Decoupling strategy” is a strategy for decoupling environmental pressure from economic growth, employment growth, or improvement in quality of life, which has developed mainly in Europe. Basically, decoupling is defined as a situation where the growth rate of an environmental pressure is less than that of economic driving force over a given period and measured in national level (OECD, 2002). However, Nagano prefecture has pioneered the application of decoupling strategy into its local climate policy, “Environmental Energy Strategy.” Its framework and significance is discussed in the latter of this chapter.

## 2. Decoupling status of final energy consumption from economic development in Japanese prefectures

In order to consider whether Japanese local government can achieve decoupling, this chapter conducted decoupling analysis of “rate of change of final energy consumption per capita” from “rate of change of income per capita” in 47 prefectures between 1990 and 2009. The following results are obtained.

1) Only 2 prefectures (Fukuoka and Wakayama) achieved absolute decoupling. In these prefectures, energy consumptions have largely declined because of the cut back of production by big steel plants located there, while this wasn't affected income per capita largely since only 20% of local employees engage in manufacturing sector.

2) Rising energy intensity (energy consumption per income), which was pointed out by Takai (2010), was caused by large increase in residential and commercial sector, rather than industrial sector, which is not positively-correlated with income growth.

3) As local characteristics, the decoupling status was worse in rural prefectures than industrial area. This is not only because many manufacturing factories entered rural prefectures since 1990s, but also because in residential and commercial sector and car sector energy consumption increased much larger in rural area than urban area owing to lower population density.

## 3. Specific measures to achieve decoupling on local level

According to analysis above, this chapter discusses how to achieve decoupling on local level focusing on residential and commercial sector which has high energy-saving potential and controllability by local government. The close survey about measures and policies taken by Nagano prefecture revealed that the keys to promote measures in residential and commercial sector will be the accumulation of human capital within local community, coordination and intelligence sharing councils, reducing cost in construction of model houses by utilizing government subsidies.

## Citation

OECD (2002) "Indicators to Measure Decoupling of Environmental Pressure from Economic Growth"

Toru Takai (2010) "Integration of Decomposition method into Decoupling Concept for Evaluation of Sustainable Development", 環境情報科学論文集 Vol.24、p.261-266

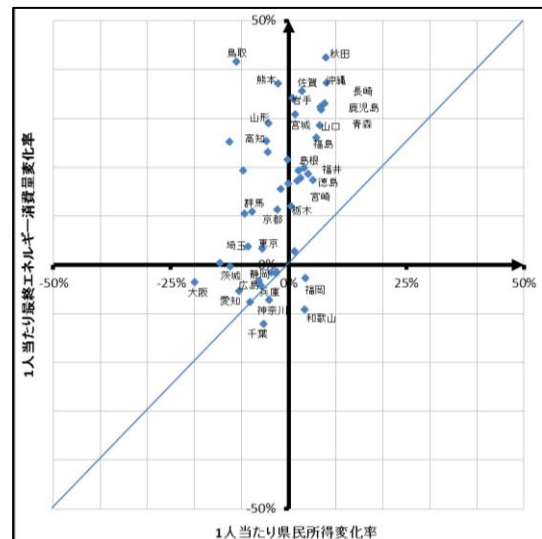


Fig.-1 Key figures about decoupling status of final energy consumption from income growth between 1990 and 2009