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Empirical studies on economic and financial crime for Germany versus Romania. Causes and solutions

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Cluj-Napoca

2023

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Abstract

The thesis entitled "Empirical studies on economic and financial crime for Germany versus Romania. Causes and solutions" adds a great deal of value to both the academic findings and the practical results in terms of measures to combat economic crime at both the national and international levels.

After an extensive literature review and the identification of various research gaps, the objective of the thesis could be summarized. The aim of this thesis is to comprehensively analyze the complex interactions between white-collar and financial crime with their different manifestations and determinants from a global perspective, to identify the perception of white-collar crime in Germany and to compare the results with Romania. By forming clusters and analyzing different industries, a new research approach will be pursued in order to be able to initiate more targeted countermeasures and to identify target groups in the best possible way.

To complete this approach, a survey on the perception of white-collar crime will be conducted, which will provide a concrete profile on which target group is more vulnerable to the mentioned crimes.

Combating economic and financial crime remains a real challenge for policymakers. They must address the root causes of corruption, money laundering, tax evasion, and the shadow economy while creating an environment that promotes transparency, accountability, and the rule of law. The scientific work is especially interesting for the politicians, government's worldwide, public institutions and educational institutions.

Keywords: Corruption, tax evasion, money laundering, shadow economy, education, age, professional relationship, romania, germany, measures

Introduction

The German state is missing out on 12 billion euros in tax revenue as a result of the Cumex scandal. In this case, financial market players collaborated with very wealthy citizens to obtain tax refunds under the pretext of a legal loophole but these refunds were never paid by the citizens (Handelsblatt, 2023). A 30-billion-euro economic loss occurred as a result of the Wire card fraud. According to reports, fictitious trading was carried out and sales were artificially increased with subsidiaries in Asia (Focus, 2023). Or even $200 billion a year in damage is estimated to have resulted from the exposure of tax evasion by the Panama Papers. These headlines highlight how widespread economic and financial crime is and the high impact it has on a state budget. Economic and financial crime is increasingly publicized in the media and is a growing problem for society. Globalized finance, the increasing amount of money and trade transactions and the acceleration of information technologies bring shady sides within the framework of the financial world. Therefore, combating financial crime, which is often complex and causes significant financial damage to institutions, governments, people and businesses, is becoming increasingly important.

The shadow economy represents one of the most important crimes in the financial and economic sector. According to the most recent estimates by Medina and Schneider (2022), within the 31 European countries, 17.3% of the gross domestic product will be generated within the shadow economy in 2022. It has been shown that the shadow economy varies in intensity from country to country. Thus, it is known that in the eastern, central and southern European countries (Bulgaria, Poland and Czech Republic), there is a higher shadow economy compared to the former western countries such as Austria, Italy or Germany (Medina and Schneider, 2022). Other statistics exist, which have expanded the scope of consideration. The International Labor Office (2018) focuses on statistics worldwide and concludes that more than 60% of the working population earns its living in the shadow economy. The country-specific distribution varies greatly across regions. The greatest burden is in Africa (85.8%), Asia and the Pacific (68.2%), Arab States (68.6%), United States of America (40.0%) and lastly Europe and Central Asia (25.1%). A wide variety of causes that contribute to the emergence of the shadow economy phenomenon raise questions. In addition to the shadow economy, there are many other manifestations of economic and financial crime, such as money laundering, tax evasion and corruption. The estimated volume of money laundering worldwide is estimated at 2,000 billion U.S. dollars in 2021 (Statista, 2023a).

Confirmed is the importance of identifying the origin of the economic and financial crime from a wide variety of circles. Especially over time, the importance of economic and financial crime is becoming increasingly important for policymakers as well as for employees and employers, and represents a challenge for sustainable development. Economic and financial crime makes itself felt in a variety of areas, such as workers' rights, social protection, and even the rule of law. However, it also constrains sustainable business development, public budgets, and the limited room for maneuver that comes with them. The statistics that contribute to decision-making are called into question because they do not accurately capture the economic market situation, which makes it difficult to derive measures.

The novelty of this research can be highlighted in several directions. First, the main determinants of the shadow economy (some of these determinants have been presented for the first time in the literature) are examined taking into account a complex perspective and a multidimensional approach. The second contribution is the separate analysis of the European countries divided into clusters, considering specific characteristics for each group. The third contribution is the validation of the bidirectional causality between shadow economy and its main determinants, in order to highlight the complex interdependencies and interactions that should be taken into account by policymakers. Last but not least, the German survey and its accompanying comparison with Romanian values bring a new approach in order to frame the portrait of the taxpayer considering different variables such as age, gender, education and professional status. It establishes findings on the willingness of participation, the key factors and, above all, the identification of potentials of other countries.

Combating economic and financial crime remains a real challenge for policymakers. They must address the root causes of corruption, money laundering, tax evasion, and the shadow economy while creating an environment that promotes transparency, accountability, and the rule of law. This can include measures such as strengthening institutions, increasing transparency in government procurement, reducing barriers to entry into the formal economy, and improving tax honesty.

This thesis contributes to the literature by analyzing a selected collection of robust influencing factors to identify different sectors to explain the size of economic and financial crime. With the results obtained, it is possible to pay special attention to certain sectors so that it is possible to curb economic and financial crime. To achieve the above results, the thesis is divided into different chapters. It starts with chapter 1 and 2, which discusses the theoretical basis. What is economic and financial crime, how can it be measured and which theoretical influencing factors

have been identified so far. In the third chapter, corruption, money laundering and tax evasion are examined in more detail in the form of a survey using Germany as an example. Based on this, these results are compared with an existing Romanian survey in chapter 4 in order to discover country-specific behaviors and generate possible learning effects. Another methodology is applied in the following chapter to create diversification. Chapter 5 completes the picture of economic and financial crime with an empirical study of shadow economy. The influencing factors are discussed and analyzed with regard to different country clusters.

Chapter 1. Theoretical approaches on economic and financial crime

To summarize, economic and financial crime is not a 21st century phenomenon and incidents occurred as far back as the ancient Greeks in 300 before Christ. The first record of financial and economic crime was written down in 1905 by Bonger, who made the first categorization. Over time, various theories, categories, synonyms developed and definitions emerged. In the context of the work, economic and financial crime is seen as an illegal act committed alone or in a group that violates laws and intentionally breaks trust through the drive of personal enrichment (money, revenge, pressure to perform, etc.).

When considering the various manifestations of economic and financial crime, corruption, shadow economy, money laundering and tax evasion stand out in particular. Definitions could also be discussed for the various forms of crime and a uniform understanding has been created. It was also established that the various manifestations are not independent of one another and can be mutually beneficial. Various significant interdependencies could be discovered in the literature and in some cases even represent the prerequisite for another crime.

True to Drucker's (2015) motto "if you can't measure it, you can't improve it", the various ways of measuring economic and financial crime were listed and, in addition, the most commonly used and widespread indicators were described. On the one hand, it helps to better assess the results, and on the other hand, it enables more targeted measures to be derived.

Chapter 2. Determinants of economic and financial crime

In summary, a variety of factors influencing economic and financial crime have been identified in the literature. The influencing factors range from economic, technical, financial, political, cultural, social to biological factors. It turns out that many different influencing factors were identified at the economic and political levels. At the beginning, the economic drivers were examined in more detail. GDP is probably the best-known influencing factor. HDI, urban population, industrial value added and trade are also drivers of economic and financial crime.

Finally, the determinants agriculture, forestry, and fishing were described. Then the technical drivers were explained, which mainly refers to the determinant internet. Next, financial drivers are identified, which includes financial development. And finally, political drivers of economic and financial crime are explained. Among them is corruption, which is directly related. But the rule of law and political instability are also important factors.

In the context of behavioral determinants, which are closely related to economic and financial crime, culture was identified as a driver. Social factors, such as income inequality, are also drivers that should not be underestimated. Education and the employment relationship are also among the increasingly studied influencing factors. Finally, biological factors such as age and gender have also been identified as being linked to white-collar and financial crime.
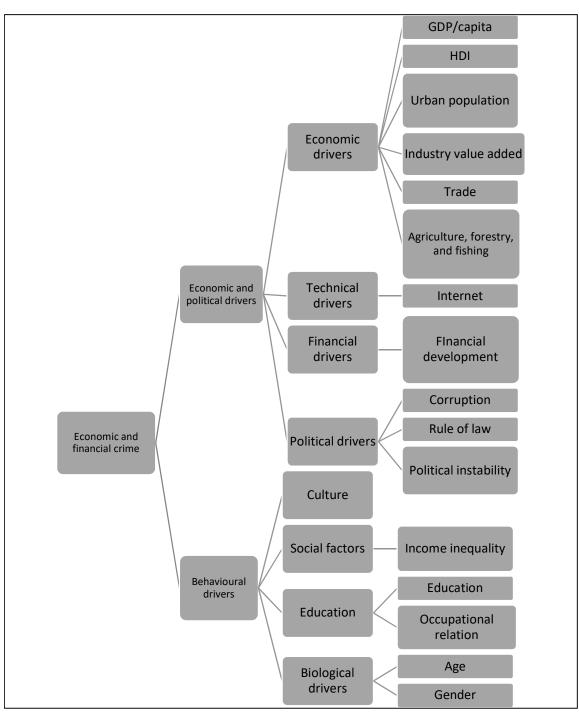
Figure 1. Scientific interest in economic and financial crime

Source: Author's own composition.

Most of the literature is found in the analysis of the economic factors influencing economic crime. It can be almost generalized that a well-developed economy such as GDP, wealth, standard of living leads to a reduction in economic and financial crime. It is noticeable that less

developed countries have a higher crime rate at the same time, which underlines the summary described above. When looking at the technical influencing factors, it became clear that global change and technical progress have an impact on crime. Here, the use of the Internet is the main topic and the negative correlation is explained in various studies. Financial aspects such as tax avoidance, financial development or the banking system also exert an influence on crime. Here, predominantly negative correlations are found. In the context of political factors, it is precisely corruption that is mentioned, which gives rise to interaction with other economic criminal activities. The rule of law and political instability are also repeatedly cited as negative determinants. The cultural aspects have been neglected in the literature so far. It turns out that it is precisely the cultural background that plays a major role in the context of economic and financial crime. Based on this, income inequality, which can be found in the category of social factors, is also a positive facilitator of crime. The thesis is supported by the fact that countries with low wage levels and high differences in income have correlating high financial crime rates. Education is also a widely underestimated influencing factor. It becomes clear that education is a driver for the reduction of crime. Especially in poorer countries with less access to education, a high crime rate is recorded. More educated people, are less likely to engage in criminal activity. Lastly, biological factors such as age and gender were considered. It turns out that there are age groups that are inclined to participate in crime. Gender also plays a role when it comes to tax honesty or willingness to engage in corruption.

Chapter 3. Study case on economic and financial crime in Germany

First, **tax compliance** was examined as a function of age, gender, education and occupation. In the case of tax compliance as a function of age, it can be seen that a U-shaped curve ascending according to age is evident. Especially the younger (16-24 years) and the older generation (46-60 years) pay taxes around the payment deadline. The age group between 25 and 45 also pay before the deadline. When looking at tax compliance in relation to gender, no differences between men and women are apparent. When examining tax compliance according to education, it is evident that higher education is accompanied by higher tax compliance. And finally, tax compliance was examined on the basis of the occupational relationship. Here, too, a pattern can be discerned. All occupations (students, employees and managers) except for retirees have the same attitude toward paying taxes. Only the retirees, these are a little earlier as far as the payment deadline is concerned. To sum up the first hypotheses, the younger generation (16-24 years old) and the older generation (46-60 years old), gender-unspecific, with a secondary and high school degree, unspecific employment are the respondents who have the worst attitude towards the payment behaviour of the tax debt.

In answering hypotheses 1.2, these are the dependencies (age, gender, education, and occupation) on **tax morale**. The analysis showed that, as in the case of tax compliance, the age group 16-24 and the 46-60 age group have the lowest tax morale. Here, too, there are hardly any differences between men and women. In terms of education, however, it appears that the first three education classes (secondary and high school, bachelor's and master's degrees) have the lowest tax morale. And when looking at occupational status, retirees have by far the lowest tax morale. Then the managers, the students and lastly the employees. Again, in summary, when looking for the lowest pronounced tax morale respondents, it becomes clear that rather a young or older age group is sought, gender non-specific, with a secondary and high school degree, a bachelor's or a master's degree and with a current employment as a retiree.

Now the hypothesis 1.3 can be answered, which dealt with the topic of the corruption level. The **perception of the level of corruption** also represents a U-shaped curve. It is the youngest (16-24 year olds) and the oldest (46-60 year olds) who perceive the most corruption. A dependency is evident in this example. Predominantly women perceive a slightly higher level of corruption. And when looking at the dependency of the level of education, it is evident that the higher the education, the less corruption is perceived. This means that graduates of secondary and high school perceive the highest level of corruption. When looking at the occupational status, it is evident that pensioners and students in particular have a slightly higher perception of corruption. However, it should be said here that the two occupational groups also always have a low perception of corruption. In summary, a person between 16 and 24, female, with a secondary and high school degree, employed as a student has the highest perception of corruption.

The analysis of hypothesis 1.4 dealt with the **ability to detect money laundering**. Looking more closely at the dependence of age, it can be seen that just 25-45 year olds attribute the lowest ability to detect money laundering transactions to bank employees. It is also evident that more women attribute low ability to bank employees. And when looking at education, predominantly bachelor's students are very critical of the skills. This critical attitude carries through to undergraduates and managers. Thus, in summary, it is the 25-5 year old, female, bachelor's degree students, who are currently either students or managers, who attribute the lowest ability to detect money laundering transactions to bank employees.

And lastly, hypotheses 1.5 are considered in more detail. In this area, the willingness of customers to cooperate on the origin of money (**know-your-client procedures**) was considered. It can be seen that with increasing age, the willingness to cooperate is questioned

more and more. The younger generation (16-24 year olds) are understanding and happy to cooperate. While the older generation (46-60 year olds) only cooperate angrily. When considering gender, it is apparent that women are somewhat more understanding than men. And also, the graduates of the secondary and high school and the Masters is the education class, which varies between understanding and annoyed. Finally, it is also evident that the least understanding of the bank employees' questions is shown by the pensioners. While students have the greatest understanding. When looking for the respondents who have the least understanding to cooperate are: 46-60 year olds men with a secondary and high school degree or a master's degree, who are employed as retirees.

The closer analysis of hypothesis 2.1 - 2.4 tries to find a pattern by age group/gender/education and occupation, whether they might always behave the same way, no matter which shadow economic activity it is.

At the beginning, **age** was looked at more closely and it can be seen that tax behaviour, tax morality, corruption perception behaves almost the same. For all three economic and financial crime activities, an ascending U-shaped curve is evident according to age. A similar curve is found for the willingness to cooperate in the know-your-client processes. However, the younger generation (16-24 year olds) scored significantly lower than the rest of the respondents. And in the case of money laundering, an inverted U-shaped curve is evident. Thus, it can be seen that all respondents behave in the same way when it comes to paying taxes, tax morale, perception of corruption and, to a certain extent, willingness to cooperate in know-your-client processes.

When looking at financial crime activities in relation to **gender**, we first take a closer look at **men**. It can be seen that tax behaviour, tax morale, and conditionally the perception of corruption and conditionally know-your-client are the same for men. Again, the attribution of the ability of bank employees is an inverted U-curve and runs counter to the other.

For **women**, the behaviour regarding the payment of the tax deadline, the tax morale, the perception of corruption, the willingness to cooperate in know-your-client processes and conditionally (46-60 year olds deviate) the detection of money laundering activities is almost identical.

We look at economic crime activities in the context of **education**. It can be seen that tax behaviour, tax morale, the ability to detect money laundering transactions and the willingness to cooperate follow a similar pattern. Looking more closely at education, it can be seen that

corruption perceptions run in opposite directions except for secondary and high school graduates.

Finally, when analysing the **professional relationship**, it can be seen that the behaviour regarding tax morality, the attribution of the ability to detect money laundering transactions, the perception of corruption and the willingness to cooperate in know-your-client processes runs almost identically. The exception is tax behaviour, which runs in the opposite direction.

Table 1. Summarized results of the hypothesis

Hypothesis	Results
Hypothesis 1.1: There is a correlation between tax honesty and individual factors such as age, gender, education and occupational status.	Age – Valid Gender - Invalid Education - Valid Profession - Valid
Hypothesis 1.2: There is a correlation between tax morale and individual factors such as age, gender, education and occupational status.	Age – Valid Gender – Invalid Education – Valid Profession - Valid
Hypothesis 1.3: There is a correlation between perception level of corruption and individual factors such as age, gender, education and occupational status.	Age – Valid Gender – Valid Education – Valid Profession - Valid
Hypothesis 1.4: There is a correlation between perception of the ability of bank employees to detect money laundering transactions and individual factors such as age, gender, education and occupational status.	Age – Invalid Gender – Valid Education – Valid Profession - Valid
Hypothesis 1.5: There is a correlation between the willingness to disclose information as part of the know-your-clients processes and individual factors such as age, gender, education and occupational status.	Age – Valid Gender – Valid Education – Valid Profession - Valid

Hypothesis 2.1: There is a relationship between the age and all economic and financial crime activities (tax compliance, tax morale, perception level of corruption, detecting money laundering, know-your-client procedures).	Tax compliance – Valid Tax morale – Valid Corruption – Valid Money laundering – Invalid KYC - Valid
Hypothesis 2.2: There is a relationship between the gender and all economic and financial crime activities (tax compliance, tax morale, perception level of corruption, detecting money laundering, know-your-client procedures).	Tax compliance – Valid Tax morale – Valid Corruption – Valid Money laundering – Invalid KYC - Valid
Hypothesis 2.3: There is a relationship between education and all economic and financial crime activities (tax compliance, tax morale, perception level of corruption, detecting money laundering, know-your-client procedures).	Tax compliance – Invalid Tax morale – Valid Corruption – Invalid Money laundering – Valid KYC - Valid
Hypothesis 2.4: There is a relationship between the professional status and all economic and financial crime activities (tax compliance, tax morale, perception level of corruption, detecting money laundering, know-your-client procedures).	Tax compliance – Invalid Tax morale – Valid Corruption – Valid Money laundering – Valid KYC - Valid

Source: Author's own composition.

In summary, the factors of age, education and occupation exert a great influence on economic and financial crime. Gender is not decisive in some cases, because they are too similar, and in some cases, there are small differences. Germany may be too emancipated for the gender factor to find serious differences in behaviour patterns. The results help to target the fight against economic and financial crime. For the German government, the fighting organizations, the bank employees and for many others it is valuable information to adapt their educational program and their control mechanisms and instruments to it.

All in all, it can be summarized that this study helps to establish an up-to-date profile of taxpayers in Germany, considering the level of tax morality, the perception of corruption and the reaction to possible acts of corruption. In addition, this study attempts to show how citizens are involved in the fight against money laundering and to what extent they are willing to

cooperate with financial institutions in this direction. Based on our findings, policymakers can better understand taxpayers' response to and perceptions of financial and economic crime. Based on the results obtained, targeted measures can be taken to combat, but also to promote. The findings suggest that education and related awareness of the importance and significance of combating financial and economic crime is a potentially key factor. Also, of great importance is age and, to some extent, occupational status. Also, in these areas it is of great effectiveness to take targeted campaigns and measures. Even though the level of compliance in Germany is quite high, better information of citizens about possible activities in the area of financial crime is needed.

Chapter 4. Comparative case study on economic and financial crime in Germany and Romania

 With the statistical and descriptive analysis of the Romanian and German survey data, it is now possible to answer the formulated hypotheses. When looking at economic and financial crime as a function of **age**, it is evident that a great deal of dependency can be seen from a tax perspective. A picture can be seen in both the German and Romanian values. Whereas in Romania, an almost constant trend can be observed. In Germany, there are differences between the younger and older generations. It is clear that the younger and older generations (16-25; 46-65 years) behave similarly, and the 26-45 year-olds follow a pattern of behaviour. In the case of corruption, on the other hand, there is almost the same trend in Romania as in Germany, with a difference of 2 score points. The trend is almost constant. And in the case of money laundering activities, it can be seen that the competence attribution of the bank employees from the 26 year old respondents onwards runs in parallel with a level difference of 0.25. The Germans attribute slightly higher competence to bank employees than the Romanians. The reverse is true for the 16-25 year olds. And Romanian respondents are more convinced of bank employees than Germans. In terms of willingness to cooperate, it is clear that all are very cooperative. In Romania, there is a small increase in the willingness to cooperate in relation to age. While in Germany a small decrease is evident.

When looking at economic and financial crime in relation to **gender**, it becomes clear that no gender-specific behaviour is evident in tax matters and in money laundering aspects. When it comes to the perception of corruption, on the other hand, women in both Germany and Romania perceive a somewhat higher level of corruption. It is evident here that Romania has a significantly higher perception of corruption than Germany.

When analysing economic and financial crime as a function of **education**, different patterns of behaviour are evident. At the beginning, the fiscal behaviour patterns are examined. What is striking here is that Romanian and German university graduates and PhD graduates behave similarly or even identically. Bachelor's and Master's students, on the other hand, behave in opposite ways in Romania and Germany. In Romania, tax compliance is less pronounced than in Germany. Tax morale is significantly better than in Germany. The perception of corruption follows a similar course across all educational classes in both Germany and Romania. Although the level differs by 2 score points, in both Romania and Germany the perception of corruption decreases as the level of education increases. And finally, the money laundering aspects are considered. Here, a very similar trend can be seen both in the willingness to cooperate and in the attribution of competence. As the level of education rises, there is a slight increase in the willingness to cooperate and a slight decrease in the competence attributed to bank employees.

And lastly, the professional relationship is examined in more detail for possible characteristic behavioural patterns. In the case of the tax topics, no uniform behaviour can be identified. In Romania, the values are rather constant and fluctuate in a level around 0.25 score points. Whereas in Germany, both the level between tax morality and tax compliance deviate strongly from each other and also allow large fluctuations within a category.

When looking at the individual **professions** on the basis of tax morale, only similar behaviour can be observed among white-collar workers. Tax compliance shows a similar trend with a difference of 0.5 score points. In the case of corruption, the assessment in Romania and Germany is similar, with the difference that they behave at different levels. Only the German managers deviate and have a significantly lower perception of corruption. And lastly, money laundering activities are considered. Here it can be seen that the country-specific behavioural patterns are almost the same both in terms of the willingness to cooperate and the attribution of competence among bank employees, with the difference at different levels. If the results of the two countries are compared with each other, it becomes clear that the employees and the managers show an identical course. The students and retirees, on the other hand, show the opposite trend. The Romanian students attribute greater competence to the bank employees and are less cooperative. The Romanian pensioners are less pleased about the competence of the bank employees and more cooperative with regard to the information on bank transactions.

Table 2. Summarized results of the hypothesis on study case comparison between Germany and Romania

Hypothesis	Results

Hypothesis 1.1: There is a dependency between tax compliance/tax morale and age in a comparison between Romania and Germany.	Valid
Hypothesis 1.2: There is a dependency between tax compliance/tax morale and gender in a comparison between Romania and Germany.	Invalid
Hypothesis 1.3: There is a dependency between tax compliance/tax morale and education in a comparison between Romania and Germany.	Valid
Hypothesis 1.4 There is a dependency between tax compliance/tax morale and professional relation in a comparison between Romania and Germany.	Partial valid
Hypothesis 2.1: There is a dependency between perception level of corruption and age in a comparison between Romania and Germany.	Valid
Hypothesis 2.2: There is a dependency between perception level of corruption and gender in a comparison between Romania and Germany.	Valid
Hypothesis 2.3: There is a dependency between perception level of corruption and education in a comparison between Romania and Germany.	Valid
Hypothesis 2.4: There is a dependency between perception level of corruption and professional relation in a comparison between Romania and Germany.	Valid
Hypothesis 3.1: There is a dependency between money laundering risk and age in a comparison between Romania and Germany.	Valid
Hypothesis 3.2: There is a dependency between money laundering risk and gender in a comparison between Romania and Germany.	Invalid
Hypothesis 3.3: There is a dependency between money laundering risk and education in a comparison between Romania and Germany.	Valid

Hypothesis 3.4: There is a dependency between money laundering risk and professional relation in a comparison between Romania and Germany.	Valid

Source: Author's own composition.

By comparing economic and financial crime across countries, it becomes clear that various factors have more or less influence on crime. It was found, for example, that education in particular, but also age, has a major influence on the pattern of behaviour. Occupation is not a strong influencing factor, nor is gender. These findings can contribute in the fight against economic and financial crime in order to provide more targeted measures for control, but also for support. From the results it was also taken that all persons were willing to contribute in the fight. It is possible that the involvement of citizens is one aspect of successful combating. Another major finding is the above-average level of tax compliance in Romania, which may provide a learning effect for Germany. By granting discounts for earlier payment, better tax compliance develops and promotes tax morale. It is also very important to expand education and to raise awareness of economic and financial crime. This could be a possible approach for Romania to reduce the corruption rate. So, all in all, the survey is a great contribution for the governments, the fighting organizations, but also for the interested public.

Chapter 5. Empirical study: The causality between shadow economy and economic and sustainable development

The findings of the research work worth highlighting the influence of the drivers of SE from multiple perspectives and for all world countries grouped in different clusters. The empirical study based on panel cointegration applies the FMOLS model to examine impacts over the long term of the economic, financial, social and cultural factors along with political determinants and digitalization over the period from 1995 to 2017, and for EU countries the analysis is considering updated data from 1995 to 2021.

Considering the results provided by the empirical research we can underline the significant negative influence of the economic and financial development on the SE proliferation. Another the main finding of the study is the bidirectional relationship between the SE and economic development on one side, and on the other side the bidirectional causality between SE and income inequality. Based on these findings the government policy can be long-term oriented

for reducing the inequalities and for increasing the welfare citizens in order to reduces the SE spread. Another important direction for combating the SE is a better political stability along with corruption control, especially in CEE countries and in countries with low income.

Regarding the influence of the major economic sectors on SE, our results are not homogeneous. Regarding the causality between SE and industry, a significant negative impact of industry is registered in all the clusters, except the high-income countries. This confirms our assumption according to which the industry can reduce the spread of informal activities. We presumed this negative impact of industry on underground activities because in this sector due to strict regulations, the informal work force is limited. According to our results, a bidirectional causality between SE and industry is confirmed for all world countries, including the cluster of European countries. Based on these results we can state the fact that the causality between SE and industry can be complex and multifaceted. It is relevant to underline also the impact of SE on industry. On the one hand, the SE can have a negative impact on the formal industry by creating unfair competition. When businesses or individuals engage in informal economic activities, they may be able to offer goods or services at lower prices than those in the formal sector due to lower operating costs and tax evasion. This can lead to the shift of formal businesses, as consumers may prefer to purchase cheaper goods or services from the shadow economy. Another important consequence of shadow economy is reducing the tax revenues that could be used to support the formal industry through infrastructure investment or subsidies. On the other hand, SE can also provide opportunities for the formal industry by creating a source of demand for its products or services, thus businesses in the formal industry can be stimulated by shadow economy because. Overall, the causality between SE and industry is complex and policymakers must carefully consider the influence of SE on the industry and develop strategies that promote the growth of the formal sector while also addressing the root causes of informal economic activities. Moreover, this sector can have an important contribution to limiting the shadow economy if the governments assure clear regulations and transparency.

Regarding services, the influence on SE is a positive one, similar with the impact of agriculture, thus agriculture and services are two important drivers of SE flourish. These two sectors provide many opportunities, which lends to itself to informal activities: such as personal services, domestic services, transportation, food delivery, small-scale farming, informal labor arrangements.

Regarding the trade sector, we have a significant direct impact on shadow economy because as more developed is the trade sector the better are regulations and the transparency in this field.

Thus, the participants in this sector has to accomplish stronger regulations in order to perform their international trading activities.

Education plays a key role in diminishing the SE and this fact is confirmed by our study because of the significant direct correlation for all the countries except for the countries from the Northern European countries. In the Northern European countries, because the level of SE is very low it is possible to have a previous negative impact of the education level, registered before our period of study.

The SE has different forms and is in a continuous evolution, in some cases very difficult to be predicted and anticipated. The main concern of the governments should be the adjustment of methods and means for combating the underground activities. On the one side, it could be a possible solution to implement different block chain technologies for reducing these activities. On the other hand, improving the education system and the general education of the citizens through different campaigns for information and for presenting the negative consequences of SE can be a considerable way for reducing the proliferation of SE. Increasing political stability along with corruption limitation can leads to an increase of citizens trust in the governments and based on this to a decline of informal activities. Reducing the poverty and income inequality is another efficient way to combat shadow activities not enough considered especially in low income countries.

The novelty of this research can be underlined in a few directions. First, testing the main determinants of SE (some of these determinants introduced for the first time in literature) considering a complex perspective and a multidimensional approach. Second contribution is the distinct analysis for European countries divided in clusters considering specific characteristics for each group. The third contribution is the validation of bidirectional causality between SE and their main determinants, for revealing the complex interdependencies and interactions that should be considering by the policymakers. Combating the shadow economy remains a real challenge for policy makers. They have to address the root causes of the incidence of corruption and the level of shadow economy, while also creating an environment that promotes transparency, accountability, and the rule of law. This can involve measures such as strengthening institutions, increasing transparency in government procurement, reducing barriers to entry in the formal economy, and improving tax compliance.

Conclusion, novelty and limits of the research thesis

Economic and financial crime remains a topic that is not sufficiently understood and clarified in the current context, which is characterized by a fulminant development in all areas. Due to the increasing white-collar crime, dataset publications, theories and researches, it can be considered that this dissertation is a great contribution to the research. The scientific work is especially interesting for the politicians, government's worldwide, public institutions and educational institutions. The application of three different concepts, the analysis of different countries and clusters but also the extensive literature review represents a great added value for both the academic and the practical public. After extensive literature review and the identification of various research gaps, the objective of the thesis could be synthesized. The aim of this thesis is to comprehensively analyse the complex interactions between economic and financial crime with their different manifestations and determinants from a global perspective, to find the perception of economic crime in Germany and compare the results with Romania. By forming clusters and analysing different industries, a new research approach is pursued in order to introduce more targeted countermeasures and to identify the target groups in the best possible way. In order to complete this approach, a survey will be conducted on the perception of economic crimes, which will provide a concrete profile of which target group is more vulnerable to the mentioned crimes.

The benefit of the present work is broadly diversified, both from the content interest and from the object of investigation. Target group is thus diverse and can be public, private but also corporate in nature. Examples of interest from the **country perspective** in the results obtained are:

- Governments worldwide to curb country specific economic crimes. Individual countries can travel around their influencing factors and create better packages of measures.

- Country groupings such as the European Union, the European Economic Area, the European Free Trade Association, international meetings of countries, etc. The data can be useful to develop common approaches and joint actions to design a unified prevention and action package. Also, it is of great importance to obtain synergies from other countries and to learn from mistakes or successes of other countries.

- Educational institutions such as universities, but also high and secondary high schools. Increasing importance of education and raising awareness of the issues.

- Financial institutions and statistics to record the research interest and rank the importance of the topic.

- For the treasury, the results are of interest, which can help in the selection of certain groups of people to be increasingly examined in terms of tax evasion, tax morality, corruption.

- Legislative power of a country it is of interest which possible new laws can be enacted to introduce measures to minimize economic crimes preventively.

From a **business perspective** in the private sector, the results also represent valuable insights:

- It is of great importance for companies to know which group of people or even which industry is prone to engage in white-collar crime. As a result, risk analyses can be prepared and countermeasures can be initiated through training and education. Likewise, through the technical upgrading of programs and internal control mechanisms, there is thus a chance to identify offenses as quickly as possible.

In addition, the **academic public** is also interested in the conceptualization and techniques of this elaboration.

- The interest is mainly aroused in universities and in research institutions, which can learn from the techniques and also apply them.

- The results also represent a special contribution to behavioural psychology.

The dissertation thus paves the way for a more intensive cooperation between countries, supports national countries to fight their economic crimes, tries to help companies and universities to prioritize the issues properly and contributes to the statistics.

Combating economic and financial crime remains a real challenge for policymakers. They must address the root causes of corruption, money laundering, tax evasion, and the shadow economy while creating an environment that promotes transparency, accountability, and the rule of law. This can include measures such as strengthening institutions, increasing transparency in government procurement, reducing barriers to entry into the formal economy, and improving tax honesty. The **main concern of governments** should be the *adaptation of methods and means* to combat illegal activities. On the one hand, the use of various blockchain technologies and artificial intelligence to curb these activities could be a possible solution. It is clear that

financial development through multiple channels will lead to a decrease in the shadow economy. One channel is *increasing financial* inclusion, which leads to greater access to financial services for a larger population. In this way, people do not tend to engage in shadow economic activities because they have easy access to finance from financial institutions. Another important aspect is that financial development can lead to better transparency and accountability in the financial sector. This can make it more difficult for individuals to engage in shadow economic activities, as their transactions are more likely to be monitored and reported to the authorities. Promoting *electronic payment systems* may reduce the costs and risks associated with cash transactions, as they are more likely to be used for shadow economic activities. Our econometric analysis confirms the significant contribution of cash to the flourishing of the shadow economy. Moreover, *strict anti-money laundering regulations* can be another effective tool to curb the shadow economy. Overall, policymakers should pay close attention to the development of the financial sector, as it plays an essential role in reducing the size of the shadow economy by creating more incentives for individuals to engage in legitimate economic activities.

On the other hand, developing the *education system* and improving the education of individuals through various information campaigns is a necessity, and highlighting the negative consequences of economic and financial crime can be an important way to reduce the prevalence of undeclared work. *Increasing political stability* and curbing corruption can lead to an increase in citizens' trust in governments, which in turn can lead to a decrease in informal activities. *Reducing poverty and income inequality* is another effective means of addressing the informal economy that has not been adequately addressed, particularly in low-income countries.

The **novelty** of this study can be emphasized in several directions. First, it examines the main determinants of the informal economy (some of these determinants have been presented for the *first time* in the literature), considering a complex perspective and a multidimensional approach. The second contribution consists in the separate analysis of European countries divided into *clusters*, considering specific characteristics for each group. The third contribution is the *validation of the bidirectional relationship* between the shadow economy and the main influencing factors, in order to show the complex interdependencies and interactions that should be considered by policy makers. Last but not least, the *survey* of a new study in Germany and the accompanying *comparison* with Romanian values commission a new concept to draw the picture of the taxpayer considering different variables such as age, gender, education and professional status. I am not aware of such a study in Germany so far and it represents a great added value. It provides insights into willingness to participate, key factors and, above all, the

identification of potential in other countries. In addition, personal profiles are developed, which facilitate identification and prevention of the crime.

However, the dissertation also has **limitations**. First, the study periods do not represent the most recent data. In constructing the empirical model, data selection was based on the most recent data at the time from Medina and Schneider (2019), which ranged from 2005 to 2017. In addition, a reissued dataset from Medina and Schneider (2022) was published in the fall of 2022 with an extended data period through 2020. On the one hand, the data were not further included because the model was final in design; on the other hand, the final model was not extended to avoid bias in the results due to the Covid-19 pandemic. Examining factors affecting the shadow economy while considering the first Covid-19 cases sickened in 2019 biases possible influencing factors. Secondly, the surveys are snapshots conducted within approximately 20 days. This means that although the sample size is very informative, it was conducted in a very limited time period.

It would be advisable, on the one hand, to take a closer look at the data of the empirical model with the most recent data, considering the special effect (Covi-19), and, on the other hand, to conduct the German and Romanian surveys, e.g., annually, in order to create better comparability and development.

Possibly, the scientific community should also focus more on future circumstances and forecasts, which effects political, economic or other circumstances have on economic and financial crime, in order to design preventive measures and thus be faster in their implementation. It becomes clear that research in the areas remains imperative.