

The World at Fingertips: Central Bank Digital Currency Mediated Connectivity to Elevate Digital Trade

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Information of Article	ABSTRACT
<p><i>Article history:</i> Received: Jan 2024 Revised: Jan 2024 Accepted: Feb 2024 Available online: Feb 2024</p> <p><i>Keywords:</i> Banking Digital Currency Digital Trade FinTech</p>	<p>This panel data study examines the relationship between Asia Pacific's movement towards renewable energy for a sustainable blue economy and the role of the environmental, social, and governance (ESG) by explicitly considering its prevailing political economy. Data was extracted from The World Bank, The Asian Development Bank, and the Global Risk Profile report from 2018-2021. This study uses fixed and random-effect models as econometric techniques. This study concludes with two significant findings: (1) Politically motivated economic policies resulting in wealth distribution inequalities significantly harm the environmental protection effort. Economic disparities resulting from the politically motivated economic policy indirectly legitimize people's action to exploit nature by any means necessary to survive. Therefore, the basic human right mandating social justice for everyone can best explain this social jealousy phenomenon. (3) ESG index shows a huge impact on the environmental protection effort in achieving higher renewable energy proportion in the Asia Pacific.</p>

1. Introduction

The ocean, which makes up 70% of the earth's surface and is home to an estimated 80% of the planet's species, is the world's greatest ecosystem. Every breath humans take requires oxygen, and as the largest natural carbon sink, it helps to lessen the effects of climate change. Globally significant sectors have an impact on ocean health. These industries are seen as being ocean-linked and together, they support the blue economy. Shipping, seafood, marine renewable energy, port development, coastal tourism, coastal infrastructure, and the production and consumption of solid waste materials like plastic are just a few of the industries connected to the ocean. With reference to the blue economy sector, this article focuses on the growth of 12 Asia Pacific Economic Cooperation countries. Currently, the economies of the Asia and Pacific region are quite important. Around 2.9 billion people live in its 12 member economies, which in 2018 accounted for around 60% of global GDP and 48% of global commerce. Along with the tremendous economic contribution, APEC nations consume 60% of the world's energy, the majority of which is non-renewable.

As a result, these nations must make a significant transition to using renewable energy as a source of economic growth for a sustainable blue economy. Back in the late 1990s, when the globe began to experience the shock of rising oil prices, research into alternative energy sources was being conducted. It is clear from the literature that switching from fossil fuel-based energy sources to renewable ones, such as bioenergy, direct solar energy, geothermal energy, hydropower, wind, and ocean energy (tide and wave), will progressively bring about sustainability. Due to the opportunities created in recent decades to switch out petroleum-derived materials from fossil fuel-based energy sources with alternatives in renewable energy sources, governments, international organizations, interested parties, and individuals around the world today look forward to realizing a sustainable future. The recent introduction of a set of global SDGs is assisting in ensuring that climate change for the twenty-first century and its effects be combated, as well as ensuring and leaving behind a sustainable future.

In light of this, the study aims to investigate the potentials and trends of sustainable development with renewable energy sources and climate change mitigation, the degree to which it can assist and the potential challenges it poses, as well as how a switch from fossil to renewable energy sources is a sure way to mitigate climate change. Concepts, methodologies, and peer-reviewed publications are carefully analyzed and assessed to meet this goal. The majority of

current studies on the blue economy deal with how it should be conceptualized, with a focus on the value of ocean ecosystem services and the function of ocean governance. This study adds to the body of research by empirically analyzing factors that influence the consumption of energy in the blue economy in the setting of APEC nations from 2018 to 2021. We employ a panel data model and analyze three sets of estimates to determine the motivating factors for a sustainable blue economy. We apply several model specifications for the aforementioned sets of estimates to test the robustness of our findings and discover outcomes that agree with the benchmark models. According to our data, income inequality as measured by the GINI coefficient has a negative impact on the relationship between ESG achievement and the renewable energy percentage.

2. Literature Review

For many Pacific countries, tourism that depends on the coast and the ocean is a significant industry. Global arrivals to countries in the Pacific and Indian Ocean were 1.2 billion in 2016, and by 2030, that number is expected to increase to 1.4 billion. Additionally, the GDP of more than a dozen Pacific countries is impacted by tourism annually to the tune of US\$1 billion. It contributes significantly to economic development and accounts for more than 10% of the GDP (Rogerson et al., 2022). Additionally, it is frequently the only sector in these nations to have shown sustained growth in recent years. The tourist sector is thought to be particularly vulnerable to the effects of climate change, especially nature-based tourism. Numerous Asia Pacific countries have expressed worry that the effects of climate change will not only have a significant impact on their tourism industries but will also have a cascading effect on the economy as a whole by destroying resources and infrastructure that are essential to their people, economy, and development.

Because they have the most tourist infrastructure in risky areas, the Pacific is among the most vulnerable tourist destinations. The 52 small island states around the world, many of which are in the Pacific Ocean, will be affected by rising sea levels at a rate up to four times greater than the rest of the world (United Nations, 2016). Furthermore, the unsustainable growth of the tourism industry may be a factor in the depletion of vital freshwater supplies. Rapid tourism industry growth has put further strain on the freshwater resources of several small island states. Overexploitation can have a number of negative effects, such as a decline in groundwater levels, land subsidence, worsening groundwater quality, and saltwater intrusion. Many Pacific Ocean vacation sites are already experiencing water shortages. Due to their solitude and small size, APEC countries need extra care when managing their waste. APEC countries frequently lack waste disposal facilities because of the island's inherent constraints, lack of capacity, undesirable locations, or inexperienced management.

APEC countries could choose to become zero-waste environments instead, where garbage is handled as a resource that is composted, burnt to create energy, recycled, or sorted for export. Such efforts have clear expiration dates in the near future. Such comprehensive systems for managing solid waste could have long-term economic advantages, save expenses for managing landfills and mitigating pollution, and increase revenue through trash disposal charges. However, none of the prior literature attempted to perform an empirical assessment of the blue economy's driving forces, particularly in the setting of APEC nations, as this study does. Such an empirical study of the factors influencing the blue economy will assist policymakers in determining the main factors fueling the expansion of blue economy activities in Asia and the Pacific island nations and in designing the key areas for structural reforms.

3. Research Model and Hypotheses

The panel data approach is used in this study to collect data on the effects of ESG index on renewable energy consumption. A sustainable blue economy is measured by the renewable energy consumption percentage out of the total final energy consumption in 12 Asia Pacific Economic Cooperation (APEC) countries namely Australia, Canada, Chile, China, Indonesia, Japan, Korea Republic, Mexico, Malaysia, New Zealand, Peru, Philippines, Russia, Singapore, Thailand, the United States, and Vietnam. The political economy is measured by the wealth distribution

index in the APEC countries. Individual income differences are referred to as economic inequality. The Gini index, also referred to as the Gini coefficient, measures the income distribution of a population in order to assess wealth disparity or income inequality.

The coefficient is a value between 0 (or 0%) and 1 (or 100%), with 0 signifying perfect equality and 1 signifying complete inequality (Feng et al., 2020). The Gini coefficient is a measure of the proportion between the zones on the Lorenz curve diagram. If A and B are the areas between the line of perfect equality and the Lorenz curve and the Lorenz curve, respectively, then the Gini coefficient is defined as $A/(A+B)$. Due to the fact that $A+B = 0.5$, the Gini coefficient, $G = 2A = 1-2B$. Integration can be used to determine the value of B when the Lorenz curve is represented by $Y = L(X)$ (Saez & Zucman, 2020).

4. Methodology

In order to ascertain how ESG impacts the renewable energy usage, this study employs the panel data regression models listed below:

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 Z_{3it} + u_{it}$$

Where Y stands for renewable energy consumption, β for regression coefficient, X for the ESG, and Z for the moderating variable of GINI coefficient. With i being the cross-sectional units, and t represents the time period (2018 to 2021). This panel data study is a compilation of cross-sectional units that are routinely examined and a synthesis of time series and cross-section data. The observations on certain micro-units that have been tracked throughout time are contained in panel data. Panel data has a number of benefits, including the ability to account for individual variation that time series cannot, making it more informative, varied, and effective (Raharjo et al., 2020).

5. Data Analysis and Results

Table 1: Panel Regression

Variable	Coefficient	t-statistic	Prob.
Constant	0.32	2.657	0.565
ESG Index	0.20	5.675	0.000
Economic Inequality (moderator)	0.48	0.171	0.000

The relationship between ESG and renewable energy, influenced by economic inequality, was predicted most accurately by the fixed-effect model using panel data regression analysis between 2018 and 2021. Seventy five percent of fluctuations in renewable energy can be explained by this model, according to the adjusted R-Squared value of 0.75.

6. Conclusion

The economic inequality measured by the GINI coefficient shows a significant impact on the relationship between ESG and renewable energy usage, indicating that the politically motivated economic policies that exclusively favor the rich would inevitably increase income disparities and negatively impact efforts to safeguard the environment, particularly those that focus on increasing the usage of renewable energy. Economic disparities brought on by politically motivated economic policy weaken the purchasing power of middle and lower-class economies to afford renewable energy. Meanwhile, a sustainable blue economy relies on clean technologies, renewable energy, and circular material flows and offers social and economic advantages to both present and future generations. It also restores, protects, and sustains diversified, productive, and resilient ecosystems.

In order to provide financial decision-making with a sustainable blue lens, collaboration with the financial sector, scientific communities, and subject-matter specialists to develop useful guidelines and toolkits is a must. The Brundtland Report served as the basis for UN Agenda 21, an action plan for sustainable development that attempted to treat environmental issues and economic development as one and the same issue. The study is successful in establishing a worldwide framework for government and multinational companies to cooperate on initiatives to improve the sustainability of life on Earth. The three pillars of sustainable development namely the society, the environment, and the economy are collectively referred to as the 3Ps (People, Planet, Profit) concepts that can be highlighted in the Brundtland Report. In other words, environmental protection without fair political economy policies is an impossible mission.

As previously mentioned, ocean-related industries or the blue economy are projected to have an annual economic value of USD 2.5 trillion, placing it as the seventh largest economy in the world. Ocean-related industries are supported by financial institutions through finance, investment, and insurance. These industries are drawing more and more attention from investors, insurers, banks, and regulators as a new source of opportunity, resources, and prosperity. Nevertheless, it has to be conducted carefully. In addition to promoting sustainable finance prospects in the blue economy, proactive work to collect knowledge and data on the potential risks and impacts connected with investing, banking, and insurance activities is also required. Spreading knowledge and data on the maritime environment are vital with a constant effort to base the investment choices on comprehensive and long-term analyses that take into account economic, social, and environmental values, quantified risks, and systemic impacts.

Adjustments are necessary to the decision-making procedures and practices to take into account new information about the potential risks, cumulative effects, and business opportunities related to the operations. In many APEC nations, where economic inequality is a significant problem, there is a difficult trade-off to be made between the economy and the environment. In the worst years, the GINI coefficient reveals a tragic economic gap, indicating that far too many APEC nations lack the financial means to upgrade to relatively more expensive energy-efficient technology for their homes or businesses or even to simply stop using plastic bags in favor of environmentally friendly food packaging. Thus, APEC nations' political system needs to be fundamentally restored because this will eventually have an impact on its economic system. The best justification for this social jealousy phenomenon might be social justice for everyone. In other words, it is impossible to safeguard the environment without fair political and economic policies.

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