

An Analysis of the Contributions of KAERI's Operation to the Daejeon Regional Economy

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1. Introduction

Social acceptance by local residents is very important for the use of sustainable nuclear energy including nuclear R&D activities. This public acceptance of nuclear-related activities includes a variety of factors: social, economic and environmental impact. Among these factors, economic contributions to the regional economy are considered very important factors by local people.

This study examines the economic contribution of the Korea Atomic Energy Research Institute (KAERI)'s operation to the Daejeon regional economy securing local acceptance of the research activities of KAERI.

2. Background

2.1 Overview of KAERI's Operation

The KAERI is a government-funded research institute established in 1959 and has been the only research institute in Korea dedicated to nuclear energy. As the first research institute of science and technology in Korea and the second largest research institute, KAERI has a total of about 1,580 full-time employees and spends about 544 billion won in annual R&D budget as of the end of 2018, headquartered in Daejeon, and has two branch offices in Jeongeup and Gyeongju.

2.2 Economic Contribution Approach

The scope of this analysis is limited to estimating the contribution from the operations by KAERI's headquarter to Daejeon regional economy in terms of direct effect. The direct economic contribution to the region is made both from the expenditure incurred in the operation of the KAERI and from the expenditure of the workers employed by the KAERI. The local taxes paid by the KAERI and workers contribute to the increase of the local government revenue. In other words, various consumption activities in the region made by workers, and the expenditure in the operation process of the KAERI in the region including the purchase in the local area and the contract with the local company can contribute to the improvement of the local economy.

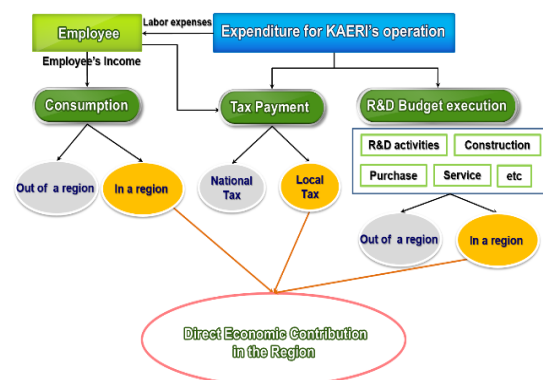


Fig. 1. Mechanism of the economic contribution to the region.

3. Contribution of KAERI's Operations to Daejeon Regional Economy

The direct economic contribution of KAERI's operations to the Daejeon is analyzed by the increase of the local government's tax revenue, the expenditure of the institution in the region, and the expenditure of the workers in the region.

3.1 The Increase of the Local Government's Tax Revenue

The local taxes paid by KAERI are acquisition tax and property tax, and it is analyzed to be about 240 million won per year. The local taxes paid by KAERI's workers are resident tax, income tax, automobile tax, property tax, and tobacco consumption tax and it is analyzed that employees working at the Daejeon pay a local tax of about 2.7 billion won annually.

3.2 The Expenditure of the Institution in the Region

In the process of institutional operation and R&D activities, KAERI spends considerable amounts of a budget in the region by purchasing goods & service from local companies, signing contracts for construction or research with local companies and using corporation card in Daejeon. As a result of analyzing the regional expenditure of the KAERI from 2016 to 2018, it is estimated that the purchase amount from local companies is about 40 billion won per year, the contract amount with local companies for construction, service and R&D is 31 billion won per year, and the expenditure by using corporation card in Daejeon is about 5 billion won per year.

3.3 The Expenditure of the Workers in the Region

KAERI headquarter in Daejeon has a total of about 1,600 full-time and part-time employees with annual

expenditure of about 150 billion won[1]. Because the expenditure behavior to region is different according to the residential area of the employees, we analyzed the employees' residential areas, worker type, average wages, etc, and estimated the total amount of consumption by employees in the region based on the consumption propensity scenario and the result are shown in table 1.

Table 1. the expenditure of the workers in the region

Section	Annual expenditure of employees		
	Number of employees	Scenario	Amount (million won)
Full-time	Resident in Daejeon	high	62,512
		low	41,674
	Resident outside Daejeon	high	3,995
		low	1,331
Part-time	Resident in Daejeon	high	4,419
		low	2,946
Total	1,602	high	70,926
		low	45,952

4. Conclusion

We estimated the direct contribution to the regional economy and tax revenue generated by KAERI's R&D activities in Daejeon. KAERI's current annual economic impact is estimated to be 3 billion won in tax and 120~150 billion won in expenditure. It is realized during the operation of the institute located in Daejeon.

REFERENCES

[1] www.alio.go.kr