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FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION
FINANCE DEPARTMENT**

**THE INFLUENCE OF ECONOMIC AND FINANCIAL CRIME
ON DEFORESTATION**

SUMMARY OF THE DOCTORAL THESIS

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ABSTRACT

The thesis firstly discusses the concept, types, legal approach, costs, and determinants of the influence of economic and financial crime on deforestation. The main determinants of illegal logging include political, economic, financial, social, and cultural factors. The literature review identifies a gap in the quantitative research on this particular topic. By statistical processing of secondary data, the study reveals that corruption has a direct and significant impact on forestry crime at the international level and also in Romanian counties, with Suceava and Botoşani exhibiting the highest need for forest conservation measures, according to a novel indicator, the Forestry Crime Index. By conducting several interviews with Romanian experts in forest protection, the research identifies several countermeasures like investing in environmental education, implementing high-end technology, assigning more responsibility to forestry employees, and establishing inter-ministerial emergency teams. It also highlights the need for a clear distinction between forests for protection and for production, addressing excessive regulation, and developing a vision in accordance with European regulations. Comparative analysis and data visualisations identifies European countries with commendable practices, with France and the Nordic nations being notable examples. The research also discusses tourism as a moderating factor, highlighting its role in mitigating corruption and unsustainable deforestation, as an element of novelty.

Keywords: economic and financial crime, corruption, money-laundering, deforestation, illegal logging

INTRODUCTION

Corruption and excessive logging and deforestation seem to be connected, as more and more forests are illegally exploited. Logging is a profitable industry, even so when the law is violated. Without transport permits, without logging fees, without incurring any costs that the law requires when you log the forest, you can log wood even from protected areas in exchange for a moderate amount of money paid to the forester and possibly to a few police officers. If you are an important firm that is exporting wood in certain countries, if you want to stay away from rigorous unannounced controls, if you want to get the approvals from the Ministry of Environment quickly, and if you do not want to have problems with big transports, then the amount of money will be paid to people in higher positions, that will become important factors in your network and will co-benefit with you, side-by-side, step-by-step, from killing the forests and the animals living in them. This is how the best-quality wood, and the real money can be obtained. And it costs less than obeying the law. But the consequences are huge, especially for the environment. At the macro-level, we already assist to the rapid and exponential climate change, and less trees represent an important aggravating factor, as they are the only natural mechanism that can prevent this phenomenon. Instead of having more forestland to combat the huge increase in greenhouse gas emissions in the last decades, the forestland is shrinking and shrinking, aggravating the state of the environment.

The purpose of this research is to analyse the connection between economic and financial crime and deforestation and to prove that *(sustainable) tourism* is a key solution for breaking this link between *economic and financial crime* and *logging*, given that over the last years, climate change and environmental crises have become a worldwide reality.

I chose this topic because I have strong feelings about the media-presented cases regarding the wood mafia. We think of corruption as a type of white-collar crime, which it often is. But when it comes to illegal deforestation, corruption may take many terrible red hues, from threats to brutal killings. Corruption is still rampant and illicit logging represents a lucrative industry in nations with rich and ancient forests but low or moderate levels of development, such as Indonesia, Ghana, Brazil, Tanzania, and Romania. Governments, regional and local authorities have the potential to implement genuinely effective strategies aimed at mitigating the extent of illegal logging and deforestation. By addressing corruption within the forestry sector, these measures can contribute to a reduction in the prevalence of the underground economy and corruption. This can be achieved through a comprehensive understanding and explanation of

the interconnectivity and interdependence inherent in the issue of illegal logging. The negative consequences will be significantly decreased once the economic and financial crime is reduced to a certain level, and nations will be able to enjoy considerably improved environmental quality and, therefore, a higher quality of life. Finally, this is why I firmly believe in the significance, worth, and applicability of this research.

The thesis is a unique and innovative research that undertakes a comprehensive investigation of the complex relationship between deforestation and financial crime, presenting tourism as a moderating factor. What distinguishes this work is the use of quantitative approaches, namely dynamic panel models, which provide a comprehensive analysis that addresses the intricacies of this relation. By using up-to-date secondary data from 154 nations, the study assures that its conclusions are aligned with the present global situation. One notable characteristic of this thesis is the development of a unique metric, namely the Forestry Crimes Index (FCI), which has been created using an own formula. This innovative metric is designed to serve as a quantitative tool, adjusted to assess the frequency of resolved cases of forestry crimes per 1000 hectares of forested area. This thesis represents an innovative approach to research, since it investigates previously unknown areas by using quantitative methods, analysing data over a significant period of time, and introducing a new indicator. The research presents a comprehensive analysis that enhances our understanding of the relationship between deforestation and financial and economic crime, while also elucidating the moderating influence exerted by tourism. By doing this, it emerges as a significant achievement in academic research, providing novel viewpoints to enhance the dialogue on worldwide sustainability.

Regarding the investigation of the existence of any research papers addressing the link between *economic and financial crime, deforestation, and (sustainable) tourism*, no evidence could be found. Therefore, this area was identified as a gap in the existing research and literature discussing the impact of corruption on deforestation and the potential positive effects of sustainable tourism development as an alternative to logging and deforestation and minimizing corruption in the forestry industry.

By identifying a gap in the literature review regarding the quantitative study of the link between economic and financial crime and deforestation, the present research firstly addresses several research questions:

Research question 1: Which are the regions in Romania with the highest level of economic and financial crime, corruption, and forestry crime?

Research question: 2 Is there a relationship between forestry crime and the level of corruption in Romanian counties?

Research question 3: What are the elements that influence the corruption in the Romanian forestry industry?

Research question 4: What are the viable and efficient solutions to minimize the corruption in the Romanian forestry industry?

Research question 5: Are the European destinations with well-established sustainable tourism offerings less corrupt and more environmentally-oriented?

Research question 6: Are there any European countries that have strong policies in all three directions: lowering corruption, developing tourism industry, and promoting environmental protection, and if so, which ones?

By answering these research questions, there is a solid background build on the topic and the main hypotheses will then be tested:

Hypothesis 1: There is a direct link between economic and financial crime and deforestation.

Hypothesis 2: The negative impact of financial crime upon deforestation is moderated by tourism.

The present research is organized in four chapters that discuss:

- I. The theoretical approaches regarding deforestation in terms of concept, types, legal approach, costs, and determinants
- II. Bibliometric and systematic analyses of the literature review, including the main findings of the most notorious articles, categorized in subchapters by type of research and relevance of topic
- III. The situation of illegal logging, deforestation, and corruption in Romania, by conducting the analysis at the counties level

IV. The influence of economic and financial crime on deforestation at the European and international level, with tourism presented as a moderating factor

CHAPTER I

The first chapter presents the theoretical approaches regarding deforestation in terms of concept, types, legal approach, costs, and determinants. Even though deforestation and logging refer to different procedures in the forest management, both result in the loss of trees, whether temporary or permanent.

The legal framework plays a crucial role in facilitating the alignment of environmental preservation, economic development, social justice, and global collaboration. The significance of this resides in its ability to guide human endeavours towards a prospective state in which forests maintain their resilience, biodiversity thrives, and the intricate equilibrium between mankind and the natural world endures.

If the legal framework is not solid and applied, the costs of deforestation and logging can be massive, starting with the loss of biodiversity, climate change, soil degradation, reduction of water resources, displace of indigenous communities and local populations, economic losses, legal and regulatory costs, negative health impacts, and loss of cultural heritage.

As for the main determinants of illegal logging and deforestation, the list includes political factors (the type and quality of the political regime, the stability of the political landscape), economic factors (the economic prosperity of the nation, the volume of exports), financial factors (corruption, shadow economy, money-laundering), social factors (the level of education) and cultural factors.

CHAPTER II

The literature review presents both bibliometric and systematic analyses of the literature review, including the main findings of the most notorious articles, categorized in subchapters by type of research and relevance of topic. However, the academic literature in this field lacks comprehensive analysis about the impact of economic and financial crime deforestation.

Most of the research conducted on the subject of illegal deforestation and corruption among government workers tends to use a descriptive approach, mostly focusing on theoretical and qualitative aspects. There is a notable absence of studies that employ a practical and

quantitative methodology to examine these phenomena.

By identifying this gap in the literature review, several research questions and the main hypotheses were formulated, all aiming at presenting the influence of economic and financial crime on deforestation from different perspectives and for different levels of geopolitical subdivisions, starting with Romania, then the European continent, and finally the international framework.

CHAPTER III

The situation of illegal logging, deforestation, and corruption in Romania is presented, by conducting the analysis at the counties level. Firstly, it presents the Romanian legislative framework in the international context. The forestry legislation in Romania plays a crucial role in promoting transparency and accountability within the timber supply chain. This legislation effectively addresses concerns pertaining to the sourcing of legal and sustainable timber. Such efforts are of great importance in the global fight against illegal logging and the promotion of responsible trade practices. Romania's involvement in international efforts, such as the United Nations Forum on Forests (UNFF) and the Forest Stewardship Council (FSC), serves to strengthen its dedication to the worldwide management of forests and the pursuit of sustainable goals.

After describing the legislative framework and the authority institutions in Romania and in the international context, a quantitative study regarding the influence of economic and financial crime on the forestry crime in the Romanian counties was conducted for the time span 2010-2020. An econometric model that studies the impact of corruption on the level of forestry crime was discussed using multilinear regression. The visual analysis of quantitative secondary and primary data demonstrates that the regions of Suceava and Botoşani exhibit the highest need for forest conservation measures. Additionally, these counties are characterised by a significant prevalence of economic and financial crime offences, thus indicating a correlation between the need for protection and the occurrence of severe economic and financial crime. The area of North-East, Moldova, has the greatest incidence of criminal activity within the forestry sector. As an element of novelty, the Forestry Crime Index (FCI), created using an own formula, shows a correlation between forestry crimes and the average forestland in each county, by dividing the number of solved cases of violation of the Forestry Law to the amount of forestland expressed in 1000 ha. These findings regarding the relative measurement of forestry crime

show that not only the counties with rich forests face environmental problems, but the ones with reduced forestland too. Moreover, the statistical processing shows that the level of corruption has a direct and significant impact on the level of forestry crime in Romanian counties.

The second case study in Chapter III is a SWOT analysis of the interviews conducted with six Romanian experts with different professional backgrounds, all involved in protecting the forests and the environment. It focuses on identifying effective countermeasures to address illegal logging. It suggests assigning more responsibility to forestry employees, using an IT system to monitor volume of logs and provide other crucial information, and establishing inter-ministerial emergency teams to respond promptly to illegal logging reports. The case study also emphasizes the need for a more distinct delineation between forests designated for protection and those designated for production, addressing excessive regulation, and developing a vision and plan in accordance with European regulations. Additionally, it calls for the reformation of specialized institutions, better environmental education, and the reformation of wood valorisation practices.

CHAPTER IV

This chapter addresses the topic at the European and international level. Besides discussing the influence of economic and financial crime on deforestation, it brings up a moderating factor – tourism, as an element of novelty. Tourism is included in the social function of forests, as logging and deforestation refer to the economic function. In order to protect the third function, the environmental one, a shift in paradigm from focusing on the economic function (logging and deforestation) to the social function (sustainable tourism) is mandatory.

Secondly, Chapter IV starts by presenting the theoretic lens behind the identification of tourism as a moderating factor. Then, it discusses the literature review on tourism as an alternative to logging and deforestation. It continues with a quantitative study on the European continent using a database for the time period 2012 – 2020, including all European nations as categorised by the United Nations. The findings of the conducted case study demonstrate that for Europe, the advancement of competitive sustainable tourism has a beneficial impact on the mitigation of corruption and the preservation and sustainable management of forested areas.

Going more into depth, a comparative analysis was used in order to identify European countries with the best practices in all three dimensions: low levels of corruption, low levels of

deforestation, and strong tourism policies. France emerges as the predominant exemplar of commendable practices. The Nordic nations represent additional noteworthy examples.

An empirical study for the international level is the last to be presented, as it incorporates all the notions and assumptions aforementioned. The methodology of this quantitative study based on secondary data obtained from a total of 154 nations throughout the globe, spanning from 2012 to 2020. The study used spatial cluster analysis and dynamic panel models to investigate the relationship between economic and financial crime and deforestation, with tourism acting as a moderating factor. The findings provided evidence in support of the hypotheses that financial crime has a direct impact on deforestation, with tourism playing a moderating role. Hence, trees provide the potential for monetization via means beyond their mere extraction, such as their use as green tourism attractions. This multifaceted approach not only generates economic benefits but also contributes to enhancing the environmental quality, rather than causing its degradation.

FINAL CONCLUSIONS

Within this last section, the main findings are discussed. The results obtained via rigorous data analysis provide insight into the key elements of this research. Furthermore, this section emphasises the noteworthy theoretical advancements it has achieved, therefore broadening the existing academic conversation on the topic of illegal logging and deforestation in relation to economic and financial crime and tourism. The results also provide practical insights for those responsible for making decisions, formulating policies, and implementing strategies in an efficient and durable manner. This ensures that the research's applicability to real-world contexts is optimised. Nevertheless, it is important to note that every research endeavour has its own set of limits. These constraints provide significant insights for future researchers who confront similar subjects, thereby enriching the overall comprehension of the research's context and extent. This final section's purpose is to provide a holistic perspective on the results, consequences, and contributions of the study.

Main Findings

In nations such as Indonesia, Ghana, Brazil, Tanzania, and Romania, characterised by abundant and mature forest resources but with low or moderate degrees of development, the prevalence of corruption remains significant, leading to the thriving of illegal logging and deforestation. This thesis seeks to address the lack of academic literature pertaining to economic and financial

crime within the forestry business. Its primary objective is to provide statistical evidence that establishes a connection between these economic and financial criminal activities and the forestry industry. Additionally, the thesis tries to establish sustainable tourism as a feasible alternative to logging and deforestation.

Regarding Romania, our nation has extensive and ancient woods that are not consistently subjected to sustainable management and exploitation practices. Additionally, Romania exhibits a poor developed tourism sector and confronts significant challenges associated with corruption. It is well acknowledged that corruption within the forestry sector in Romania is prevalent and sometimes characterised by acts of violence. This is shown by various scandals reported in investigative media outlets, as well as instances of rangers being fatally attacked while safeguarding the woods in recent years. Hence, the objective of the case study regarding Romania forestry is to ascertain proficient and successful strategies to combat illegal logging via the use of a SWOT analysis derived from primary data consisting in interviews conducted with experts engaged in forest conservation across various professional domains. Among the proposed solutions, the independence of control bodies, coupled with the depoliticization of forestry organisations, the ongoing advancement of technology in the field, educational initiatives targeting children, support for investigative journalism to uncover potential crimes and generate public pressure, citizen engagement, the implementation of simplified normative acts without loopholes, and the establishment of environmental courts appear to be the most effective measures. Additionally, the visual analysis of quantitative secondary and primary data demonstrates that the regions of Suceava and Botoşani exhibit the highest need for forest conservation measures. Additionally, these counties are characterised by a significant prevalence of economic and financial crime offences, thus indicating a correlation between the need for protection and the occurrence of severe economic and financial crime. The area of North-East, Moldova, has the greatest incidence of criminal activity within the forestry sector. As an element of novelty, the Forestry Crime Index (FCI), created using an own formula, shows a correlation between forestry crimes and the average forestland in each county, by dividing the number of solved cases of violation of the Forestry Law to the amount of forestland expressed in 1000 ha.

Another case study examines European nations with regard to corruption, deforestation, and tourism, with the aim of analysing the distinctive features of the continent and determining the elements that influence a country's ability to sustainably manage its natural resources. The

research has shown that European countries with sustainable tourism industry have successfully mitigated corruption and implemented efficient environmental measures. Moreover, in the context of the former Eastern Bloc and the Balkan states, it is reasonable to anticipate that the ongoing growth of the tourism and hospitality industry will contribute positively to the enhancement of the public sector and institutions, ultimately resulting in a reduction of perceived corruption levels and deforestation rates.

Additionally, ten European countries (Austria, Croatia, Finland, France, Germany, Greece, Italy, Norway, Romania, and Spain) renowned for their forests and/or touristic attractions were included in a new case study. The primary finding highlights the shared characteristics among countries possessing substantial forestland, while also adhering to sustainable practices, norms, and measures, and demonstrating a profound regard for nature. Specifically, these countries present three significant characteristics: minimal corruption levels, notable improvements in managing the forestland, and a thriving tourism sector. The significance of the findings lies in the identification of appropriate models for decision-makers to adhere to in their forest management plans. Additionally, the study highlights the potential of tourism as a viable option and emphasises the need of combating corruption among politicians, investors, and other stakeholders.

The primary findings of the thesis are demonstrated through the utilisation of statistical methodologies, which indicate that tourism, particularly sustainable tourism, plays a significant role in mitigating the adverse impacts of financial crime on deforestation. Furthermore, these findings suggest alternative approaches for the utilisation and economic exploitation of trees as valuable resources. The methodology of this quantitative study is the use of secondary data obtained from a total of 154 nations throughout the globe, spanning from 2012 to 2020, and also for Romanian counties between 2010 and 2020. The study used spatial cluster analysis and dynamic panel models to examine the relationship between financial crime and deforestation, with tourism serving as a moderating factor. The findings provided empirical support for the hypotheses that financial crime has a direct impact on deforestation, with the influence of tourism acting as a moderator. Hence, trees have the potential for monetization via means beyond their mere extraction, such as their use as green tourism attractions. This multifaceted approach not only generates economic benefits but also contributes to the enhancement of the environment's quality, rather than its degradation. The statistical models indicate a positive correlation between extensive forest exploitation and high levels of

economic and financial crimes, as well as a less competitive tourism sector. Hence, the function of tourism in moderating the issue of illegal logging serves as evidence that it may constitute a feasible and sustainable solution for mitigating this phenomenon. This approach yields beneficial outcomes by reducing the incidence of economic and financial crimes and promoting environmental health.

Contributions to the Theory

The absence of academic literature on the subject matter indicates a research gap in the field of financial crime, deforestation, and sustainable tourism, highlighting the need for more investigation in this area. Nevertheless, only a limited number of descriptive articles exist which discuss corruption within the forestry industry. Although qualitative investigation is a necessary component, it alone is not sufficient for comprehensively grasping the complexities of illegal logging occurrences. This study provides convincing empirical data supporting the existence of a correlation between corruption and deforestation. Additionally, the study highlights the significant role that tourism plays in mitigating both corruption and unsustainable deforestation.

Practical Implications

Initially, it is essential for stakeholders to actively pursue and establish environmentally sustainable alternatives instead of only depending on punitive actions as a mean to address corruption in the forestry sector. Lodging emerges as a viable alternative to logging, as it provides inhabitants with an opportunity to get advantages from trees without causing their destruction, all the while ensuring sustained economic well-being. The statistical findings of this research provide persuasive evidence indicating that there is a direct link between economic and financial crime and the rate of deforestation, moderated by tourism competitiveness.

Furthermore, the awareness that this research aims to generate has the potential to inspire the development of efficient strategies for environmental protection, expedite their implementation, and enhance overall efficiency.

Moreover, sustainable tourism has been shown to be a feasible and enduring solution. Tourism is an economically prosperous and resilient sector that exhibits promising prospects for sustained expansion in nations characterised by minimal corruption levels and a firm

commitment to environmental preservation. Sustainable tourism does not mean compromise. A competitive tourism sector is economically advantageous and environmentally responsible in the short, medium, and long periods for all stakeholders. One potential limitation is in the opposition posed by top government officials who engage in corrupt practices. Consequently, it becomes evident that a fundamental shift in paradigm is necessary. The development of a country's tourism industry is profoundly impacted by its national tourism branding, a factor that is strongly affected by the political environment. Nevertheless, it would be very unrealistic to assume that politicians would support measures that diminish their own financial advantages.

However, it is noteworthy to mention that the focus should be on developing countries, with high deforestation rates and corruption levels, such as Indonesia, Ghana, Brazil, Tanzania, and also Romania, can lower their losses by reducing the deforestation and also the level of economic and financial crime through strong and efficient tourism policies and strategies, and to implement the best practices that France and the Nordic countries seem to have, adapting them to the unique characteristics of the country.

Limitations of the Research

The thesis confronts specific limitations that need to be addressed. One notable restriction of the research is the limited availability of data. The complexity of research conclusions is influenced by the extent and accuracy of the data available for analysis. It is the case for the Shadow-Economy indicator, which could not be taken into consideration into the empirical study due to the lack of data for numerous countries in the sample. The presence of this constraint may require careful analysis and extrapolation of the results, acknowledging the potential consequences of limited data.

Furthermore, the use of different measuring methodologies for the chosen indicators adds a level of intricacy to the study procedure. For instance, CPI (Corruption Perception Index) changed its methods of measuring in 2012. Therefore, the empirical study timespan starts in 2012, in order to have uniform datasets.

In addition, there are considerable delays in the updating of secondary data. Indicators like Forestland and GDP per Romanian counties only have data until 2020. The temporal aspect of data accessibility has led to discrepancies between the real-time occurrence of events and its portrayal in study. It is important to recognise and account for the temporal delay when making inferences or reaching conclusions that pertain to recent advancements or time-dependent

phenomena.

Moreover, the presence of inequalities in the design and structure of the datasets used in the study represented another obstacle. Thorough harmonisation efforts, including logged values, were required due to variations in the collection, categorization, and aggregation methods of data points across multiple sources or areas.

It is essential to acknowledge that these limitations do not detract from the importance of the knowledge acquired. On the contrary, the complexity inherent in the subject matter are emphasised, highlighting the need for a meticulous approach in order to effectively manage them. The study tries to maintain its integrity and provide a balanced viewpoint on the subjects being investigated by openly recognising and addressing these limitations.

Future Directions of Research

Within the directions of future research, an intriguing path arises that has the potential to provide valuable insights into the complex interplay between corruption, deforestation, and the changing landscape of tourism. However, this endeavour extends beyond the conventional realm and ventures into unexplored domains of destination classifications, namely, to investigate if the interaction between corruption, deforestation, and tourism manifests unique characteristics depending on the particular nature of the location. This future analysis not only will examine the overall connection between these components but also will explore if varying intensities or specific elements become more prominent depending on the characteristics of the destination.

One prospective study direction is the classification of several sorts of destinations, including both untouched nature reserves and vibrant metropolitan centres. This pathway aims to investigate the intricate interplay that arises when corruption, deforestation, and tourism intersect within these distinct contexts. This inquiry has the potential to span a range of elements, including the interplay and impact of governance systems, economic interdependence, and social dynamics on the interconnections between these components. Is there a correlation between certain kinds of destinations and an increased vulnerability to the negative impacts of corruption and deforestation?

Through a comprehensive analysis of these characteristics, researchers have the ability to reveal not only the weaknesses but also the hidden potentials of various sorts of destinations.

This endeavour, which is rich in insights, has the potential to generate tactics that are more focused and successful in addressing the interconnected challenges. The implementation of solutions that are customised to the unique characteristics of each kind of destination has the potential to bring about a paradigm shift towards sustainable practices. This would include the simultaneous preservation of natural resources, the attraction of tourists, and the elimination of corruption.

The exploration of the moderating influence of tourism on corruption and deforestation, as viewed through the perspective of different types of destinations, holds the promise of broadening our understanding and guiding the development of more accurate, influential, and adaptable strategies to promote sustainability in the future.