

CONSUMPTION AND PRODUCTION RELATIONSHIP WITH THE ENVIRONMENT: AN IN-DEPTH ANALYSIS FOR THE ALBANIAN ECONOMY

FJONA KURTESHI

University of Tirana, Faculty of Economy, Tirana, Albania
kurteshifjona@gmail.com

Abstract With the world population increasement rates and the greedy nature of humans, the levels of production and consumption will be continuing to increase globally. We should be aware that the quality of life of one individual depends on the degree to which the planet is protected and utilized. Production activities and, albeit indirectly, consumption processes are directly linked to the scarcity of natural resources and environmental impacts. In fact, it is consumption, final or intermediate, the fundamental causal factor and driver of change in production activities, making the focus of EU environmental policies on sustainable consumption and production to evolve from a cleaner production through sustainable products to a more holistic approach to sustainable consumption and production. This paper aims to study theoretical and practical aspects of the relation between consumption and production and environmental pollution while taking in consideration one of the main sustainable development goals that urge to reduce our ecological footprint by changing the way we produce and consume goods and natural resources. For the case of Albania, the analyse suggests a positive relationship between the quantity and the type of what is produced and consumed, and the types of waste generated, despite limitation in data imported.

Keywords:

consumption,
production, waste,
environment,
sustainable
development

JEL:

E21, E23, Q53



DOI <https://doi.org/10.18690/um.epf.3.2023.65>
ISBN 978-961-286-736-2

1 Introduction

As stated in the United Nations Report (2022), unsustainable patterns of consumption and production are root causes of the triple planetary crises of climate change, biodiversity loss and pollution. The same report indicates that our reliance on natural resources is increasing, rising over 65% globally from 2000 to 2019, meaning that the total amount of materials directly used by an economy to meet the demands for goods and services from within and outside a country reached the value of 95.1 billion metric tons globally.

The main driver for this seems to be the growth of population and consumption. The world population is increasing fast, that said based on the number of years in decline that the world population needs to increase by one million. To make it worse, the level of consumption (measured in constant 2015 US\$), for the exact same periods of time, has been increasing even faster. As for Albania, the level of GDP/capita and of consumption/capita measured in constant currency, have been rising year after year, meaning that the levels of production and consumption per capita have done the same (World Bank Data, 2023).

In less than two decades starting from 2000, total domestic material consumption (DMC) rose by more than 65% globally, amounting to 95.1 billion metric tons in 2019 as reported by United Nations (2022). Paradoxically to SDG No. 2 to end hunger, huge amounts of food go lost or wasted. Only in 2020, 13.3% of the world's food was lost after harvesting and before reaching retail markets and 17% of total food available to consumers is wasted at household, food service and retail levels. Food that ends up in landfills generates 8-10% of global greenhouse gas emissions, worsening the environmental footprint of food production and consumption. In Albania specifically, according to a survey by Preka et al., (2020), food waste is prevalent with most wasted foods to be bakery and dairy products. For the case of Albania, as stated in the Sustainable Development Report 2022 by Sachs et al. (2022), SDG No. 12 still remains a change for Albania, but it is on track.

2 Theoretical Background

European Environment Agency (2010) cites that the consumption of goods and services in developed countries is a major driver of global resource use and associated environmental impacts, whereas production activities across economic sectors are directly responsible for the majority of the environmental impacts caused by the economy.

Natural resource use, indicated by DMC, has high environmental relevance as an indicator of potential environmental pressure on a domestic territory. These materials used on the input side are either emitted back to the environment as waste and emissions or contribute to the increase of the national physical stock with potential flows of waste and emissions in the future according to United Nations Environment Programme (2021).

Turener (2011) in his analyse for the Australian economy highlights the significant and detrimental impacts of consumption on the environment. His modelling shows that the practice of buying ever more ‘things’ and discarding them is undermining natural resources to such an extent that an economic and societal collapse is likely if substantial changes are not made. In order to reach a sustainable economic system when considering consumption, it is required a stabilised or lower population, reduced household consumption along with shorter working weeks, large material and energy efficiency improvements, and investment in ‘green’ infrastructure.

As production and consumption processes are often proven to be related with the environmental degradation, EU has evolved its policies from a focus mainly on cleaner production, through sustainable products to a more holistic approach to sustainable consumption and production (European Commission, 2019). The Circular Economy Package was introduced in 2015 and it is focused on minimization of waste generation, considering that natural resources are depleting at a fast pace with the world population increasing rapidly.

Kolesnik and Merkulina (2021) in their analysis of the Russian economy conclude that the main vector of functioning of the domestic waste management industry should be aimed at reducing the negative impact of production and consumption waste on the environment, including on humans, which requires the introduction of

environmental management systems and standards at enterprises operating in this industry, based on the concept of a closed-loop economy.

According to European Environment Agency (2021), the National strategy on integrated solid waste management 2020-2035 of Albania, prioritises three main waste types: construction and demolition waste, packaging, and electrical and electronic equipments. Waste management is one of Albania's biggest environmental challenges (Totoni et al., 2021) and its practices are still dominated by a linear collect-and-dispose approach according to GIZ (2021).

3 Methodology

The methodology used to analyse the relationship between production, consumption, and waste in Albania is based on quantitative indicators and the data used are at the macroeconomic level. Annual data are collected from INSTAT, where for the DMC and waste, data are collected for the 2010-2020 and 2013-2021 time periods, respectively, depending on their availability. In Albania, data on waste have started being collected since 2013, making it relatively difficult to analyse their relationship with other variables for extended periods.

Here, DMC is a territorial (production side) indicator, which reports the amount of materials that are used in a national economy, taking in account domestic extractions and the physical trade balance of these natural resources. DMC describes the physical dimension of economic processes and interactions and can also be interpreted as long-term waste equivalent. The analyse is made for DMC/capita level and its components (calculated as percentage to the total by the author), as it is considered as an environmental pressure indicator referring to United Nations Environment Programme (2021).

As for the waste, total generated waste constitutes the theoretical total amount of waste generated by human activity in the respective year. This indicator refers to the waste managed in areas where this activity is carried out as a public service to the community and the quantity of waste managed by the residents because waste treatment is not provided by public services. The analyse is made based on data on managed (typical family and industrial) and unmanaged waste in nominal values to

show their trend over time, where for managed waste, the analyse is made using weighs of the categories compounding it and of treatment waste methods.

4 Results

Regarding the use of natural resources, Albania supports its production mainly on two typical categories: biomass and non metallic minerals. For all the period examined, the weight of non metallic is higher than that of biomass, except for the last year where values reach 41.8% and 43.7% respectively. Other materials that are consumed domestically in Albania are fossil energy materials/carriers, which have shown a decreasing trend on the last years and the metal ores (gross ores), which have had an increasing trend, both reaching the weight of 7.1% in 2020. Despite the structure of the DMC/capita, what matters most is the level of the variable. Till the year 2016, the DMC/capita has been increasing continuously, while in the recent years, this variable shows an improvement of the situation, as in accordance with the Sustainable Development Report of 2022. As DMC is directly related to production process, the figure shows that Albania suffers from non-sustainable production.

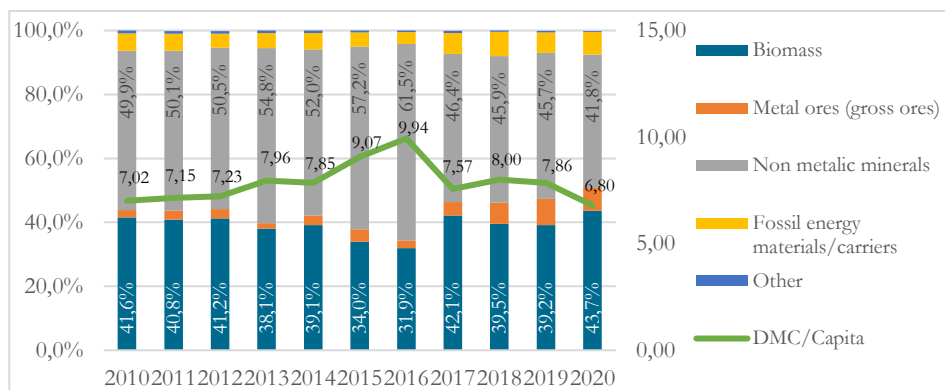


Figure 1: DMC/capita Level and DMC/capita Compound by Category, 2010-2020

Source: INSTAT (2023) and author's calculations.

As for the waste produced by human activity in Albania, it results that the waste being managed has been considerably greater than that of the unmanaged waste, even though in 2015 and 2016 the total amount of waste generated increased rapidly due to the administrative territorial reform implemented in the country, reaching 91.6%

in 2021. The largest share of managed waste in Albania is of typical family waste compared to industrial waste, as shown in the Figure 2, with the lowest percentage in 2014 with 79.0%.

Again, regarding the total managed waste, or urban waste, Figure 3 clearly shows the large weight of organic waste throughout the entire period under consideration, where it is noted that especially starting from 2018, their weight reaches values around 60% of the total waste generated. This is an indicator that too much food and other organic products are not being produced and consumed efficiently. Next categories weighing more to the total are that of plastic, paper and paper-board and glass respectively, reaching 8.7%, 8.5% and 4.6% in 2021. The data for these categories can be seen as related to packaging, showing the non-friendly approach of the consumer to nature. From the Figure 3, it is noticeable that for the first two years of the period, e-waste marked significant values, specifically 9.0% and 8.1%, while for the following period, the weight of this type of waste has been relatively low, as one the three main waste types prioritized to be prevented by the Governance. Relatively important weights seem to have solid waste with the greatest values of all the time in 2016 with 11.9% of the total waste generated.

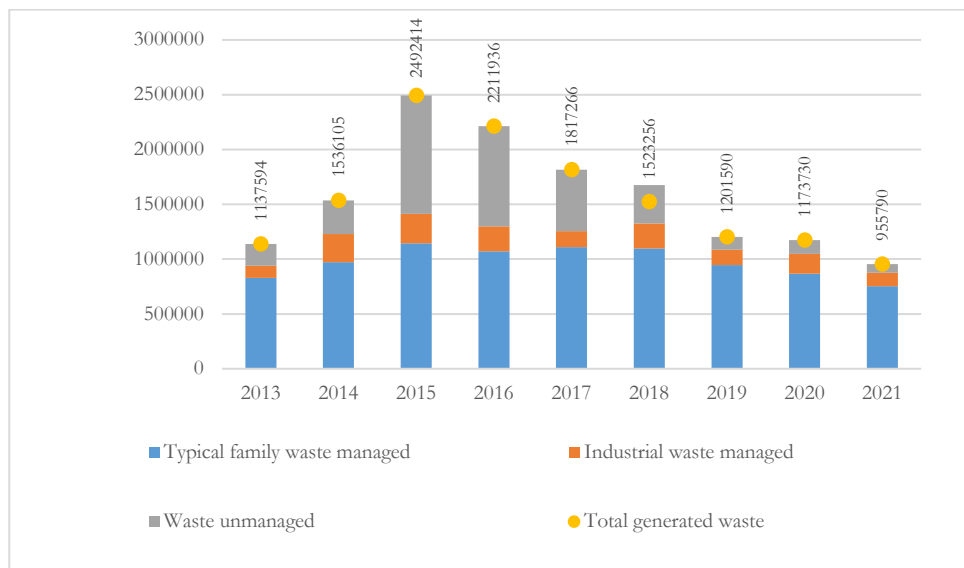


Figure 2: Waste (in tons), 2013-2021

Source: INSTAT (2023).

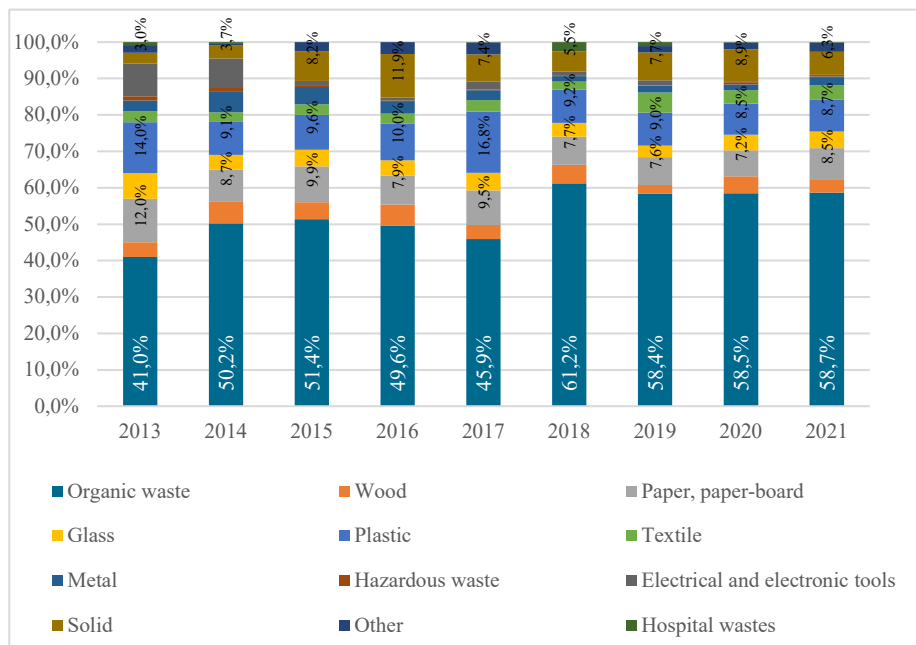


Figure 3: Managed Waste Compound, 2013-2021

Source: INSTAT (2023).

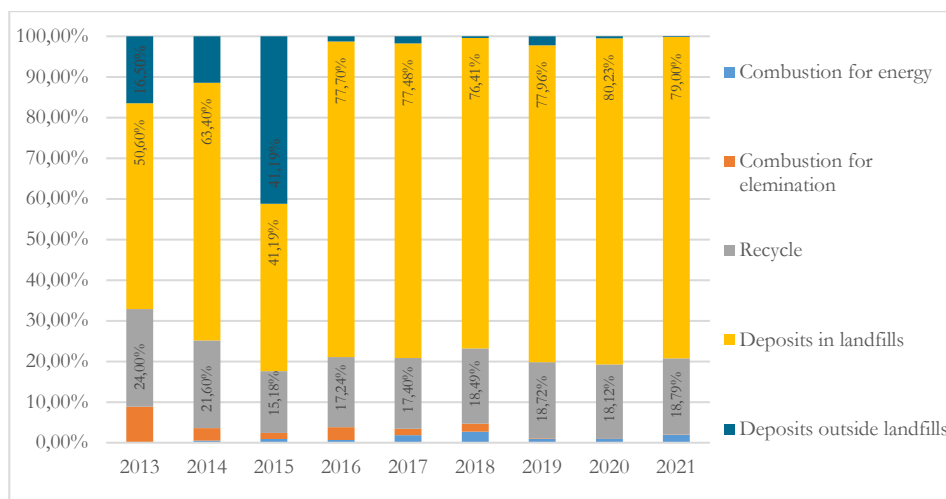


Figure 4: Managed Waste Compound by Treatment, 2013-2021

Source: INSTAT (2023) and author's calculations

As to the waste treatment, the annual data for Albania indicate for a non-sustainable management waste system. Most of the waste generated is deposited in landfills, maintaining the values of around 80% in the recent years. Deposits outside landfills seems to be an old method of waste treatment, where it reached the value of 41.19% or over 970 thousand tons in 2015 and only 0.21% or 1811 tons in 2021. The most advanced waste treatment method in Albania, the recycle one, is not yet largely implemented, with percentages around 15%-24% over the years (Figure 5). Nor the compound weighs, neither the compound nominal values, do not show for a specific trend of the use of recycle principles in being friendly with nature.

5 Discussion and Conclusion

The analyse suggests that it should not only taken care about the quantity of production and consumption increasing, but more importantly on what types of resources are used in the production processes and on what type of goods are therefore produced and/or consumed. Even though being on track, DMC/capita levels continue to be relatively high, demonstrating that Albania must work in direction to efficient use of natural resources and make the production more sustainable and not that reliable on scarcities.

On the other hand, considering that even though most of the waste generated in Albania is managed, there are many categories of waste that can be reduced or even prevented, such as those related to the loss or spoilage of food or packaging. This can be said, considering in addition the fact that their treatment methods are still in undeveloped stages and not in accordance with the '3R' or '5R' and no longer with '9R' principles.

This paper is an added proof that suggest each of the economic agents should take care about how much and in what way they use natural resources, transforming their relationship with the environment and aiming to increase resource efficiency. A zero-waste culture is crucial to be created and preserved in Albania.

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