Economic Impacts of Renewable energy

A case of South Korea

Introduction

In the period 1970s, the Korean governmental authorities established the very first series of power saving regulations, which were updated several instances in the year 1980. The Energy Consumption Rationale Basic Plan was formed by the state in 1993 with the aim of obtaining a much more logical solution for energy challenges. The Energy Use Rationalization Basic Plan's main objectives are to shift to a minimized energy economy, improve energy sustainability, stimulate and teach on green technology, and minimize the release of the greenhouse gases. Due to the economic recession of Asia, the initial fundamental plan highlighted an energy-saving approach, however the other plan concentrated mostly on structural as well as systemic restructuring (Chen et al., 2014). The present research will look into the impacts of renewable energy on different businesses in South Korea.

In November 1973, the Korean governmental authorities took steps in significant reductions of the global crude oil reserves. In addition, the government formed an energy-saving committee and backed power saving efforts across the state. During the start of 1980s, the government of the state changed energy-saving frameworks and processes, resulting in the establishment and implementation of a number of regulations that allowed for the growth of energy-saving activities. The only one strategy, that was solely concerned with lowering energy consumption, was relaxed or abandoned. Consequently, the government established alternative legislative proposals which emphasized the advancement of energy-saving technologies and the integration of energy supplies (Wang, 2020).

Renewable energy has both internal and external implications for the economy. The direct influence of sustainable energy has always been the subject of much investigation. Certain researchers look at the internal and external consequences of sustainable energy throughout the

course of their lives. The renewable energy has greater impliacation of chemical industry. Chemical industry requires heavy amout of energy and according to data, the use of renewable energy has far greater and positve impacts due to the use of reneable energy than any other sector.

South Korea has set the way in the world of high-tech innovation and advanced strategies to get a competitive advantage over its competitors. There is a high demand for renewable energy, prompting South Korean government to take the issue more seriously and employ renewable energy as their primary source of electricity. Using renewable energy sources, on the other hand, can have both positive and bad consequences. The present study will employ an I/0 table to see the effects of utilising renewable energy sources in various businesses in order to better understand the effects (Xiang et al., 2021).

Objective of the study

The goal of this research is to look at the impact of sustainable energy utilisation within China, as well as the beneficial and detrimental consequences it has on different businesses. The results of the study would be analyzed in the United States to determine the effects. To further understand the effects, input/output evaluation would be used. The article will start with energy statistics and then contrast all of the industries depending on their interrelations.

Model for value added creation:

Effects of value-added creation

The amount to which one dollar of output or investment in Sector L leads to the development of value in other sectors is measured by value-added creation impacts.

$$\Delta V^{e} = A^{v} \left(I^{e} - A^{e}\right)^{-1} \left(A^{e} \Delta X_{L}\right)$$ Source: (Lee et al., 2014)

Model for Production-inducing effects

The amount that a dollar of production or investment in one industry increases output in other industries is referred to as the production-inducing impact. Sector L is the abbreviation for the particular sector of interest. Where, ΔX^e is an n-1 matrix.

$$\Delta X^e = (I^e - A^e)^{-1} (A^e \Delta X_L)$$ Source: (Lee et al., 2014)

Results and discussion

The goal of this research was to look at the impact of renewable energy on various businesses in South Korea. The input/output table for 2015 was used in this investigation. The input/output table for South Korea has 381 sectors in total. The Bank of Korea divided the country into four categories: big size, medium scale, small scale, and basic scale. (Bank of Korea, 2019)

The IO models utilized in this study are uncomplicated and uncomplicated to employ as they do not require extensive quantitative analysis. Because the IO model includes an IO table that summarizes input and output across sectors within a country's entire economy in a single table, the statistical conclusions from IO analysis are useful for numerous reasons in policy development and evaluation related to the renewable energy sector. This analysis aimed to emphasize the revised significance of the results by using the recently published 2015 IO table.

The results of using the value-creation method to analyze the production-inducing benefits of renewable energy domains on various industries in South Korea are shown in Table 1. For each dollar of output or capital invested in Sector 7, "Chemical products," for example, 0.04672 dollars of output is generated. The overall value added creation effects for agriculture and fishing total 0.00297. Similarly, the value added creation effect for one of the primary sectors, petroleum and coal, is 0.00285.

This illustrates that investing a dollar in renewable energy will have a 0.00285 beneficial impact on the petroleum and coal industries. Overall, after investing in the renewable energy industry in South Korea, every industry has shown positive outcomes. This demonstrates that there is a tremendous lot of room for additional investment in this area, which is why the South Korean government intends to spend more in it.

For each dollar of output or capital in renewable energy, 0.01875 dollars of value-added is created in Sector 12, "Electric equipment." The RE sector generates 0.26408 dollars of additional value in other sectors for every dollar of output or investment.

The value-added ratio of a sector is described as the industry's value contributed over its total input in Table 1 and is designated as a self-induced contribution. The renewable energy business contributes a total of 0.59510. As a consequence, the cumulative effect on the development of value-added is 0.859. Since every dollar spent or produced in the RE sector adds value to the domestic economy, it has a positive impact on all businesses and the overall economic system.

References

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