THE CONSEQUENCES OF THE TRANSITION TO THE POST-LIGNITE ERA, THE CASE OF SMALL AND MEDIUM ENTERPRISES IN THE REGION OF WESTERN MACEDONIA

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ABSTRACT

The research entitled "The consequences of the transition to the post-lignite era, the case of small and medium enterprises in the Region of Western Macedonia" addresses the European Green Deal and its previsions for the establishment of the Just Transition Fund aiming to mitigate the effects of the shutdown of thermal power plants. Moreover, the criticism received is also addressed. The research emphasis is at the Region of Western Macedonia where most of Greece's lignite mines are located. The age and educational profile of the region are studied, as well as the contribution of energy to the Gross Added Value of the Region, investments, employment and high unemployment rates. Finally, the number of self-employed and the situation of enterprises in the Region are investigated. The method implemented included on-site interviews and study of the findings of the Hellenic Statistical Authority (ELSTAT) and Eurostat. The key conclusion of the research concerns the straitened social and economic current situation of the Region of Western Macedonia, due to its overdependence on energy, during the past 50 years. Therefore, it is proposed the adoption of a model of smooth transition in order to avoid the social shocks by the abrupt transition to green energy.

KEYWORDS

Clean energy, Post-lignite era, Coal regions, Transition, Just Transition Fund, Just Transition Mechanism

1. INTRODUCTION

European Commission president, Ursula von der Leyen, announced in December 2019 the European Green Deal (European Commission) [1]. The Green Deal aspires to be an overall text-guide. Its provisions concern and extend over every sector of economic activity: from energy and industry, to constructions, transportation, agricultural production and nutrition. Aim of the Green Deal, in accordance with the 2030 UN Agenda for Sustainable Development, is transforming Europe into a climate neutral continent until 2050. In the Green Deal, it is imperatively addressed the issue of "Just Transition", as a set of measures that will limit or even eliminate the negative consequences of the termination of energy production by power plants, targeting the affected areas.

The Green Deal and the Just Transition Fund have been strongly criticized in variable dimensions; namely, the small amount of funds, the inadequate involvement of social partners etc. (ETUC, 2020)[2].

In Greece, on the revised National Energy and Climate Plan of 2019, the target that has been set until 2023 is the removal of the total of thermal powerplants using lignite as fuel that are today in operation and the complete disengagement of the domestic power generation system from lignite by the year 2028. The precipitate de-lignitization, which disrupted the predictions of the former National Energy and Climate Plan has been strongly and detailed criticized both inside and outside Greece. At a European Union level, it has been criticized for the use of natural gas as a transition fuel (Sandbag, 2019) [3]. Contrary to the international guidelines, the withdrawal from lignite in Greece will not occur to the benefit of solar, wind or other renewable sources of energy.

Reactions on expanding the use of natural gas derive from the impacts of methane (CH_4), which constitutes 90% of the natural gas, on the increase of global temperature. Methane is also included in the gases that cause the greenhouse effect. The environmental footprint of natural gas is even higher, taking into consideration the extremely harmful for the environment mining conditions used for the shale gas which is imported in Greece and Europe from the US increasingly.

De-lignitization in Greece occurs in the above-mentioned international, European context of accelerating the measures for the reduction of greenhouse gas emissions. This research aims to frame the potential impacts in order to formulate objectives that shall mitigate the consequences, in consideration of the social cost.

2. METHODOLOGY

Three methods have been implemented for the research.

Firstly, on-site visits to the Region of Western Macedonia which is in transition and interviews with workers, entrepreneurs and professionals of almost all sectors that are directly or indirectly affected by energy.

Secondly, overview of Greek and international literature and scientific articles.

Thirdly, study and processing of time series of the Hellenic Statistical Authority (ELSTAT) and Eurostat, aiming the concentration of the most reliable and recent data on the composition and education of the labor force, the analysis of the GDP and added value etc.

3. RESULTS AND DISCUSSION

The Region of Western Macedonia, composed of four prefectures (Kozani, Florina, Kastoria and Grevena ordered by economic significance), according to ELSTAT, produces 2.20% of Greece's GDP (3.96 billion euros in a total amount of 180.22 in 2017) and is inhabited by 2.53% of the population (270.163 out of 10.673.442 in total). The Region of Western Macedonia lacks significantly behind in terms of social (and not strictly economic) development in comparison to the national average, even to date; although it comprised the "energy lung" of Greece for decades, had relatively stable sources of income and employment. There are numerous indexes that verify it.

The Region of Western Macedonia is one of the Regions with the most aging population in Greece. The proportion of teenagers is lower than the national average (13.74%, to the national 14.37%). On the other hand, in Western Macedonia, the proportion of those over the age of 45 reaches 52.68% while in the rest of Greece it reaches 49.50%.

The educational level of the population of Western Macedonia lacks significantly below national average. A percentage double of the national average has never attended school or has attended only a few classes of primary school (0.65% in Western Macedonia contrary to 0.31% in Greece). On the other hand, a lot less in comparison to the national rates have post-secondary vocational training, have studied in Higher Education and have a University or *TEI* (Technological Educational Institute) degree or acquire a post-graduate degree: 65.14% in W. Macedonia to 83.1% in

Greece.

The contribution of the energy sector (especially of sector D35 electricity, gas and steam supply) to the Gross Added Value (GAV) of W. Macedonia in 2017- last year for which data are available- amounted to 23.48%. The contribution of this sector to the region's economy reached its peak in 2014, at 33.78%. Thereon, it is steadily decreasing.

The serious structural problems that W. Macedonia is already facing are captured in the devastatingly high rate of unemployment. In 2018, unemployment was by almost 50% higher than the national average (27% to 19.3%).

The heavy dependence of W. Macedonia on lignite activities and the impacts of de-lignitization are depicted on the labor map, setting as reference period the third quarter of 2019.

Based on a general assessment, the de-lignitization will directly affect 9,469 employees or 10.81% of the employees of the region. Indirectly, 5,667 employees or 6.47% of the employees will be affected. On a second cycle of impact are 35,388 or 40.38% of the employees. Hence, 50,524 employees on a total of 87,631 employees or 57.66% of the employees will be affected in any way. Relatively unaffected will remain 37,106 or 42.34% of the region's employees. Apropos the methodology of distinction of the sectors of economic activity, using the two-digit sectoral classification code, in the first category, four activities that are directly affected although to a different extent from the de-lignitization have been included. The second category includes five activities that are engaged in the value chains around lignite production. The third category comprises 28 activities that are affected by the income generated by the lignite production and other activities.

According to the structural statistics of the Hellenic Statistical Agency for W. Macedonia, from 2011 to 2016, on the single-digit sectors related with lignite production, the following developments occur: a decrease on the number of enterprises, an increase of turnover and a decrease on the number of employees.

However, it is of particular interest the comparative examination of the total of enterprises of W. Macedonia in comparison to the enterprises of Greece. It appears that a decrease on the number of legal units and the turnover has been noticed nationwide. in W. Macedonia, however, it was significantly higher. As a result, in 2016 the average enterprise of W. Macedonia has a smaller turnover comparing to 2011, while nationwide, the average enterprise has a larger turnover. We can therefore support that during these six years under examination, while the average enterprise that survived in Greece, debouched stronger, in W. Macedonia it became smaller in size, financially weaker and more vulnerable to the turns of the economic cycle.

4. CONCLUSIONS

To conclude, Western Macedonia is at risk of turning into a ghost-region. The consequences of violent de-lignitization will be devastating, since it is already considered a region of lower speed as reflected on the aging population, the low educational level and the high rate of unemployment.

De-lignitization without the adoption of adequate measures or with the implementation of a poorly designed transition program that will not consider the region's conditions imperils leading to unemployment, directly, 9,469 people (10.81% of the employees) and 5,667 (6.47%) more that are occupied on the value chains around lignite production. Furthermore, the impacts will affect 35,388 employees (40.38%) occupied on activities that are dependent on the income generated by lignite mining.

De-lignitization might also turn into a deathblow for the thousands of self-employed without staff as well as for the region's enterprises which during the period 2011-2016 were shrunk in number and had their turnover further declined, resulting into their being more vulnerable**.**

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