

Theoretical and Practical Research in Economic Fields

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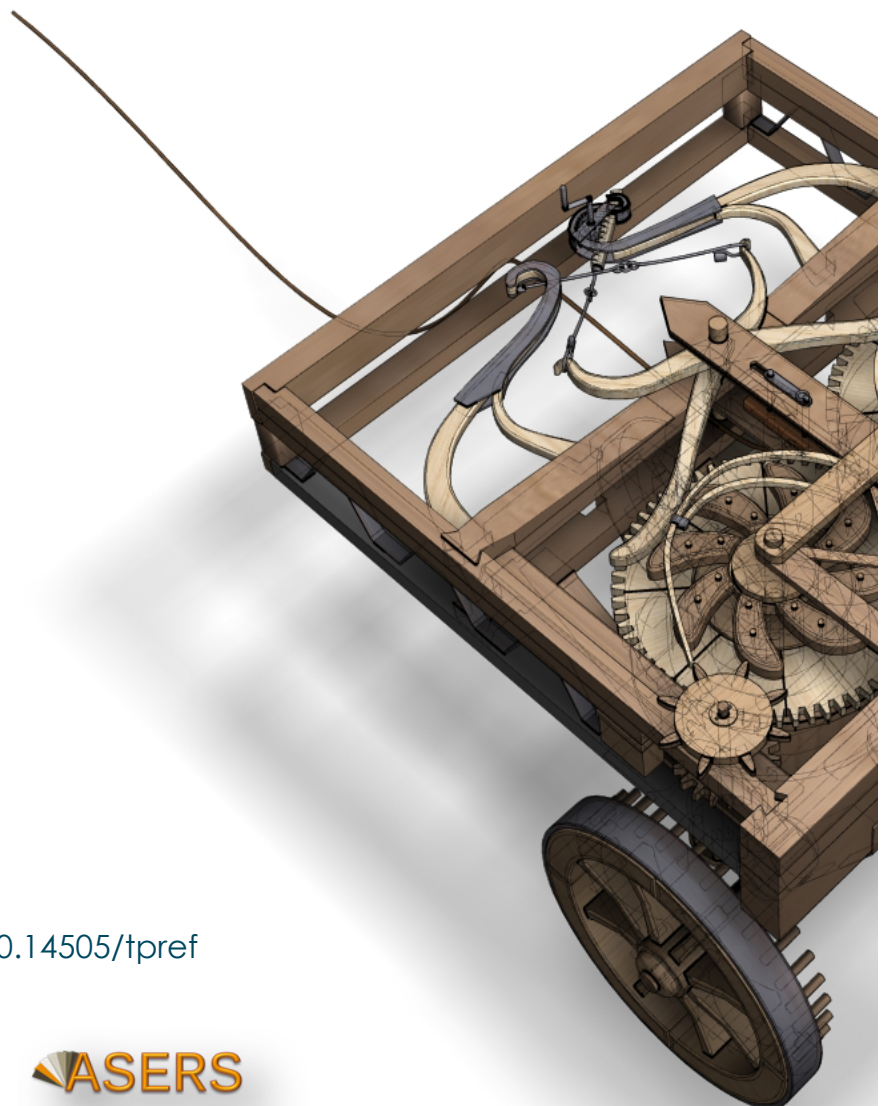
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Many economists today are concerned by the proliferation of journals and the concomitant labyrinth of research to be conquered in order to reach the specific information they require. To combat this tendency, **Theoretical and Practical Research in Economic Fields** has been conceived and designed outside the realm of the traditional economics journal. It consists of concise communications that provide a means of rapid and efficient dissemination of new results, models, and methods in all fields of economic research.

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Empowering a Knowledge-Based Economy: An Assessment of the Influence on Economic Development

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Abstract: Scientific research is one of the most important variables affecting the economic growth and development of a country, being the engine of innovation. In this regard, the relevance of various assessments of scientific interaction with economic development is determined by modern requirements. The study aims to investigate the impact of scientific research on economic development in Albania. The assessment was based on the analysis of secondary data from organisations such as Eurostat and INSTAT, which were further considered within the framework of an econometric model in EViews. The study highlighted the role of stimulating economic development in Albania in various sectors. The study demonstrated that scientific research is highly significant for the economic growth of a country. Based on the statistical data during the period from 1996 to 2022, a regression model was employed to simulate the relationship between independent variables (scientific labour force, public research and development (R&D) expenditures, and patents) and the dependent variable (gross domestic product (GDP) growth). The study shows that these factors have a positive impact on the gross domestic product per capita in Albania. The empirical research results revealed that the scientific labour force, public R&D expenditures and patents have a positive and significant impact on GDP growth in Albania. Based on the information received, recommendations were made to improve the quality of scientific research in the country. The result of this study could provide valuable information to policymakers and serve as scientific evidence for future studies

Keywords: policy reforms; global competition; productivity; academic publishing; education.

JEL Classification: I23; C32; H52.

Introduction

The development of science and technology is essential for economic prosperity. Thus, studies and publications are the primary means of disseminating new knowledge and research results. This allows scientists, entrepreneurs and government agencies to get acquainted with the latest discoveries in various fields, which stimulates innovation and the development of new technologies. In addition, studies describing new methods, technologies, research and discoveries contribute to scientific and technological progress. This is important for improving production processes, improving the quality of goods and services, and developing new products and services. The publication of scientific research can attract the attention of investors and financiers who are interested in supporting promising projects and ideas, and motivate scientists, students and researchers to be active in research and develop their professional skills. In addition, publications in scientific journals and conferences facilitate international communication and cooperation between scientists, research institutes, universities and companies. Thus, the role of the development of scientific articles for economic well-being is extremely important and is relevant for further research.

Many scholars studied the impact of scientific articles and research papers on economic development. Thus, as part of a study, Lis *et al.* (2021) addressed the peculiarities of economic research on Albania in the modern literature. The study identified seven thematic research clusters, including the transition of Albania's economy to a market economy, the specifics of the education sector, the challenges of developing innovations, and the country's European integration. Domi *et al.* (2019), in turn, analysed opportunities to develop innovations in the country and noted that this can be achieved primarily by promoting such ideas among small and medium-

sized enterprises. Nevertheless, other approaches to the development of science and innovation in the country were also addressed.

In turn, the role of science, technology and innovation in achieving the Sustainable Development Goals was discussed by Walsh *et al.* (2020). Scientists described in detail the need for modern innovation development in countries required to achieve the goals of sustainable development more effectively and to better implement domestic policies in this area. It is worth noting that this is also true for Albania, where the use of such approaches can also help to achieve sustainable development goals more effectively. The role of scientific expertise in the development of COVID -19 policy was discussed by Hodges *et al.* (2022). They noted that scientific expertise initially played a crucial role in shaping public policy to address the pandemic, but that this role declined over time, due to the need for the government to reduce economic and social restrictions. Scientists also note the enormous role of the recommendations made by the expert community in countering the effects of the crisis. This is one of the reasons for ensuring more active development of this area in the country. Cameron *et al.* (2020), in turn, considered the role of scientific communication in predicting scientific identity and research career intentions. They noted the role of scientific communication skills among scientists in ensuring more effective development of innovations in the country, which indicates that public authorities should prioritise their development.

Thus, the study aims to assess the impact of scientific works on the economic development of Albania. Research Questions are as mentioned:

1. What effect has the scientific labour force, public R&D expenditures and patents on GDP per capita?
2. What is the impact of the scientific labour force, public R&D expenditures and patents on GDP per capita?

The hypothesis of this study is H_0 : Public expenditure in R&D, patents and scientific labour force affect positively economic development. The objectives of this study are to determine the relationship between GDPs per capita and the scientific labour force, public R&D expenditures, and patents, and to estimate the impact of the scientific labour force, public R&D expenditures, and patents on GDP growth.

1. Literature Review

The role of scientific publications in promoting economic growth and innovation has been widely studied, particularly in emerging nations. Recent studies have focused on the obstacles that emerging nations confront in the global academic publishing scene. Vasconez-Gonzalez *et al.* (2024) shed light on the phenomenon of “publish or perish”, claiming that the pressure to publish has altered research priorities in emerging nations. This pressure frequently leads to a preference for quantity over quality, with researchers in underdeveloped countries participating in methods that prioritise publication metrics above meaningful contributions to knowledge. According to the report, this dynamic may weaken the capacity for scientific research to effectively contribute to economic growth by shifting the focus away from relevant research and towards increasing publication numbers.

The commercialisation and marketing of academic research pose substantial challenges to the integrity of scientific publishing. Bauwens *et al.* (2023) critically evaluate the rising market pressures on academic institutions, contending that the commercialisation of research has created a competitive atmosphere that may jeopardise the integrity and sustainability of academic output. Their findings suggest that academic marketisation fosters a “science-for-sale” culture, in which financing and rankings take precedence over research that might have long-term social and economic advantages. This pattern, which is especially common in sustainability research, is indicative of larger structural flaws within the academic knowledge economy.

Similarly, Mills (2024) investigates the link between academic publication measures and the global research economy, with an emphasis on the role of big publishers in determining worldwide academic objectives. His analysis demonstrates that the concentration of academic publishing power in the hands of a few prominent entities has far-reaching consequences for research in developing economies. These publishers, along with prominent indexing systems, effectively control the visibility and influence of research products. This concentration of power further marginalises research from under-represented regions, since academics in underdeveloped nations struggle to achieve respect within these systems.

The history and evolution of biomedical publication have also played an important role in comprehending the contemporary issues of scientific dissemination. Sever (2023) presents a comprehensive overview of the biomedical publishing industry, tracking its evolution from conventional print media to the internet age. He discusses how the fast rise of biomedical publications has created both benefits and concerns, including the need for increased openness and equality in publication standards. Sever’s work is important in the context of this research because it demonstrates how changes in publication methods have a direct impact on the accessibility and distribution of information, which are critical for fostering innovation and economic progress in poor nations.

Soler *et al.* (2023) look more deeply at the infrastructure restrictions that form the academic knowledge economy, particularly in developing regions. They claim that the present academic publishing infrastructure does not promote critical and innovative research because it frequently imposes inflexible constraints that limit the field of inquiry. This viewpoint is consistent with the wider issue of the commercialisation of academic publication, in which the emphasis on market-driven outcomes stifles the possibility for revolutionary research that may generate economic growth. They push for changes to these infrastructures to encourage more inclusive and varied research outputs.

Šojat and Skala (2023) discuss scholarly publishing's ability to improve science and technology. Their research predicts that technological advancements like artificial intelligence and blockchain will transform academic publication by improving transparency, accessibility, and peer review procedures. These advancements are especially important for underdeveloped nations, where access to publishing platforms and resources is sometimes restricted. The authors argue that technology improvements might help bridge the gap between rich and developing countries, allowing researchers from the latter to make more effective contributions to global scientific discussion and, as a result, economic prosperity.

Hyland (2023) investigates the role of academic publication in the attention economy, focussing on how the quest of visibility and effect has transformed the landscape of scientific communication. His study demonstrates that, in the competition for attention, researchers frequently prioritise subjects and approaches that are more likely to earn quick notoriety, thus sidelining research with long-term, significant benefits. This trend, as seen by Hyland, is especially troublesome in developing economies, where academics may feel driven to adhere to global trends at the expense of addressing local concerns critical to their countries' economic progress.

Synthesising this research reveals that the global academic publishing system provides both benefits and problems for emerging nations such as Albania. The commercialisation of research, the dominance of big publishers, and the emphasis on publishing metrics all contribute to a climate in which important scientific contributions are eclipsed by the chase of academic reputation. However, the possibility for change, driven by technological innovation and a reevaluation of research goals, indicates that the role of scientific publications in encouraging economic growth may still be realised.

2. Materials and Methods

In this study, secondary data is obtained from the Eurostat and INSTAT. This study includes data for a period of 27 years (1996-2022) analysed through an econometric model using the EViews (10) program. The Scimago Journal & Country Rank (n.d.) Index was used to assess the state of research and development. It is based on citations of journal articles, assigning them a value depending on this. This study used citation statistics for the period from 1996 to 2023 by country, which was used to assess the state of research and development in some countries, and in Albania in particular. Microsoft Excel was used to create figures and tables.

For testing the aforementioned hypothesis, quantitative methods were applied. The econometric model is as follows (1):

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon, \quad (1)$$

where: Y – GDPG – dependent variable; X_1 – RD – independent variable; X_2 – P – independent variable; X_3 – SLF – independent variable; β_0 – constant coefficient that indicates the value of Y when $X=0$; β_1 – coefficient that indicates what will be the value of Y when X_1 increases or decreases by one unit maintaining the X_2 and X_3 constant; β_2 – coefficient that indicates what will be the value of Y when X_2 increases or decreases by one unit maintaining X_1 and X_3 constant; β_3 – coefficient that indicates what will be the value of Y when X_3 increases or decreases by one unit maintaining the X_1 and X_2 constant; ε – error term.

After the econometric model specification and variables explanation the model of this study is as follows (2):

$$GDP = \beta_0 + \beta_1 RD + \beta_2 P + \beta_3 SLF + \varepsilon, \quad (2)$$

where: GDP – gross domestic product growth; RD – research and development expenditures; SLF – scientific labour force.

The model was used to estimate the relationship between the level of GDP per capita, research expenditures, patents and developments, and the scientific workforce, which formulated the main conclusions of the paper.

Thus, the study used many methods. For instance, econometric analysis was used to evaluate economic data and test hypotheses related to the impact of the above variables (public expenditures on R&D and the

scientific workforce) on GDP. Modelling, in turn, was used to form a system for estimating the level of gross domestic product per capita, i.e., to directly build a model for estimating gross domestic product in the country. The descriptive method was used to characterise the components and phenomena studied in the research. The graphical method was used to assess the phenomena by creating figures and graphs and analysing their information.

3. Results

Scientific research in general plays a key role in stimulating economic development in many areas. It stimulates innovation through the discovery of new knowledge and the development of technologies, which leads to the creation of new products and industries that stimulate economic growth and competitiveness (Rodríguez-Navarro and Brito 2022). In addition, this kind of research contributes to increased productivity and efficiency in various sectors, such as agriculture, healthcare, and technology, which in turn increases economic growth (Lee *et al.* 2022). Furthermore, R&D is a substantial factor in the development of human capital, contributing to education, training and skills development, thereby creating the skilled workforce needed for economic progress (Sas, 2022). This, in turn, leads to job creation in developing industries and contributes to global competitiveness by attracting investment and establishing leadership in advanced technologies. In addition, scientific research contributes to sustainable development by addressing environmental issues, developing renewable energy sources, and promoting sustainable economic practices (Xu *et al.* 2022; Guo *et al.* 2023). Overall, investment in research and innovation is vital for long-term economic growth, job creation, global competitiveness and sustainable development (Xiao *et al.* 2022; Supplee *et al.* 2021). All of this shows that stimulating research in various industries remains an important component of both innovative development and improving economic welfare.

Table 1. Global ranking of countries based on scientific publications

| No. | Country | Documents | Citable documents | Citations | Self-citations | Citations per document | H Index |
|-----|-----------------------------------|-----------|-------------------|-----------|----------------|------------------------|---------|
| 1 | United States | 15188630 | 13318470 | 467519124 | 195353698 | 30.78 | 2880 |
| 2 | China | 9239029 | 9080674 | 118957559 | 69618418 | 12.88 | 1210 |
| 3 | United Kingdom | 4502915 | 3775825 | 127998813 | 26862024 | 28.43 | 1815 |
| 52 | Serbia | 130675 | 123176 | 1682611 | 273775 | 12.88 | 321 |
| 95 | Bosnia and Herzegovina | 20261 | 18778 | 179679 | 17368 | 8.87 | 132 |
| 97 | North Macedonia | 16495 | 15540 | 221321 | 16979 | 13.42 | 156 |
| 116 | Benin | 8602 | 8244 | 149204 | 16948 | 17.35 | 114 |
| 112 | Albania | 8045 | 7439 | 83063 | 6528 | 10.32 | 95 |
| 118 | Brunei Darussalam | 8027 | 6930 | 105894 | 10139 | 13.19 | 117 |
| 122 | Montenegro | 6707 | 6316 | 67197 | 9598 | 10.02 | 85 |
| 242 | Pitcairn | 3 | 1 | 22 | 0 | 7.33 | 2 |
| 243 | Heard Island and McDonald Islands | 2 | 2 | 13 | 0 | 6.5 | 2 |

Source: compiled by the author based on SJR (2024).

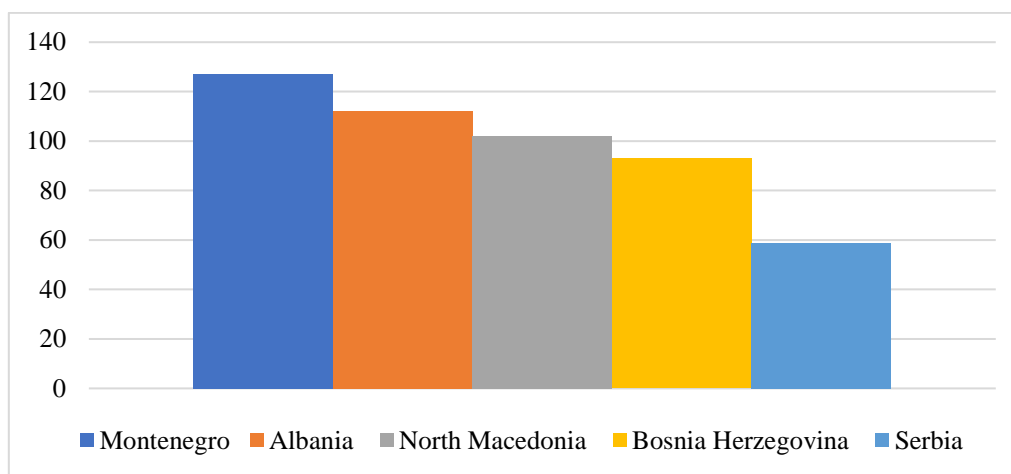
The development of society is the priority of scientific research, which is the primary goal. High bridges, highways, canals, navigational, and major hospitals are the product of constructive scientific research. If scientists do not provide evidence or publish their experiments, science would not be possible. Academic success relies heavily on scientific writing and sharing research findings through publications (Burdonos and Vynogradnya). These publications play a crucial role in showcasing a country's progress, highlighting the importance of a robust scientific research environment for both scientific and economic advancement (Meo and Al-Saadi 2007). In

Albania, the number of scientific publications remains the lowest in the regional and European scientific publications database, as may be seen in Table 1.

Table 1 shows that Albania is ranked 112th globally among 233 countries according to the SCImago Journal & Country Rank (n.d.), with 1023 international scientific research and is ranked 95th according to H-index, in 2022. H-index is a number that aims to represent the productivity and influence of a particular scientist or researcher, or group of scientists or researchers. It is calculated by counting the number of publications for which an author is cited by other authors. So, regarding Albania, a researcher has published at least 95 papers, and each one has been cited at least 95 times. The number of scientific citations for Albania is 939, marking an increase of 94 more citations compared to 2021. According to the SCImago Journal & Country Rank (n.d.), Albania has registered a slight improvement in the ranking, moving up by one position.

Compared to the countries of the region, based on the Scientific Research Index, Albania ranks penultimate, leaving behind only Montenegro, positioned in 127th place among 233 countries in total. Serbia leads the region in terms of scientific research, and the number of international publications or citations. Serbia in this index is ranked 59th, followed by Bosnia Herzegovina in 93rd place and North Macedonia positioned in 102nd place for 2022. It may be also seen in Figure 1.

Figure 1. The regional countries' ranking based on the Scientific Research Index



Source: compiled by the author based on SCImago Journal & Country Rank. (n.d.)

Research has a tangible economic impact beyond providing information that may help to increase efficiency and productivity across sectors. Products drive the economy, and new inventions draw from scientific knowledge and understanding. Through R&D, companies can also gain valuable insights into how their products work and improve upon them to create a sustainable future for customers. Corporation's fund scientific research to support their mission, provide evidence for their claims, or create a source of information for investors. These R&D investments can lead to increases in revenue and cost savings. Whether from a corporate level or a federal level, institutional bodies support discoveries because of the economic impact and growth they lead to.

As the academic publishing sector grows, the impact and spread of research discoveries in academia are on the rise. When researchers have the right tools, they can access others' findings and build upon them to further their ideas and studies. This fosters collaboration across industries and borders, leading to a variety of perspectives in research and increased visibility and revenue for journals. For instance, look at the global collaboration during the COVID-19 pandemic. Scientists teamed up to develop vaccines and treatments, leveraging diverse trials, studies, and innovations to devise effective and safe strategies against the virus. This showcases numerous instances where researchers have utilized each other's work to expedite their advancements. Based on research done for OECD countries with higher income levels, the relationship between research expenditures and economic growth is significant and positive (Guloglu and Tekin 2012). To test the hypothesis, a linear regression model is used, and the estimated results are presented in Table 2.

According to the research results, public R&D expenditures have a significant ($p < 0.05$) and positive impact on GDP at the 5% level. A 1% increase in public R&D expenditures results in a 3.98% increase in GDP. This statement is correct since the significance value ($P = 0.046 < 0.05$) is within the confidence interval. The impact of patents on GDP is positive and significant at the 1% level. When patent numbers increase by 1%, economic growth increases by 0.04%. This statement is correct since the significance value ($P = 0.000 < 0.01$) is at the level of statistical significance. Also, the scientific labour force has a significant and positive effect on GDP growth at

the 1% level. A 1% increase in the scientific labour force results in an increase of 0.02% in GDP. This statement is correct as it is within the 1% confidence interval because ($P=0.01=1\%$). Adjusted $R^2=55.67\%$ indicates that the variability of independent variables explains 55.67% of the variability of dependent variables.

Table 2. Regression model analysis

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|------------|-------------|--------|
| C | 15.14 | 3.28 | 4.61 | 0.0001 |
| RD | 3.98 | 18.88 | 2.11 | 0.0467 |
| P | 0.04 | 0.009 | 4.06 | 0.0005 |
| SLF | 0.02 | 0.01 | 2.81 | 0.0103 |
| R-squared | 0.61 | | | |
| Adjusted R-squared | 0.56 | | | |
| Durbin-Watson stat | 2.27 | | | |

Source: compiled by the author

Durbin-Watson statistic is a test for autocorrelation in a regression model's output. An acceptable range is 1.5-2.5. In this study, the value of Durbin-Watson corresponds to 2.27%. This means that there is no first-order autocorrelation in the model. To test multicollinearity is used correlation matrix method, which presents the results in Table 3.

Table 3. Multicollinearity test

| Variable | GDP | RD | P | SLF |
|----------|------|------|------|-----|
| GDP | 1 | | | |
| RD | 0.37 | 1 | | |
| P | 0.29 | 0.31 | 1 | |
| SLF | 0.78 | 0.61 | 0.59 | 1 |

Source: compiled by the author

Multicollinearity is a statistical phenomenon that occurs when two or more independent variables have a high correlation with one another in a regression model. High values (usually above 0.8 or below -0.8) indicate the presence of multicollinearity. In this study case, this is not the case, because the highest value correlation is 78% between GDP and the scientific labour force.

According to the results of the regression analysis, all the independent variables (SLF, R&D, P) were statistically significant (at a statistical significance level of 1%, 5% and 1% respectively). This means that the scientific labour force, public R&D expenditures and the number of patents affect positively the GDP per capita in Albania. It is concluded that scientific research is very important for Albania and it is a key factor for economic development. An increase in public R&D expenditures, number of scientists and patents will cause an increase in economic growth. Therefore, it is recommended for Albania to invest more in scientific research. It is necessary to allocate more funds to research and development to improve the necessary infrastructure for scientific research, like investment in scientific laboratories, digital libraries. Also, as the increase of scientist number will cause the increase of economic growth it is recommended the recognition of achievements in science through awarding prizes to encourage and promote scientific research. It is recommended to improve the efficiency and transparency of the patent system. Additionally, studying the factors that influence the level of inventive activity is also recommended. For example, a factor may be population density; a higher degree of urbanization means more ideas interacting and a higher possibility for inventiveness. Another factor may be a strong capital market; a higher level of bank deposits means more opportunity for inventors to access capital to develop their innovative ideas and as a result, the higher would be the level of patent production. Therefore, the factors that influence the level of inventive activity have to be studied to implement the right policies and reforms to increase the level of patent production.

The study emphasises the critical relationship between academic publication, collaborative research, and economic growth in Albania. As the academic publishing business expands, it aids the distribution and extension of scientific discoveries, supporting innovation and quickening progress, as shown during the COVID-19 epidemic. This collaborative atmosphere strengthens Albania's capabilities for scientific growth and economic stability. The regression findings confirm this association, demonstrating that public R&D spending, patents, and

the scientific labour force all have a considerable beneficial influence on GDP per capita. Despite these encouraging findings, Albania's low ranking in worldwide scientific publications implies that there is still opportunity for improvement. The research findings showing public R&D spending, patents, and the scientific labour force have a beneficial influence on Albania's GDP per capita can be linked to a number of interrelated variables. Public R&D investments are critical in encouraging innovation because they support the development of new technologies and processes. This financial assistance allows the development and enhancement of products and services, resulting in enhanced production and efficiency in a variety of industries, including agriculture, healthcare, and technology. Furthermore, significant R&D investment draws both domestic and foreign investors eager to fund promising ideas, putting funds into the economy and stimulating economic growth. The regression model's positive R&D coefficient emphasises the large return on investment that research funding may give, as well as its function as a catalyst for long-term economic growth.

Patents and a strong scientific labour force promote economic growth by encouraging innovation and safeguarding intellectual property. Patents encourage inventors and businesses to create by guaranteeing that their ideas are legally protected, attracting investment and facilitating the commercialisation of innovative technology. This results in the formation of new industries and the expansion of existing ones, which contribute to GDP growth. Meanwhile, a well-educated and trained scientific staff is critical for maintaining high research productivity and turning scientific discoveries into practical applications. The scientific workforce not only promotes constant innovation, but it also helps Albania compete on a global scale by promoting international cooperation and knowledge sharing. The study's findings show that when these aspects work together, they have a synergistic impact that greatly improves economic performance.

4. Discussions

To boost the development of scientific research in the country, several recommendations can be considered. For instance, the allocation of more financial resources to research and development is highly effective. This includes increasing public funding, encouraging private sector investment, and establishing research grants and fellowships to support researchers and organisations. It is also important to improve the research infrastructure by upgrading laboratories, purchasing modern equipment and expanding access to advanced technologies and scientific databases. In addition, cooperation between researchers, academia, industry and government agencies should be promoted. Encourage interdisciplinary research projects and establish partnerships with international research institutions to tap into global expertise and resources. Expanding education and training programmes in science, technology, engineering and mathematics, as well as providing incentives for students to pursue careers in these fields, also remains very effective.

One way to promote research in the country is to create a favourable environment for innovation and entrepreneurship by offering incentives such as tax breaks, grants and support for start-ups and small businesses engaged in research and development. Simplification of regulatory processes in this area, including those related to scientific research, intellectual property rights and technology transfer, also remains important. Thus, it is necessary to ensure that regulations promote innovation and facilitate the commercialisation of research results. To ensure easier access to information among scientists, it is worth developing the open data model, encouraging the publication of research results in the public domain, and promoting cooperation and transparency in the scientific community. It is also worth noting that research should be aligned with social needs and issues, such as healthcare, environmental sustainability, renewable energy and digital transformation (Pang *et al.* 2022). The introduction of mechanisms for monitoring and evaluating the impact of research investments, measuring research results and assessing the effectiveness of research policies and initiatives also remains an important component of the state's activities in this area (Edler *et al.* 2022). Thus, by implementing all these recommendations, the country can create a favourable environment for research and innovation, which will lead to accelerated economic development, technological progress and social well-being.

The impact of R&D expenditures on another area, namely the environment, was studied by Adedoyin *et al.* (2020). They noted a significant negative relationship between R&D expenditure and environmental footprint in the long term, suggesting that higher R&D expenditure contributes to environmental sustainability in the countries studied. Given that the development of renewable energy sources leads to an increase in economic growth as such, it can be concluded that greater investment in research and development leads to an improvement in the welfare of citizens, among other things (Mohsin *et al.* 2022). The present study obtained similar results, although they were not directly related to the assessment of R&D for environmental development. However, these results, as well as those described above, also confirm the fact that scientific research has a positive impact on economic

development. Moreover, this demonstrates the complex nature of this influence, as it is evident not only directly but also through other components, in this case, through the development of renewable energy sources.

Bakari (2021) investigated the relationship between public and private sector R&D expenditure and economic growth in Central and Eastern European countries. The aforementioned study showed that R&D has a crucial and positive role in influencing economic growth. The findings indicate that the estimated coefficients associated with researchers are positive, ranging from 0.018316 to 0.025239, and are statistically significant at the 1% level. This implies that a 1% increase in the researcher count corresponds to an economic growth increase ranging from 0.018316% to 0.025239%. The present study also identified this relationship, which demonstrates the relevance of policies aimed at improving the situation with R&D.

The impact of research and development on the economic well-being of a country, depending on their income level, was assessed by Wang and Zhang (2020). Researchers concluded that increased investment in R&D leads to a 0.8122% reduction in carbon dioxide emissions for the BRICS countries on which the study was based. They also concluded that this, among other things, led to an increase in economic growth. Their results showed, among other things, that there is indeed a complex relationship between investment in research and development and economic growth and environmental sustainability. This study has not assessed how the impact of innovation developments on economic development differs across countries. Nevertheless, it is worth noting that these reflections may turn out to be true, as they also sound logical from a theoretical point of view. However, additional research should be conducted in the future to confirm or refute the results.

The role of research and development in green economic growth through the development of renewable energy sources was discussed by Fang *et al.* (2022). Researchers have observed that the importance of green finance in promoting green initiatives, technological advancements and the growth of the green economy is high. The study also highlighted the role of renewable energy sources in different regions of the countries to meet the growing demand for energy sources. This study did not focus as much on assessing research and development in the area of renewable energy. Nevertheless, it is worth noting that the development of the latest technologies in any field is an important part of the development of certain sectors of the economy.

The analysis of this research underlines the critical significance of scientific research in driving Albania's economic growth, consistent with current literature that shows a favourable relationship between R&D spending and economic success. The study emphasises the importance of strategic investments in public R&D, patents, and a strong scientific labour force by proving that they considerably increase GDP per capita. Compared to regional studies by Bakari (2021) and Wang and Zhang (2020), the findings confirm that nurturing a robust research environment not only increases economic growth but also promotes sustainability and creativity. To expand on these findings, Albania must implement comprehensive policies that enhance research and development funding, improve infrastructure, and promote cross-sector and cross-border collaboration. Furthermore, improving the patent system and providing education and incentives to the scientific workforce would strengthen the foundation for long-term economic and technical growth. By implementing these recommendations, Albania may successfully use scientific research as a foundation for long-term economic well-being and competitiveness on the world stage.

Conclusions

Thus, scientific research plays a key role in stimulating economic development in various sectors. By fostering innovation through the discovery of new knowledge and technological advances, scientific research contributes to the creation of new products, industries and employment opportunities, thereby stimulating economic growth and competitiveness. They also significantly contribute to the development of human capital by promoting education, training and professional development, as well as creating a skilled workforce.

The study shows that factors such as the scientific labour force, public expenditure on research and development, and the number of patents created have a positive impact on the gross domestic product per capita in Albania. The study also concluded that scientific research is significant for the state, being a key factor in economic development. Increased government spending on R&D leads to increased economic growth, and recommendations for more active investment in R&D are therefore relevant. Recommendations were also made to improve the transparency of the patent system, increase training opportunities for more scientists. Effective research is also about simplifying regulatory processes related to research, facilitating the sharing of open data and aligning research with the needs of society are crucial to maximising the impact of research initiatives. The study also noted that monitoring and evaluating the effectiveness of research policies and investments are also important aspects that governments need to consider to ensure that research continues to drive economic

growth, technological progress and social well-being. By applying all these practices, it is possible to achieve a more efficient level of not only economic development but also social welfare in the country.

Further study of other factors that may affect research opportunities in the country is relevant for future research. This way, the impact of factors such as the degree of urbanisation, capital market indicators, the level of bank deposits and others can be checked.

Credit Authorship Contribution Statement

Jonida Goduni: Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization, Funding acquisition.

Declaration of Competing Interest

The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of use of generative AI and AI-Assisted Technologies

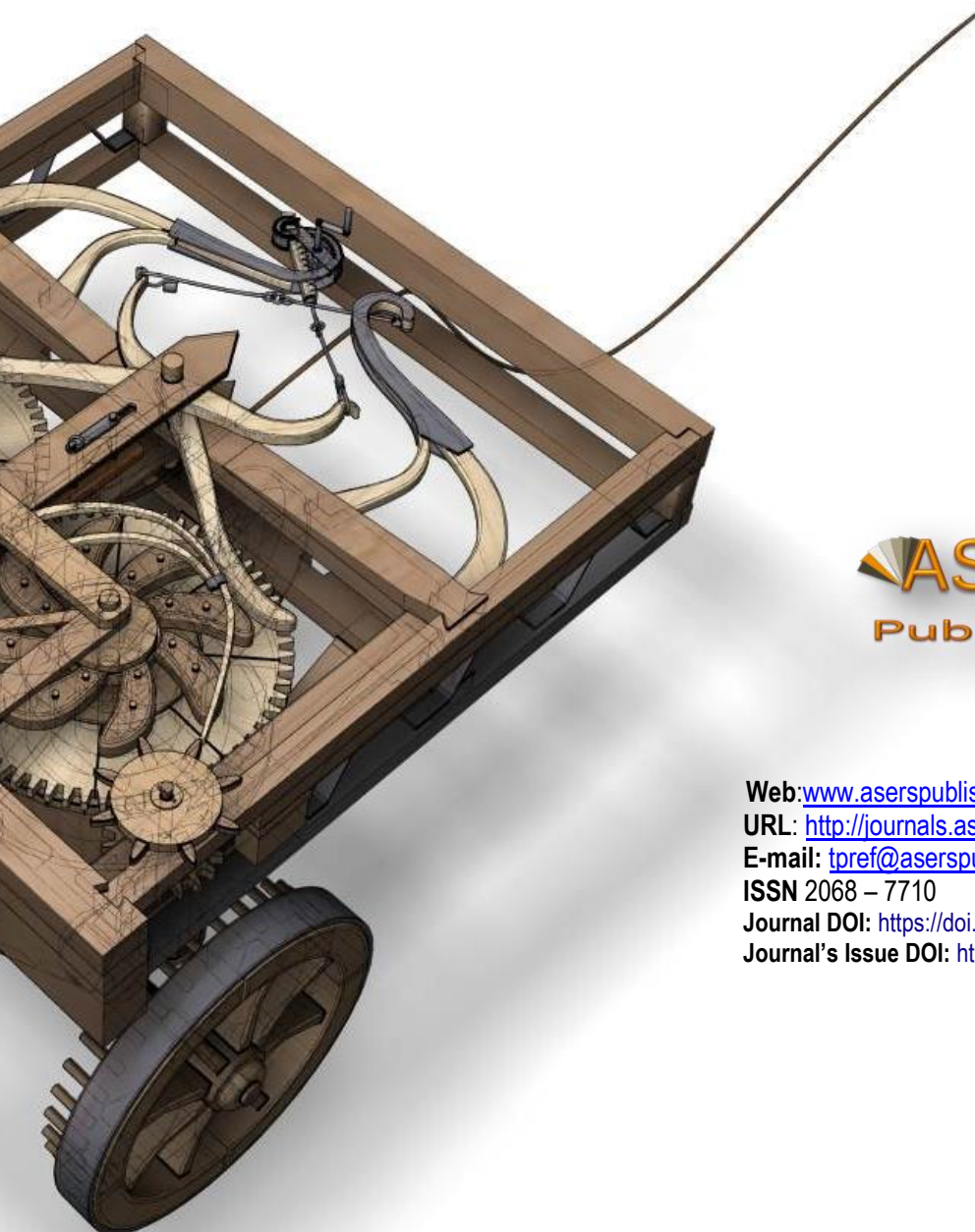
The author declares that they have not used generative AI.

References

- [1] Adedoyin, Festus Fatai, Andrew Adewale Alola, and Festus Victor Bekun (2020). An Assessment of Environmental Sustainability Corridor: The Role of Economic Expansion and Research and Development in EU Countries. *Science of the Total Environment*, 713: 136726. DOI: [10.1016/j.scitotenv.2020.136726](https://doi.org/10.1016/j.scitotenv.2020.136726)
- [2] Bakari, Sayef (2021). Do Researchers Affect Economic Growth? Available at: https://mpra.ub.uni-muenchen.de/108788/1/MPRA_paper_108788.pdf
- [3] Bauwens, Thomas, Denise Reike, and Martín Calisto-Friant (2023). Science for Sale? Why Academic Marketization is a Problem and what Sustainability Research can do about it. *Environmental Innovation and Societal Transitions*, 48: 100749. DOI: [10.1016/j.eist.2023.100749](https://doi.org/10.1016/j.eist.2023.100749)
- [4] Burdonos, Lyudmila, and Vita Vynogradnya (2020). Methodology of Assessing the Effectiveness of Scientific, Scientific and Technical Works in an Institution of Higher Education. *University Economic Bulletin*, 15 (3): 65-75. DOI: [10.31470/2306-546X-2020-46-65-75](https://doi.org/10.31470/2306-546X-2020-46-65-75)
- [5] Cameron, Carrie, Hwa Young Lee, Cheryl B. Anderson, Jordan Trachtenberg, and Shine Chang (2020). The Role of Scientific Communication in Predicting Science Identity and Research Career Intention. *PLoS ONE*, 15 (2): e0228197. DOI: [10.1371/journal.pone.0228197](https://doi.org/10.1371/journal.pone.0228197)
- [6] Domi, Shpresim, Joan-Lluís Capelleras, and Bari Musabelliu (2020). Customer Orientation and SME Performance in Albania: A Case Study of The Mediating Role of Innovativeness and Innovation Behavior. *Journal of Vacation Marketing*, 26 (1): 130-146. DOI: [10.1177/1356766719867374](https://doi.org/10.1177/1356766719867374).
- [7] Edler, Jakob, Maria Karaulova, and Katharine Barker (2022). Understanding Conceptual Impact of Scientific Knowledge on Policy: The Role of Policymaking Conditions. *Minerva*, 60 (2): 209-233. DOI: [10.1007/s11024-022-09459-8](https://doi.org/10.1007/s11024-022-09459-8)
- [8] Fang, Wei, Zhen Liu, and Ahmad Romadhoni Surya Putra (2022). Role of Research and Development in Green Economic Growth Through Renewable Energy Development: Empirical Evidence from South Asia. *Renewable Energy*, 194: 1142-1152. DOI: [10.1016/j.renene.2022.04.125](https://doi.org/10.1016/j.renene.2022.04.125)
- [9] Guloglu, Bulent, and R. Baris Tekin (2012). A Panel Causality Analysis of the Relationship Among Research and Development, Innovation, and Economic Growth in High-Income OECD Countries. *Eurasian Economic Review*, 2 (1): 32-47. DOI: [10.14208/bf03353831](https://doi.org/10.14208/bf03353831)
- [10] Guo, Bingnan, Yu Wang, Hao Zhang, Chunyan Liang, Yu Feng, and Feng Hu (2023). Impact of the Digital Economy on High-Quality Urban Economic Development: Evidence from Chinese Cities. *Economic Modelling*, 120: 106194. DOI: [10.1016/j.econmod.2023.106194](https://doi.org/10.1016/j.econmod.2023.106194)
- [11] Hodges, Ron, Eugenio Caperchione, Jan van Helden, Christoph Reichard, and Daniela Sorrentino (2022). The Role of Scientific Expertise in COVID-19 Policy-Making: Evidence from Four European Countries. *Public Organization Review*, 22 (2): 249-267. DOI: [10.1007/s11115-022-00614-z](https://doi.org/10.1007/s11115-022-00614-z)
- [12] Hyland, Ken (2023). Academic Publishing and the Attention Economy. *Journal of English for Academic Purposes*, 64: 101253. DOI: [10.1016/j.jeap.2023.101253](https://doi.org/10.1016/j.jeap.2023.101253)

- [13] Lee, Chien-Chiang, Wenwu Xing, and Chi-Chuan Lee (2022). The Impact of Energy Security on Income Inequality: The Key Role of Economic Development. *Energy*, 248: 123564. DOI:[10.1016/j.energy.2022.123564](https://doi.org/10.1016/j.energy.2022.123564)
- [14] Lis, Andrzej, Kreshnik Bello, and Joanna Górka (2021). Albania as an Object and a Context of Research in Economic Sciences: Bibliometric Analysis. *Economics and Law*, 20(1): 139-154. DOI:[10.12775/EiP.2021.009](https://doi.org/10.12775/EiP.2021.009)
- [15] Meo, Sultan Ayoub, and Muslim Muhammad Al-Saadi (2007). Right Path of Publishing a Scientific Paper to a Right Journal: Academic Paper Based Case Study. *Pakistan Journal of Medical Sciences*, 23 (6): 949-949. Available at: <https://pjms.com.pk/issues/octdec207/article/casereport2.html>
- [16] Mills, David (2024). One index, two publishers and the global research economy. *Oxford Review of Education* 1-16. DOI: [10.1080/03054985.2024.2348448](https://doi.org/10.1080/03054985.2024.2348448)
- [17] Mohsin, Muhammad, Farhad Taghizadeh-Hesary, Nadeem Iqbal, and Hayot Berk Saydaliev (2022). The Role of Technological Progress and Renewable Energy Deployment in Green Economic Growth. *Renewable Energy*, 190: 777-787. DOI: [10.1016/j.renene.2022.03.076](https://doi.org/10.1016/j.renene.2022.03.076)
- [18] Pang, Jianing, Fangyi Jiao, and Yimeng Zhang (2022). An Analysis of The Impact of the Digital Economy on High-Quality Economic Development in China – A Study Based on The Effects of Supply and Demand. *Sustainability*, 14 (24): 16991. DOI: [10.3390/su142416991](https://doi.org/10.3390/su142416991)
- [19] Rodríguez-Navarro, Alonso, and Ricardo Brito (2022). The Link Between Countries' Economic and Scientific Wealth Has a Complex Dependence on Technological Activity and Research Policy. *Scientometrics*, 127 (5): 2871-2896. DOI: [10.1007/s11192-022-04313-w](https://doi.org/10.1007/s11192-022-04313-w)
- [20] Sas, Svitlana (2022). European Trends and Prospects for Financing Higher Education and Science. *Economic Forum* 12 (1): 152-161. DOI: [10.36910/6775-2308-8559-2022-1-19](https://doi.org/10.36910/6775-2308-8559-2022-1-19)
- [21] Sever, Richard (2023). Biomedical Publishing: Past Historic, Present Continuous, Future Conditional. *PLoS Biology*, 21 (10): e3002234. DOI: [10.1371/journal.pbio.3002234](https://doi.org/10.1371/journal.pbio.3002234)
- [22] Šojat, Zorislav, and Karolj Skala (2023). A View into the Future of Academic Publishing. In *46th MIPRO ICT and Electronics Convention*. Opatija: IEEE, pp. 338-343. DOI: [10.23919/MIPRO57284.2023.10159896](https://doi.org/10.23919/MIPRO57284.2023.10159896)
- [23] Soler, Josep, Iker Erdocia, and Kristof Savski (2023). Criticality and Constraints in the Infrastructures of the Academic Knowledge Economy. *Language, Culture and Society*, 5 (2): 167-181. DOI: [10.1075/lcs.00040.sol](https://doi.org/10.1075/lcs.00040.sol)
- [24] Supplee, Lauren H., Robert T. Ammerman, Anne K. Duggan, John A. List, and Dana Suskind (2021). The Role of Open Science Practices in Scaling Evidence-Based Prevention Programs. *Prevention Science*, 23 (5): 799-808. DOI: [10.1007/s11121-021-01322-8](https://doi.org/10.1007/s11121-021-01322-8)
- [25] Vasconez-Gonzalez, Jorge, Juan S. Izquierdo-Condoy, Patricio Naranjo-Lara, Miguel Ángel Garcia-Bereguaiain, and Esteban Ortiz-Prado (2024). Integrity at Stake: Confronting “Publish or Perish” in the Developing World and Emerging Economies. *Frontiers in Medicine*, 11: 1405424. DOI:[10.3389/fmed.2024.1405424](https://doi.org/10.3389/fmed.2024.1405424)
- [26] Walsh, Patrick Paul, Enda Murphy, and David Horan (2020). The Role of Science, Technology and Innovation in the UN 2030 Agenda. *Technological Forecasting and Social Change*, 154: 119957. DOI:[10.1016/j.techfore.2020.119957](https://doi.org/10.1016/j.techfore.2020.119957)
- [27] Wang, Qiang, and Fuyu Zhang (2020). Does Increasing Investment in Research and Development Promote Economic Growth Decoupling from Carbon Emission Growth? An Empirical Analysis of BRICS Countries. *Journal of Cleaner Production*, 252: 119853. DOI: [10.1016/j.jclepro.2019.119853](https://doi.org/10.1016/j.jclepro.2019.119853)
- [28] Xiao, Wensheng, Haojia Kong, Lifan Shi, Valentina Boamah, and Decai Tang (2022). The Impact of Innovation-Driven Strategy on High-Quality Economic Development: Evidence from China. *Sustainability*, 14 (7): 4212. DOI: [10.3390/su14074212](https://doi.org/10.3390/su14074212)
- [29] Xu, Guangyue, Haoyun Dong, Zhenci Xu, and Nishan Bhattarai (2022). China Can Reach Carbon Neutrality Before 2050 by Improving Economic Development Quality. *Energy*, 243: 123087. DOI:[10.1016/j.energy.2021.123087](https://doi.org/10.1016/j.energy.2021.123087)
- [30] Eurostat. (n.d.). Economy and Finance. Available at: <https://ec.europa.eu/eurostat/data/database>
- [31] Scimago Journal & Country Rank. (n.d.). Country Ranking. Available at: <https://www.scimagojr.com/countryrank.php>

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