ENVIRONMENTAL AND ECONOMIC IMPACTS OF BANNING SINGLE-USE PLASTICS

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Abstract. This article examines the environmental and economic impacts of banning single-use plastics such as straws, utensils, and packaging materials. Single-use plastics are widely used due to their low cost and convenience; however, they contribute significantly to environmental pollution, particularly in oceans and landfills. The purpose of this study is to analyze both the positive and negative consequences of banning these materials and to evaluate whether such policies are effective and practical.From an environmental perspective, banning single-use plastics can reduce plastic waste, limit pollution, and protect wildlife. However, alternative materials such as paper, glass, or biodegradable plastics may also have environmental costs, including higher energy use and resource consumption during production.From an economic perspective, the ban on single-use plastics may lead to increased production costs for businesses, as eco-friendly alternatives are often more expensive.

Key words: single-use plastics, plastic ban, environmental impact, economic impact, sustainability, pollution, waste management, biodegradable alternatives, recycling, ecosystem protection.

Аннотация. В данной статье рассматриваются экологические и экономические последствия запрета одноразовых пластиковых изделий, таких как трубочки, столовые приборы и упаковочные материалы. Одноразовый пластик широко используется благодаря своей низкой стоимости и удобству; однако он вносит значительный вклад в загрязнение окружающей среды, особенно океанов и свалок. Цель данного исследования — проанализировать как положительные, так и отрицательные последствия запрета этих материалов, а также оценить, насколько такие меры являются эффективными и практичными. С экологической точки зрения, запрет одноразового пластика может сократить количество пластиковых отходов, уменьшить загрязнение и защитить дикую природу. Однако альтернативные материалы, такие как бумага, стекло или биоразлагаемые пластики, также могут иметь экологические издержки, включая более высокое потребление энергии и ресурсов в процессе производства. С экономической точки зрения, запрет одноразового пластика может привести к увеличению производственных затрат для бизнеса, поскольку экологически безопасные альтернативы зачастую являются более дорогими.

Ключевые слова: одноразовый пластик, запрет пластика, экологическое воздействие, экономическое воздействие, устойчивое развитие, загрязнение, управление отходами, биоразлагаемые альтернативы, переработка, защита экосистемы.

Annotatsiya. Ushbu maqolada bir martalik plastik mahsulotlar, masalan, ichimlik somonchalari, oshxona anjomlari va qadoqlash materiallarini taqiqlashning ekologik va iqtisodiy ta’siri ko‘rib chiqiladi. Bir martalik plastiklar arzonligi va qulayligi sababli keng

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qo‘llaniladi; biroq ular atrof-muhitning, ayniqsa okeanlar va chiqindixonalar ifloslanishiga katta hissa qo‘shadi. Ushbu tadqiqotning maqsadi ushbu materiallarni taqiqlashning ijobiy va salbiy oqibatlarini tahlil qilish hamda bunday siyosatlarning qanchalik samarali va amaliy ekanligini baholashdir. Ekologik nuqtai nazardan, bir martalik plastiklarni taqiqlash plastik chiqindilarni kamaytirishi, ifloslanishni cheklashi va yovvoyi tabiatni himoya qilishi mumkin. Biroq qog‘oz, shisha yoki biologik parchalanadigan plastiklar kabi muqobil materiallar ham ishlab chiqarish jarayonida ko‘proq energiya va resurs talab qilishi kabi ekologik xarajatlarga ega bo‘lishi mumkin. Iqtisodiy nuqtai nazardan, bir martalik plastiklarni taqiqlash biznes uchun ishlab chiqarish xarajatlarining oshishiga olib kelishi mumkin, chunki ekologik toza muqobillar ko‘pincha qimmatroq hisoblanadi.

Kalit so‘zlar: bir martalik plastiklar, plastikni taqiqlash, ekologik ta’sir, iqtisodiy ta’sir, barqaror rivojlanish, ifloslanish, chiqindilarni boshqarish, biologik parchalanadigan muqobillar, qayta ishlash, ekotizimni himoya qilish.

Introduction

The wide use of over 30 billion straws annually in the European Union (EU) in 2020 highlights the extensive reliance on single-use plastics, despite growing awareness of their environmental and health impacts . These straws, often used for mere minutes, contribute significantly to plastic pollution, which affects ecosystems, wildlife, and human health on a global scale. Single-use plastics like straws can take hundreds of years to decompose, often breaking down into microplastics that infiltrate water sources, soil, and even the food chain . Moreover, the production and disposal of these plastics release greenhouse gases, exacerbating climate change . Recognizing these dangers, the EU implemented a ban on single-use plastics in 2021, aiming to reduce plastic waste and promote sustainable alternatives [4] that are less harmful to the environment. This shift underscores the urgent need for collective action to address plastic pollution, emphasizing the importance of reducing consumption, improving waste management, and adopting eco-friendly practices to safeguard the planet and future generations.

Over the past 50 years, the global annual production of plastics has increased dramatically, from 15 million tonnes in 1964 to roughly 311 million tons by 2014 (Ellen MacArthur Foundation, 2016). This spectacular growth in production and use of plastic reflects its unrivalled physical properties, which allow it to be widely applied in diverse economic production processes, at low cost. Plastics have therefore taken their place as the global ‘work horse of the modern economy’, and projections are for a doubling of plastic production over the next twenty years. Their use is extensive and includes industries such as food handling, storage, information technology, health care, transportation, energy management, building construction, and packaging, to name a few. The employment of plastics in the packaging industry is significant, since it represents the largest share of plastic applications, estimated at 26% of the global volume of plastics used. More importantly, as much as 95% of plastic packaging – estimated at USD 80 – 120 billion annually - is for single-use, either as packaging or as items intended to be used only once before they discaded as waste or recycled. These include, among other items, grocery bags, food packaging, bottles, straws, containers, cups and cutlery. It also includes Expanded Polystyrene (EPS)foam (commonly referred to as “Styrofoam”) (Ten Brink, 2016). Of the large volume of single-use plastic applications, only 5% is collected and retained from recycling (Ellen MacArthur Foundation, 2016). Such low rate of reuse implies that plastic disposal constitutes a significant negative externality to global economies, with its impacts now being manifested

both in terrestrial and marine ecosystems. According to the United Nations Environment Programme (UNEP) estimates, plastic packaging externalities now amount to USD 40 billion, for which a major share is attributable to impacts on the world’s oceans which receive up to 8 million tonnes of plastic leakage annually. Given the magnitude of these impacts, the global community has been seeking to mitigate the effects of plastic pollution through strategies and policies to reduce single-use plastics. Among such strategies is the promulgation of new legislation, or the reshaping of the incentive frameworks in order to stimulate the use of more sustainable alternatives. Caribbean Small Island Developing States (SIDS) are among several countries that are seeking to better control single-use plastics. To date, as many as twenty-seven (27) countries and territories of the subregion have implemented, or are in the process of implementing some form of legislative control over the use of single-use plastics (Table 1). Given that most of these countries possess little or no plastic manufacturing capacity, such controls have been mainly through import bans,1 or other measures calculated to limit their application in production and distribution. But substituting for single-use plastics presents many economic, environmental and social implications which become apparent in the form of higher costs of doing business for several production and service entities. Moreover, opportunities for applying alternatives, and their related cost elements remain largely unknown in the context of Caribbean small economies. Towards this end, this study presents an economic analysis of the possible impacts of policy to limit the use of single-use plastics in selected economies of the Caribbean. By approximating the cost to the economy related to the implementation of thelegislative controls, governments could be better guided in providing the appropriate incentive framework that would allow the economy to successfully transition to alternative replacements to single used plastic products over the medium to long term. The study focuses on the economy of Trinidad and Tobago as a case analysis. It examines the role of single-use plastics in production and distribution in selected value chains and estimates related cost margins in order to assess the potential for substitution of alternatives to single-use plastics. The paper is presented in 5 sections. After the introduction, the nature of the plastics problem from a global, regional and local perspective is discussed in Section 1. Section 2 then elaborates on the methodological approach to the study, while data analysis and results are presented in section 3. In Section 4 policy recommendations and conclusions from the study are presented, and key limitations from the research are outlined.

Methodology Primary Research: To understand the impact of the plastic ban on consumer Primary Research: In order to determine how the plastic ban impacted consumers' behavior, 100 area consumers were surveyed. These surveys gauged changes in purchasing habits, consumer demand for alternatives, and consumer readiness to adopt reusable products. The field observations were also conducted in bazaars, street vendor stalls, and supermarkets to investigate the price differences, availability, and quantity of substitute products such as biodegradable products, paper, and cloth. This helped in monitoring how consumers and vendors are coping with the ban.Secondary Research: Data pertaining to the subject was also gathered from government reports, including those of the Ministry of Environment, Forest and Climate Change, which have published guidelines and facts pertaining to plastic ban policy implementation. Further, national and local news reports were analyzed to examine enforcement action, compliance issues, and market reaction. Scholarly articles and studies on the socio-economic as well as environmental impacts of plastic bans have also been referred to in order to get a complete idea regarding the subject.

Analysis of Economic Consequences. The plastic ban has brought a definite increase in cost, considering alternatives like paper and cloth bags are durable and expensive. Consumers and sellers have to incur additional expenses, affecting affordability and requiring changes in consumption behavior. Small enterprises and street vendors also face additional costs of operations, considering that procuring alternatives on a regular basis becomes expensive and difficult at times, leading to short-run sales reductions. A very severe consequence is displacement from work. The workers in plastic factories, packaging firms, and recycling plants stand to lose their jobs unless alternative jobs or retraining is offered to them. The prohibition has, however, bred enterprise because heightened demand for eco-friendly products provided for new businesses and entrepreneurship in the cloth, paper, and biodegradable sectors, coupled with innovation and entrepreneurship. From the broader economic point of view, reduced demand for plastics has caused economic loss to producers, and increasing demand for substitutes has occasionally created surges of short-term shortages and increased price. An opportunity cost is paid by consumers in purchasing green products for more than other products. In the long term, green business and green job strategies are developed by sustainable industry expansion, and governments and companies that invest in biodegradable products save funds and gain worldwide recognition as eco-friendly.

Conclusion and recommendations. This paper examined the economic and environmental trade-offs of a single-use plastics ban in Ghana, providing stakeholder-informed insights into viable policy pathways. The analysis reveals a pronounced divide in perspectives: manufacturers and retailers generally oppose a ban, citing fears of economic loss, including job cuts, reduced government tax revenue, and foreign exchange shortfalls. Their concerns are further reinforced by the absence of viable alternatives, weak institutional.

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