VISTA
ANALYSE

Money laundering: Who, When and How?

An empirical analysis of the associations between the probability of committing money laundering and the sociodemographic and labour force characteristics of individuals.

Sunniva Alice Heckel

Dokumentdetaljer

Om Vista Analyse

Vista Analyse AS er et samfunnsfaglig analyseselskap med hovedvekt på økonomisk utredning, evaluering, rådgivning og forskning. Vi utfører oppdrag med høy faglig kvalitet, uavhengighet og integritet. Våre sentrale temaområder er klima, energi, samferdsel, næringsutvikling, byutvikling og velferd. Vista Analyse er vinner av Evalueringsprisen 2018.

Våre medarbeidere har meget høy akademisk kompetanse og bred erfaring innenfor konsulentvirksomhet. Ved behov benytter vi et velutviklet nettverk med selskaper og ressurspersoner nasjonalt og internasjonalt. Selskapet er i sin helhet eiet av medarbeiderne.

UNIVERSITY OF OSLO

Master thesis

Money laundering: Who, When and How?

An empirical analysis of the associations between the probability of committing money laundering and the sociodemographic and labour force characteristics of individuals.

Sunniva Alice Heckel

Master's in Economics
30 credits

Department of Economics
Faculty of Social Sciences

May, 2023

ACKNOWLEDGEMENT

ABSTRACT

This thesis aims at investigating the associations between sociodemographic and labour market characteristics of individuals and their probability to be charged with money laundering or receiving proceeds from crime. The results are estimated with a logit binary choice model and are based on a panel dataset of reported charges in Norway from 2000 to 2019 from Statistics Norway and the Norwegian Police Directorate.

The estimations indicate that the chances of being charged with any offence, including money laundering or receiving proceeds from crime, increase if a person is a male living in a city with low after-tax income and education. A distinction is that the probability of being charged with money laundering is highest if an individual is not an immigrant and relatively older compared to those charged with any offence for which the probability is highest for relatively younger immigrants.

Regarding the labour market characteristics, compared to individuals who are outside of the labour force, the chances of being charged with any offence, including money laundering, are lower when being employed in the state, municipal or private sector in any industry. However, when being unemployed, the probability of being charged with money laundering decreases while it increases for an offence in general, compared to those outside the labour force.

When being self-employed in the construction, manufacturing, hotel and restaurant, and financial industries, the probability of being charged with any offence increases, while the chances of being charged with money laundering decrease for the three first-mentioned industries and does not change regarding the financial industry. Furthermore, the probability of being charged with any offence, including money laundering, decreases when self-employed in services or other industries. These findings are however based on reported criminality and might therefore be biased by non-reported statistics.

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Money laundering is the fuel that drives organized crime and the illegal economy. Developing knowledge of the profile of money launderers is of great relevance for both policymakers and financial actors working against money laundering. The Norwegian government has in recent years increased its focus on preventing money laundering by developing the Anti-Money Laundering Act further and increasing financial actors' responsibility to prevent money laundering. (*Endringer i regler på hvitvaskingsområdet*, 2021) The process of generating money issued from criminal activity and securing it has huge consequences on society, the economy, and the political system. It suppresses economic growth by weakening crime control and distorting market mechanisms, besides that money laundering also threatens democratic transition and consolidation (Jojarth, 2013).

To develop even more appropriate laws and make the financial actors' work more efficient, it is crucial to have information on the profile of a money launderer. In particular, developing knowledge of the associated criminal activities that trigger the process of money laundering is important for lawmakers, as it indicates the types of crime they should focus on when the aim is to reduce money laundering. Assessing the level of risk associated with certain individuals or firms might also help the Financial Intelligence Unit (FIU) to prioritise which reports on suspicious activities received from financial actors they should analyse first.

The thesis aims to investigate the sociodemographic and labour market characteristics that are associated with a person's probability to launder money and receive proceeds from crime in Norway. The sociodemographic factors include individuals' gender, age, immigration status, place of residence and education level, while the labour market characteristics comprise information on whether one is unemployed, employed, or self-employed, whether one is working in the private, municipal or state sector, and in which industry one is working in. The analysis is relying on data from the Norwegian Police Directorate on suspected offenders from 2000 to 2019, which is linked to sociodemographic data from Statistics Norway.

In order to have a broader understanding of the extent of criminality in Norway and the characteristics of offenders in general, a first analysis will study how individuals' characteristics are associated with the probability of being suspected of main categories of offences, such as drug, economic, violent and other offences. For this purpose, a logit binary choice model will estimate the probability of being a suspected criminal, by the type of crime. Next, the same

analysis will be performed on more specifically money laundering and receiving profits from offences as the variable of interest. The probability of being charged with money laundering will further be decomposed depending on possible co-offences committed by the charged individuals, including no other co-offences committed as one of the categories.

The first section introduces the institutional background of the thesis, followed by a section presenting the data and the methodology. Thereafter, the results of the study will be presented, to finally end with some concluding remarks.

2. INSTITUTIONAL BACKGROUND

2.1 Definition, implication and process of money laundering and receiving proceeds from crime

Understanding the mechanism of money laundering is crucial when analysing the characteristics of money launderers. This practice can be defined as the process by which individuals try to transform money arising from illegal sources into legitimate funds. Criminals create profits from any illegal activity, such as drug trafficking, undeclared work or fraud, and launder these profits to make those appear as originating from legal sources. The aim is to secure the proceeds originating from an offence. Once the money is laundered, criminals can invest these illicit funds into legitimate projects. (Singh & Best, 2019, 1) One can launder money on behalf of others or for oneself to secure own earnings originating from an offence. (Iversen, 2021)

The other main offence of interest occurs when a person receives parts of the proceeds of a criminal act. As for money laundering, the profits can be obtained for the person himself or other parts and they can be objects or money. (Riksadvokaten, 2018) Some examples include obtaining profits generated from stolen goods, drug sales, fraud, corruption, tax evasion, embezzlement, etc. This act occurs often before the process of money laundering. These two offences are strongly linked to each other. The main difference is that money laundering aims to conserve and protect the proceeds, while the other offence's purpose is to acquire the proceeds, but in both cases, the profits are initially generated by a criminal act.

The choice of analysing these two offences together is due to their strong connexion. Individuals are often charged with money laundering and receiving profits from crime at the same time. A recent example is the case of a 31-year-old man in Norway who has been judged

for money laundering and receiving profits from an offence representing a value of 7,3 million NOK. The funds originated in support schemes introduced during the COVID-19 pandemic. (*Dømt Til Fengsel for Heleri Og Hvitvasking*, 2022) Another evidence of the strong similarities between the two offences is that in the older version of the Norwegian Penal Code 1902, money laundering and receiving proceeds from crime were from 1993 to 2006 treated together under one common section of the code. (Straffeloven, 1902) The reason for not including any other offences that might be related to money laundering, such as fraud, tax evasion or corruption, is that the variable of interest would in this case be too broad since the offender profile might vary among these different offences. Moreover, it would be difficult to set a limit on which offence should be included or not, and to truly know which offences are associated with money laundering. Therefore, including the offence of receiving proceeds from crime seems to be a reasonable choice for the aim of the thesis, considering the generality of this offence.

Concerning the benefits of these offences, laundering money or receiving funds from crime is valuable for those who commit an offence because it allows them to receive a reward for this offence. If an offender cannot receive economic compensation for committing an offence when this is the aim, there are no incentives for the person to commit a crime. The process of money laundering is essential for the existence of profit-motivated offences as it allows criminals to receive economic rewards from the offence and to conserve these illicit funds. When the compensation is a high amount of money, it is even more important to be able to protect the funds to keep them without being caught because the gains of succeeding are very high. (*Heleri*, 2020)

However, society is paying the price for the occurrence of these offences. Money laundering is affecting the economy negatively as it moderates economic growth by weakening the control of crime. Laundering illicit funds is an activity that represents an important part of the economy, but as it is illegal it is not part of the economic statistics. The International Monetary Fund has estimated that the total level of money laundering represents between 2 and 5 % of the world's annual gross domestic product. (Singh & Best, 2019) Many criminals remain undetected because they launder money. Since some resources are used to generate illegal profits instead of being allocated to legal activities, society is losing from it as it implies that the state is losing some revenues which might have enabled providing more goods, services and aid to the population. Other consequences are that some jobs will be lost because companies move to safer places and some investments are stopped.

Economic growth is also suppressed because money laundering distorts market mechanisms. Instead of investing in activities yielding the highest profits which makes the market effective, criminals invest in businesses in which the probability of being caught is lowest. It also affects the competition within a sector as it allows one to for instance evade tax and offer a lower price than the competitor who is operating legally and paying taxes. Money laundering has also some political impacts on society. An example is that a high level of crime might threaten the legitimacy of the government since this one is failing in providing enough security among the population. (Jojarth, 2013)

Regarding the methods used to launder illicit earnings, there are many of them but according to Singh et al. (2019), these methods have in common that they are composed of three steps. During the first stage, criminals are depositing illegal funds into the financial system. This can be done in several ways, but one approach is to divide a large amount of cash by depositing a smaller amount of cash directly in a bank account. Another way is to use cash to buy products that banks are offering such as credit cards, checks or money orders, and deposit the money in other accounts. The second stage is to layer the money and distance the money from its sources by making a certain number of transactions across different accounts or by selling and buying different bank products. The last stage is to invest the money into legitimate projects. This is often done by investing in for instance luxury goods, real estate or any kind of business. (Singh & Best, 2019)

Criminals' level of organization might also affect which method is used to launder money. Organized criminals might for example not apply the same methods as low-level criminals. Some money laundering techniques are moreover easier to carry out than others. One might for instance deposit the proceeds in the bank account of friends or family to thereafter withdraw the money in cash. The proceeds might also be used to buy expensive consumer goods, the money can be transferred abroad or smuggled abroad in cash. Other methods are more sophisticated. Proceeds might be incorporated into a business by for instance generating false sales or by using the proceeds to cover the costs of the business without recording these costs in the accounts of the firm. These funds will thereafter be withdrawn from the business and will appear as being legitimate in the economy. (Iversen, 2021)

The most complicated money laundering methods are often carried out by professionals. The money is often transferred through different institutions, persons or businesses, which makes it difficult to map the path of the transfer of money and identify the origin of the proceeds. This can for instance be done by hiding the ownership of the proceeds by using tax haven companies.

Selling and buying cryptocurrency is also a new method which allows the transfer of money to not be traceable, as traditional bank transfers would be. It makes it more difficult to know the origin of the funds. (Iversen, 2021) The different methods are also changing with time and depending on technical advances. The development of cryptocurrency and the decreasing use of cash in Norway might also influence the way criminals are laundering money, as well as the legislative context might do.

2.2 The legislative context

Money laundering and receiving proceeds from crime are offences that are regulated by the Norwegian Penal Code. Money laundering is moreover regulated by the Anti-Money Laundering Act introduced in 2003. These laws are necessary to avoid suffering from the earlier-mentioned economic and political consequences of this criminality.

2.2.1 The Penal Code

The Penal Code 1902 of Norway had initially separate provisions for receiving proceeds from crime (§ 317) and for money laundering which was at that time called "subsequent assistance" ("etterfølgende bistand" in Norwegian, § 320) (Straffeloven, 1902). In 1993, these two offences were unified into one common provision §317, until it was separated again when the new Penal Code 2005 was introduced in 2006, in which provisions §§ 332 – 226 concern receiving proceeds from crime and §§ 337 – 341 are related to money laundering. (The Penal Code, 2005)

According to the Penal Code 2005 § 337 a, one shall be punished for money laundering if this person assists "in safeguarding the proceeds of a criminal act for another person by, for example, collecting, storing, concealing, transporting, sending, transferring, converting, disposing of, pawning or investing them" (The Penal Code, 2005). This statement is composed of some examples of how one can help make sure that the profits from a criminal act will remain in the hands of the criminal, but the enforcement applies to any other methods that are not mentioned. The offence that generated proceeds is considered as being the primary offence. Moreover, the enforcement applies regardless of whether the act of money laundering occurred before, after or at the same time as the primary offence.

The Penal Code 2005 § 337 b specifies the case of "self-washing" which was introduced in 2006 and claims that one shall be punished in the case of "converting or transferring assets or by other means conceals or obscures where the proceeds of a criminal act he/she has personally committed are located or originate from, who controls them, their movements or rights

associated with them" (The Penal Code, 2005). The main difference from the first part of § 337 is that in this situation, the person laundering money has committed the offence which led to profits. However, the enforcement does not require that the offender ends up with self-laundered earnings. Moreover, the offender of the primary offence shall be punished for self-washing if this one launders his profits, but also if someone else launders this money for him. (Riksadvokaten, 2018)

Furthermore, according to the Penal Code 2005 §332, one shall be punished if this person receives a part of the proceeds of a criminal act. It applies if the proceeds are received for the person himself and if this person procured the proceeds for another subject. However, if this other subject is the offender of the primary offence, the offence is instead punished as money laundering. An example of this situation is that person A sells drugs, but person B acquires the profits from the sale which are thus transferred to person B. In this case, person B will be sanctioned for money laundering.

A requirement in §332 is that the proceeds must have come into the offender's possession or transferred to a bank account controlled by the offender, but the offender does not need to own, use or pledge the profits in the current version of the law. Moreover, the provision applies if obtaining proceeds occurs at the same time as the primary offence, and if the proceeds are partly obtained before the primary offence by for instance being paid in advance.

Common for provisions §§ 332 and 227 is that profits are not exclusively economic, as the penal code also includes objects, claims or services in their definition of proceeds. Moreover, one shall be punished for money laundering or receiving proceeds from a crime even though there is no one to blame for the primary offence.

The penalty for individuals is the same for both offences and varies with the gravity of the offence. The penalty for the violation of §§ 332 and 337 is up to 2 years of imprisonment. However, if these offences are related to severe robbery, severe human trafficking or severe drug offence, the penalty can be up to 15 years of imprisonment. If receiving proceeds from crime and money laundering are considered as being severe offences, the penalty can be up to 6 years of imprisonment, cf. §§ 333 and 338. Whether these offences are considered severe depends on which offence the proceeds originate from, whether the value of the proceeds is high and whether the offender has laundered money or received proceeds from crime regularly. If the profits originate from narcotic drugs offence, one should put weight on the type of drugs and the quantity of substance related to the profits.

Minor offences in §§ 334 and 339 are penalised with imprisonment of up to 2 years. Offences are considered minor when the offence from which the profits originate is less severe, the value of the profits is lower, and the circumstances of the act suggest a lower degree of guilt. Moreover, negligent offences are according to §§ 335 and 340 punished with a fine or imprisonment of a period which does not exceed two years. Finally, the case in which two persons or more agree on committing money laundering or receiving proceeds from crime is penalised with imprisonment of up to 2 years.

In some cases, it is challenging to assess whether the offence is money laundering or receiving proceeds from a crime. According to the guidelines of the Penal Code, one shall be punished for receiving proceeds from an offence and not for money laundering, if there is no clear proof that the offender is protecting the proceeds for someone else. (Riksadvokaten, 2018)

Individuals and enterprises can both be penalized for money laundering and receiving proceeds from crime, cf. § 27 claiming that "when a penal provision is violated by a person who has acted on behalf of an enterprise, the enterprise is liable to punishment. This applies even if no single person meets the culpability or the accountability requirement", cf. § 20 (The Penal Code, 2005). It implies that a firm can be reprimanded when someone launders money or obtains proceeds from a crime on behalf of the firm. An enterprise is defined as being a "company, co-operative society, association or other organisation, sole proprietorship, foundation, estate or public body" in § 27 (The Penal Code, 2005).

The penalty for enterprises takes the form of a fine, but enterprises can also lose their right to operate and might also be subject to confiscation. The Court can, however, evaluate whether an enterprise will be penalized based on different factors including, for example, the severity of the offence, the preventive effect of the penalty or the financial capacity of the enterprise, cf. § 28 a, b and f. In the case of money laundering, the Court might take into consideration the firm's compliance system or preventive measures.

2.2.1 Anti-Money Laundering Act

In the process of money laundering, bank systems and other legitimate business activities are often misused, and this is why these institutions are regulated. The purpose of the Anti-Money Laundering Act is to "prevent and detect money laundering and terrorist financing" according to the current version of the Act § 1 a (The Anti-Money Laundering Act, 2018). Terrorist financing includes "financing of terrorist acts, terrorist organisations or individual terrorists"

(*Veileder til hvitvaskingsloven*, 2022). The Act shall also "protect the financial and economic system, as well as society as a whole, by preventing and detecting the use or attempted use of obliged entities for purposes of money laundering or terrorist financing", cf. § 1 b (The Anti-Money Laundering Act, 2018). After the introduction of the Act, a new version has been developed in 2009 and 2018.

All the entities that are subject to the Act are required to prevent and detect activity that is suspicious and related to profits originating from an offence and activity related to terrorist financing, according to the Financial Supervisory Authority's guidance on the Act. If such activities were to be detected, they must be reported to the Norwegian Financial Intelligence Unit (FIU). The Act was founded based on the recommendations of the Financial Action Task Force (FATF) which is an intergovernmental organisation which works with preventing money laundering and the European Union's Fourth Money Laundering Directive.

The Act applies to financial institutions that might be used during the process of money laundering, including "a. banks; b. credit institutions; c. financing institutions; d. the central bank of Norway; e. e-money institutions; f. undertakings engaged in foreign exchange activities; g. payment service undertakings and others entitled to provide payment services; h. investment firms; i. management companies for securities funds; j. insurance undertakings; k. undertakings engaged in insurance mediation that is not reinsurance broking; l. central securities depositories, m. undertakings engaged in deposit activities; n. managers of alternative investment funds; o. loan mediation undertakings", cf. § 4 (The Anti-Money Laundering Act, 2018).

The Act defines how reporting firms shall work when trying to detect money laundering. Some of the main elements are the following. Reporting entities shall establish needed measures based on an assessment of the risk of money laundering and terrorist financing related to their clients or projects, § 6. They must implement internal control to ensure compliance with the requirements of the Act, cf. § 35. Moreover, concerned entities are obliged to implement customer due diligence measures to know their customer and how their products are used when a new customer relationship is established, in case of any suspicion of money laundering or terrorist financing, cf. § 10. If the reporting institutions discover any element indicating that the activity is related to money laundering or terror financing, the entity must investigate it, cf. § 25, and it must be reported to FIU if this suspicion still exists and cannot be disproved after further investigations, cf. § 26.

The reporting corporations shall be sanctioned with a fine in case of violation of §§ 9, 12, 13, 17, 18, 24, 25, 26, 28, 30 or 42 of the Act, cf. § 51. If a company is penalized based on this provision, members of the board, directors of the management or any person in a similar position in this firm can also be penalized and must pay a fine, if they made any actions that are related to this breach in an intentional way or with high negligence, cf. § 51 a. Individuals that are obligated to report can also be penalized on the same basis as above, cf. § 51 b. The penalty does also apply to board members, managers, employees and other individuals who act on behalf of the corporation, who violate § 26 related to the obligation of reporting and informing the FUI and § 28 related to the prohibition of revealing investigations, reports and inquiries, cf. § 51 c. In case of aggravating circumstances, all the persons mentioned above can be sent to prison for a maximum of one year, cf. 51 a, b and c.

2.3 Related literature

Before analysing what has been done empirically, it is important to have an overview of existing theories to understand the reason why individuals commit crimes and launder money. According to Gilmour (2015), the theory of rational choice is the most appropriate theory to explain why individuals are laundering money. It states that offenders commit a crime in cases where the benefits of it are relatively higher than the cost. According to this theory focusing on the individual-level, offenders have preferences towards safe crimes that are easier to commit and that give any form of recompense, while considering how much risk and effort this act implies. Offenders are thus making rational decisions and are subject to cost-benefit analysis when committing a crime. (Gilmour, 2016, p. 3)

On the opposite, traditional criminology is focusing on the social and working environment as being the reason for committing crimes instead of the individual characteristics of offenders. According to the routine activity theory, a person will commit a crime if three conditions are fulfilled at the same time and in the same place. Firstly, an offender must be willing and able to commit a crime. Secondly, there must be a "suitable target", implying that it is easy for the offender to damage the victim which might be a person, an object or a system. In the case of money laundering, this target might be the bank system or the use of cash which makes it possible to launder money. Thirdly, there must be no "suitable guardian" which refers to a person preventing another one to commit a crime actively or just by its presence at the right time and place. (Cohen & Felson, 1979, p. 589) In the thesis's context, a suitable guardian might

be the existence of an effective and well-functioning legal and financial system including agents such as the police or laws, who prevent individuals to launder money.

On a more general basis, two other theories that are opposed to each other have been developed regarding the profile of white-collar criminals. White-collar crime refers to a non-violent offence with the aim of obtaining money, property or any advantages. (Gottschalk, 2018) On the one hand, Sutherland affirms that the sociodemographic profile of white-collar criminals is homogenous and specific to them. A criminal of this sort is a typical "entrepreneur with high education and high or regular income". On the other hand, the revisionists state that the profile of white-collar offenders is rather heterogenous, implying that any offender could commit this sort of offence. (Alalehto & Larsson, 2012)

Regarding the empirical research in this field, there are many analyses made on the profile of criminals in general. The findings vary depending on which category of crime is concerned. A study found for instance that "sex, age, employment, marital status, education and occupation increased the probability of being charged with robbery, burglary, motor vehicle theft, or violent crime". The study is based on reported offences in the state of Hawaii. (Hawaii Criminal Justice Information Data Center, 1982) Moreover, there is a common agreement in the empirical literature that there is a strong relationship between age and criminal activity. Crime tends to increase and peak in the early twenties to start declining with age after the peak. (Hansen, 2003)

It is interesting to compare the socio-demographic characteristics of conventional crime offenders and white-collar offenders. Conventional crime includes murder, rape, robbery, burglary, aggravated assault, and auto theft. A research based on data from the Federal courts in the United States of America found that conventional crime offenders are often relatively very young compared to white-collar crime offenders for who the probability of committing a crime is the highest when they are middle-aged or older. (Benson & Kerley, 2001) Moreover, white-collar offenders are more likely to be employed and to have a higher education level compared to conventional crime offenders. (Weisburd et al., 2002) However, other studies are challenging these findings by stating that white-collar crime offenders are rather belonging to the middle or lower class and are entrepreneurs or employees. (Daly & Tonry, 1997)

The empirical literature on the profile of money launderers is however more limited. Most of these papers are based on the reports on suspicious financial transactions sent from financial institutions that are obligated to report to the FIU, instead of being based on the Police's data on conviction. The paper from Ningtyas, Ismail and Wahyudi (2022) found for example that

"the social demographic factors affecting the money laundering risk committed by individuals are gender, age, marital status, occupation, and the history of financial service usage, in which occupation has the highest effect " in Indonesia. (Ningtyas et al., 2022) Another research based on the data of the Financial Action Task Force of Latin America states that money launderers are mainly foreign males. (Buele et al., 2019)

The limitation of the empirical research is that there is no data on criminality representing a correct picture of reality. Research is mostly based on reported criminality or surveys, but data on true criminality are missing. This is important to have in mind when reading this thesis as it is based on reported criminality. Moreover, some profiles of offenders might be better at not being caught, which can bias the results. However, making research on the subject can still give some relevant indications and information on it.

3. DATA AND METHODOLOGY

3.1 Data Sources

The data from the Norwegian Police Directorate includes information on individuals who have been charged with any offence from 2000 to 2019 in Norway. These data are further linked to administrative population-level sociodemographic data from Statistics Norway for the same period. This data is composed of the gender, age, labour market status, after-tax income and municipality number of the domicile of individuals. It also includes the number of years one has spent on education and a variable which categorises individuals according to their immigration background. Moreover, for employed and self-employed workers, it includes the coding units for industrial classification following the European Community's standard called NACE for which each code corresponds to a specific industry. A variable corresponding to the standard for institutional sector grouping is also included concerning employed and self-employed workers.

In the datasets of criminality and sociodemographic characteristics, each individual has an anonymized personal number which is common for both datasets. The two datasets have been merged based on this personal number, implying that each observation includes information on its criminal background and sociodemographic characteristics for each year. The linked dataset is restricted to Norwegian residents who are between 15 and 75 years old each year and is composed of 72 995 982 observations in total.

The dataset on sociodemographic characteristics contains first of all the gender of each observation. A dummy variable has been generated taking the value of 1 if the observation is a male and 0 if the person is a female. Secondly, the dataset is composed of the age of the observations and is restricted to individuals who are between 15 and 75 years old. The reason for selecting this proportion of the population is that one cannot be penalised by the police or the court if this person undertakes a criminal act and is under the age of 15, cf. Penal Code 2005 § 20. Moreover, most of the individuals older than 75 are not working, which might bias the analyses when studying the working sector or the income of individuals. In addition, a very small proportion of this population is charged with any offence.

Some changes have been made to the independent variables to fit the model better and increase its predictive power. The age variable has been scaled to 10 to facilitate the interpretation of the estimated regression coefficients. Moreover, a squared version of this variable has been added to the regression to capture the non-linear relationship between these variables and the dependent variable.

Furthermore, the dataset is composed of a dummy variable which takes the value of 1 if the person is considered as being an immigrant, and 0 if it is not the case. Immigration is defined as including all inhabitants who have emigrated from another country to Norway or those who are born in Norway but have immigrant parents. This categorization does not include persons born in Norway having one parent born abroad or persons born abroad having one or two Norwegian parents.

The identification number of municipalities of the domicile of observations is also part of the dataset. A binary variable indicating whether a person lives in a city or not has been created based on the size of their respective municipality. A municipality has been defined as a city if it comprises more than 5 000 inhabitants. The variable is based on the number of inhabitants and the municipal composition in 2019. Changes in the municipal structure in Norway in 2017 and 2018 have been taken into account when generating the dummy variable.

The level of education is also included in the dataset as a variable indicating the number of years one has studied, starting from primary school. This variable takes the value of 0 if a person has no education level. Expect for 0, the lowest level of education observed is of 6 years and the highest is of 23 years. 3 999 816 observations are missing data on education, and this is mainly due to missing education data for a subset of immigrants. To keep these observations to not create any bias in the analysis results and control for it, a new indicator has been created in

the dataset which takes the value of 0 if the data on education is missing and of 1 if not. The missing data is replaced by "-1" in the original education variable.

Next, the dataset contains the after-tax income of individuals, which corresponds to the total income after deducting the applicable taxes and negative transfers, such as pension contributions and child support paid under the public scheme. The after-tax income has been adjusted for inflation based on the Consumer Price Index of 2019. This variable has been scaled to 100 000 to facilitate the interpretation of the estimated regression coefficients. This method has been chosen instead of taking the logarithm of income because this variable includes zeros and negative values. A squared version of the variable of after-tax income has also been added to the regression to capture the non-linear relationship between these variables and the dependent variable. Missing values on after-tax income, representing 674 233 observations, are set equal to 0. Since the proportion of missing data on after-tax income is not very high relative to missing data on for instance education, it is not considered necessary to control for that.

The dataset also contains Statistics Norway's categorization of labour market status. This code list is composed of "0" if a person is out of the labour force, "1" if employed in a firm, "2" if self-employed", "3" if unemployed and "4" if participating in active labour market programs. Individuals out of the labour force represent on average 31 % of the sample, while employed observations represent 63.2 % and self-employed individuals represent 4 % of the sample. Unemployed persons represent 1.4 % and individuals participating in active labour market programs represent 0.1 % of the sample.

In the dataset, three different dummy variables have been created according to observations' labour market status based on the above list. One variable corresponds to individuals who are employed in a firm, the second applies to observations who are self-employed and the third concerns persons who are unemployed or participating in active labour market programs. The basis group corresponds to the remaining group of persons who are out of the labour market. The three last-mentioned variables take the value of 1 if an individual belongs to the mentioned labour market groups and it takes the value of 0 if an observation belongs to the basis group which has been generated to avoid the dummy variable trap.

Moreover, the dataset is describing which sector individuals are working in if they are active. Sectors are initially defined based on the sectoral grouping of Statistics Norway. Observations from 2000 to 2012 are based on version 1987 of this grouping and those from 2013 to 2019 are based on version 2012. The changes in versions over time have been taken into account when

generating variables. In the dataset, three different dummy variables have been defined depending on whether an active person works in the private, municipal, or state sector.

Next, the dataset contains the NACE codes of the firms in which individuals are working, which has led to the formation of 6 main industries. The first one includes businesses related to electricity, gas, steam and water supply, sewerage and waste management, and construction activities. The second industry corresponds to accommodation and food service activities. The third one belongs to activities related to producing new products from natural resources, also named manufacturing, wholesale and retail trade, in addition to the repair of motor vehicles, transport and storage.

The fourth industry is related to real estate, financial and insurance activities. The fifth one is associated with all sorts of other services that do not belong to any already mentioned categories, such as scientific and technical services which require higher education, health and social work activities, education, public administration, defence, and social security schemes under the responsibility of the government. This category also includes business services, cultural and entertainment activities, information and communication, paid work in private households and other services. Finally, the last category is composed of the remaining industries such as agriculture, forestry, fisheries, mining, quarrying of oil and gas, and international organisations.

Some changes have been made to the labour market variables for the purpose of the model estimations. The unemployment variable is included per se in the regression, but in the case of a person being employed, two dummy variables have been created depending on if working in the state or municipal sector. According to our data, money laundering and proceeds from crime are mostly committed by individuals working in the private sector. For that reason, being employed in the private sector has been linked to the different industrial categories, generating a dummy variable for each industrial grouping. Such dummy variables have also been generated for self-employed persons in the private sector. This is only performed for individuals working in the private sector as most self-employed individuals belong to the private sector based on the information in the dataset.

Next, the data on criminality include the registration date of the offence, the start and the end date of the offence, which category of criminality the offence belongs to, and a more specific description of the nature of the offence. Based on this information, dummy variables have been

generated taking the value of 1 if an observation has been charged with a given offence in Norway at least once during a year.

The criminality data is based on whether one has been charged with an offence, not if this person has truly been judged and condemned for it. Although a charge does not necessarily imply that a person will be judged for the offence this one is charged with, it is still relevant to use data on charges as it indicates the extent of criminality. Moreover, some cases are suspended due to insufficient resources and evidence, or because a case is of minor gravity relative to other cases. There is a lack of data on criminality as there is a lot of unreported criminality, which is why it might be beneficial to use data on charges instead of judgement as it enables collecting more observations and covering a larger extent of criminality.

The different categories of offences of Statistics Norway have been regrouped into 4 main categories. One category includes drug offences, referring to a person who "unlawfully produces, imports, exports, acquires, stores sends or supplies a substance" that is considered a narcotic drug, according to the Penal Code 2005 § 231 (The Penal Code, 2005). The next grouping is including all economic, profit-motivated and working environment offences. To name some examples, this category includes offences related to money laundering, fraud, theft, corruption, tax fraud, and data breach of financial infidelity. Another category is composed of all violence-related offences, such as murder, rape, physical assault, torture, human trafficking or purchase of sexual services. The last category includes all other sorts of offences which do not belong to any of the three first categories of offences. It comprises environmental crime, traffic offences, criminal damage and other offences.

In addition to these main categories, a dummy variable has been generated indicating whether one has been charged with any offence. Another more specific dummy variable indicates whether one has been charged with money laundering or proceeds from crime. These last charges correspond to breaches of the Anti-Money Laundering Act and the relevant sections of the Penal Code mentioned in section 2.2.1. All the mentioned variables have led to the formation of a panel dataset used in the model estimations.

3.2 Methodology
This section will first specify the logit binary choice models estimating the association between sociodemographic and labour market characteristics of individuals and their probability to be charged with the main categories of offence, including money laundering and receiving

proceeds from crime. The second section will describe how the probability of being charged with money laundering is decomposed depending on possible co-offences committed by the charged individuals, including no other co-offences committed as one of the categories.

3.2.1 Logit Model for Money Laundering and Other Offences

Logit binary choice models are estimated to measure the associations between individuals' characteristics and their chances of committing a crime. This method has been chosen because this paper aims to estimate the probability of an event which has a binary outcome and is limited between 0 and 1, while estimations based on a linear probability model could sometimes result in predicted probabilities that lie outside this interval.

It is important to first get an overall overview of the associations between individuals' characteristics and the probability of being charged with the main categories of crime to be able to compare in better way the relationship between these factors and money laundering. A first logit binary choice model will therefore be estimated in which the dependent variables are binary and depend on whether one is charged with any offence, economic offences, drug offences, violent offences or other offences. In the second model, the dependent variable is related to whether one is charged with money laundering or receiving proceeds from a crime or not. The dependent variables take the value of 1 or 0 depending on whether an individual has chosen to commit the mentioned offences or not.

The logit binary choice model is built on an underlying latent model. When a person is choosing whether to commit an offence or not, this person is evaluating the relative utility of each of the outcomes, and it is assumed that individuals are maximizing their utility when making their decision. More precisely, the difference between the utility of an individual i of committing a crime c or not is expressed in the variable Y_{ic}^*. This utility difference is not observed, and the variable is therefore called latent. The difference in utility between these two outcomes depends on individuals' characteristics which are observed in the dataset, expressed in the vector X_i', and on unobserved characteristics, expressed in ε_{ic}. This relationship is illustrated in equation (1).

$$Y_{ic}^* = X_i' * \beta_c + \varepsilon_{ic} \qquad (1)$$

The vector of observed characteristics is composed of individuals' age, squared age, immigrant status, city dweller status, education years, after-tax income, squared income, and unemployment status. Binary variables indicating whether one is employed in the municipal sector or whether one is employed in the municipal sector are also included. For those working

in the private sector, binary variables are also included depending on their industrial belonging and whether they are employed or self-employed.

The model assumes that an individual will commit a crime if the utility difference is above a certain threshold corresponding to zero. Y_{ic} is observed in the data and takes the value of 1 if an individual has been charged with a crime and takes the value of 0 if not. The assumption implies that an offence will be executed, implying that $Y_{ic} = 1$, only if $Y_{ic}^* > 0$. If this condition is not fulfilled for an individual, this one will not commit a crime, meaning that $Y_{ic} = 0$. Equation (2) expresses the consequences of this assumption and the relationship between the observed outcome in the data and the unobserved utility of committing a crime:

$$Y_{ic} = 1 \ \rightarrow \ Y_{ic}^* > 0 \ \rightarrow \ X_i' * \beta_c + \varepsilon_{ic} > 0 \ \rightarrow \ -\varepsilon_{ic} \leq X_i' * \beta_c \tag{2}$$

The variable ε_{ic} is regarded as being a stochastic variable, leading to the following expression:

$$\Pr(Y_{ic} = 1) = \Pr(Y_{ic}^* > 0) = \Pr(X_i' * \beta_c + \varepsilon_{ic} > 0) = \Pr(-\varepsilon_{ic} \leq X_i' * \beta_c) \tag{3}$$

It is further assumed that ε_{ic} is logistically distributed, leading to the following function expressing the probability P_{ic} of an individual i to be charged with a crime c:

$$P_{ic} = \frac{e^{X_i' * \beta_c}}{1 + e^{X_i' * \beta_c}} \tag{4}$$

ε_{ic} is moreover assumed to be independently and identically distributed across individuals i. This implies that unobserved factors are not correlated with observed factors across individuals. The variance of these unobserved characteristics is the same for everyone. As a consequence of these assumptions, the parameter β_c can be estimated with the help of the method of maximum likelihood. This parameter estimates the effect of individuals' characteristics on the probability of committing a crime c. (Verbeek, 2017)

To facilitate the interpretation of the results, the average marginal effects of any individual characteristics on the probability of being charged with an offence will be estimated. This is estimated by computing the average change in probability of being charged with an offence when the value of an independent variable changes by one unit, holding all the other variables constant. These average marginal effects are also estimated in the next analysis.

3.2.2 Decomposing the Probability of Model Laundering By Co-offences

In this second analysis, the aim is to find whether committing money laundering and receiving proceeds from crime is associated with other categories of offences such as drug, profit-motivated, violent and other crimes. The probability of being charged with money laundering and receiving proceeds from crime has therefore been decomposed by co-offences, including no other co-offences as one of the categories. In other words, 16 new models have been generated in which each of the dependent variables describes a possible combination of offences that have been committed in addition to being charged with money laundering. An example of such a combination is that one person is charged with money laundering or receiving proceeds from a crime and has also committed another profit-motivated offence but no traffic, violent or other offences.

Appendix 1 illustrates all the possible combinations of outcomes. The 16 combinations of offences are mutually exclusive, implying that when one observation satisfies the condition of belonging to one alternative of offence, it cannot belong to any other group. A person who has been charged with money laundering must belong to one of the offence alternatives and this person can only belong to one of the alternatives for a year. Given that Y_{im} represents the observed binary outcome of an individual i committing the offence m of laundering or receiving proceeds from a crime or not, this variable must be equal to the sum of all the binary variables indicating each alternative a of combinations of additional offences, including no other co-offences as one of the categories. This equality is expressed in the next equation.

$$Y_{im} = \sum Y_{ia} \tag{5}$$

In order to estimate the probability of choosing one alternative of the possible combinations, I estimate separate logic binary choice models following the same assumptions as presented in the last sub-section. Specifically, the probability P_{ia} of an individual i being charged with alternative a of combinations of crimes is now expressed as follows.

$$P_{ia} = \frac{e^{X_i' * \beta_a}}{1 + e^{X_i' * \beta_a}} \tag{6}$$

The models include some weaknesses as the dataset is very large in terms of observations and variables, besides that the outcomes are quite rare compared to the total number of observations. This is especially the case for the analysis of individuals who have been charged with money laundering or receiving proceeds from crime at least once during a year since they represent

approximately 0.1 % of the total number of observations during the whole period. It takes a considerable amount of time for the logit estimations to converge to a maximum due to the size of the dataset. The estimations have therefore had to be stopped before it converges when it seemed that it was very close to the convergence point. The data will however first be described before presenting the estimation results.

3.3 Descriptive statistics

In the following, some descriptive statistics will be provided on the extent of criminality, and the sociodemographic and labour market characteristics of offenders. The extent of the main offences in addition to the charges of money laundering and receiving proceeds from crime will first be presented, followed by a description of the share of each combination of additional offences for individuals charged with money laundering. Next, the composition of gender, age, immigration status, place of domicile, education years and labour market status among charged and non-charged individuals for each year in the sample will be considered, to further show the composition of these characteristics across individuals charged with specific types of crime, including money laundering.

3.3.1 Criminality

Before analysing the estimation results, it is valuable to have a picture of the extent of each offence. Figure 1 illustrates the evolution in the number of offenders of economic, violent, drug, traffic and other offences from 2000 to 2019. An offender is considered as such if a person has been charged with at least one offence during a year. The total amount is lower than it would be if the number of offences instead of offenders per year was analysed.

Individuals charged with traffic offences represent the largest group of offenders, as this group is composed of on average 41 305 offenders per year from 2000 to 2019. The second largest group of offenders is composed of other offenders, with an average number of 37 674 offenders per year during the same period. In the regression analyses that will follow, these two groups will consist of one common group, but they have been described separately in the graph to show the importance of traffic offences and to improve the readability of the graph.

The next largest group is composed of economic offenders, representing on average 35 783 offenders per year from 2000 to 2019. Economic offenders have experienced an almost continuous decline in their number during the whole period. Although less pronounced, traffic and other offences have also followed the same declining tendency over time.

The second smallest group is composed of violent offenders representing an average of 27 674 offenders per year from 2000 to 2019. The smallest group of offenders includes drug offences with an average of 20 096 offenders per year during the same period. Since the year 2000, the number of violent offences has increased until 2014 and the number of drug offenders has increased until 2017. This increase is followed by a slight decrease in until 2019.

A remark to have in mind when analysing this data is that there might be some missing reported cases in the last years of the studied period as it takes some time until one offence is registered in the police system. The number of cases might therefore be higher than it is in the last years of the studied period, especially for the years 2018 and 2019.

Figure 1: Number of offenders* in Norway from 2000 to 2019, by main categories of offences
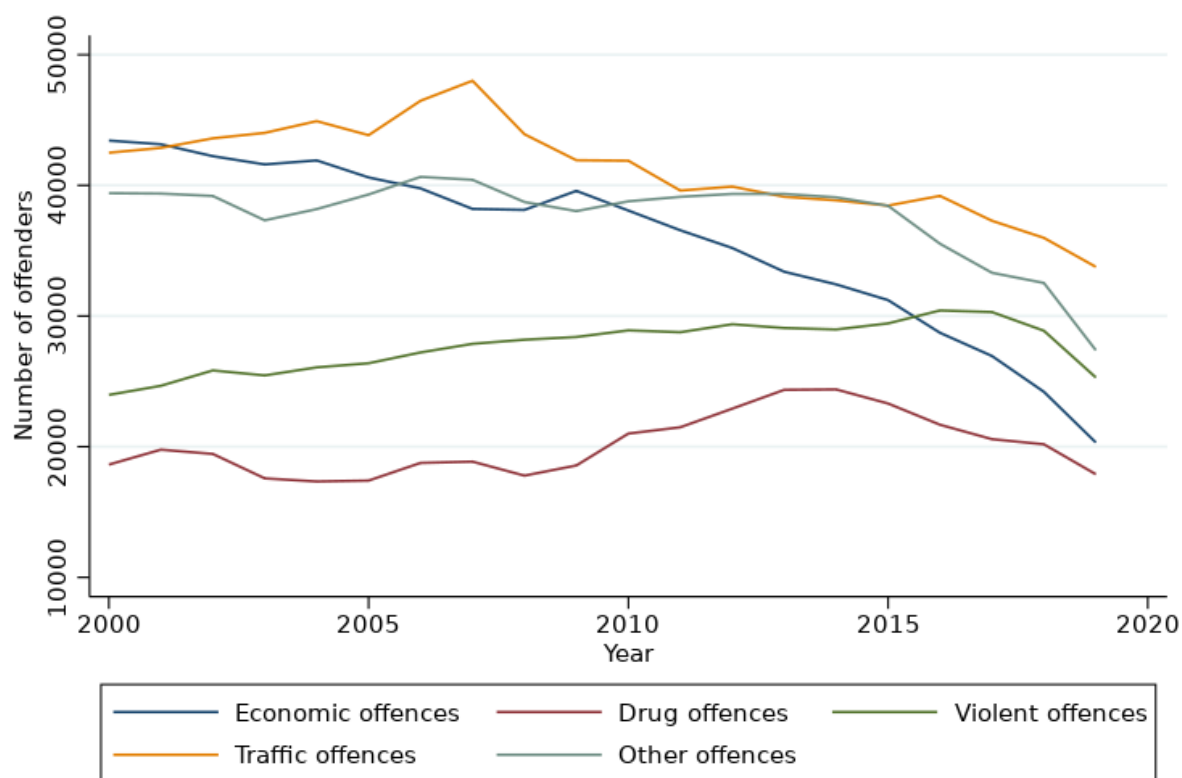
Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.

Regarding the offences of money laundering and receiving proceeds from crime, Figure 2 illustrates the evolution of the share of individuals charged with these offences compared to the rest of the observations who have not been charged with these offences from 2000 to 2019. Overall, the proportion of these offences has decreased on average during the whole period. It first increased from representing 0.15 % of the observations in 2000 to 0.17 % in 2002. In the aftermath of this year, the share of these offenders has constantly decreased to end up representing only 0.05 % of the observations in 2019. However, it is notable that there might

be some missing reported cases in the last years of the studied period as it takes some time until one offence is registered in the police system, implying that the observed number of cases might be lower than the real in the last years.

Figure 2: Share of individuals charged with money laundering or receiving proceeds from crime* from 2000 to 2019, by year

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.
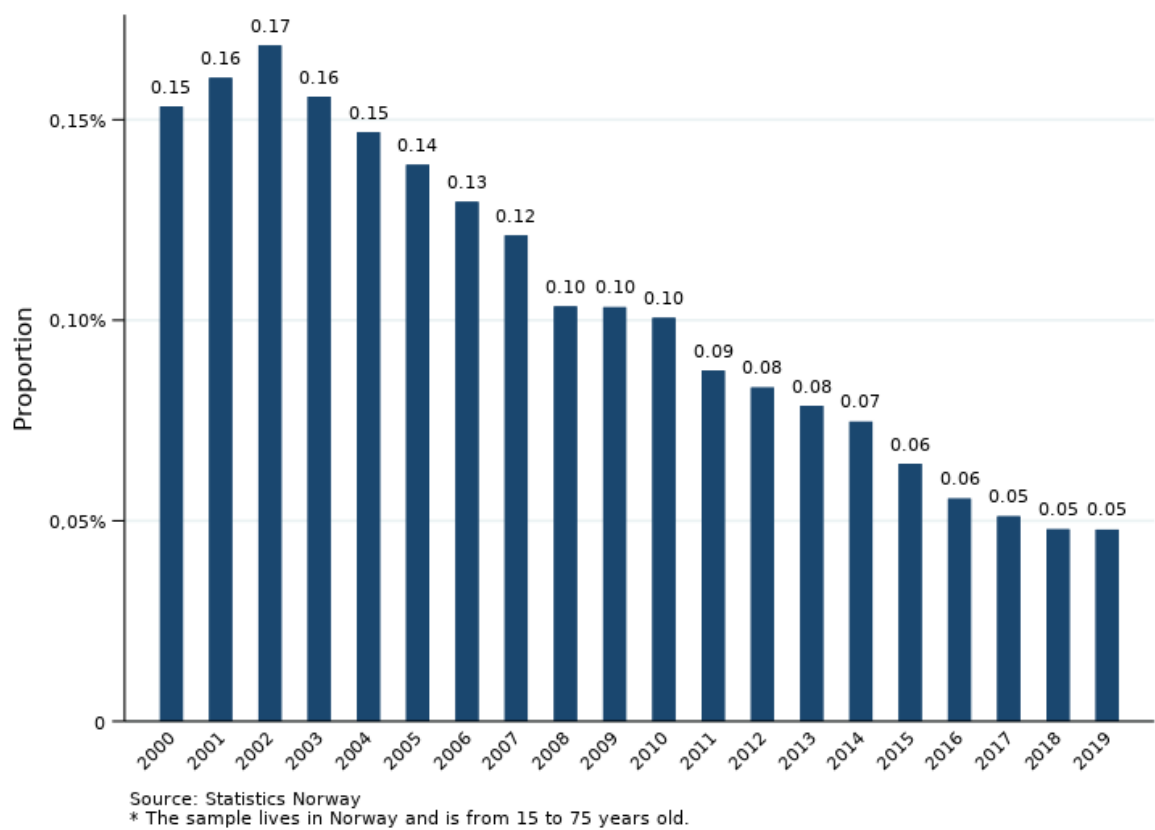
Next, Figure 3 illustrates the share of each combination of offences among those who have been charged with money laundering and receiving proceeds from crime from 2000 to 2019. The combination of offences which represents the largest proportion of all the combinations includes offenders who have been charged with drug, economic and other co-offences, excluding violent co-offences. This group represents 21.6 % of the total amount of offenders. The second largest grouping of offenders is composed of offenders who have only been charged with money laundering or receiving proceeds from crime, and no other offences, representing 16.7 % of those who have been convicted of this offence. The third largest combination of additional offences is composed of those who have committed all four main categories of co-offences, representing 12.1 % of money launderers. This might indicate that a large share of money launderers is often convicted of another offence, especially drug, economic and other

offences. Those who have been charged with another economic offence than money laundering or receiving proceeds of crime represent 8 % of the studied population.

An interesting observation is that being charged with drug offences in addition to money laundering or receiving proceeds from crime, regardless of being charged with any other offences or not, seems to be very usual. Indeed, in 58 % of money laundering cases, at least one other drug offence has on average been committed by the same person during a year.

Moreover, the 8 combinations of outcomes which represents the lowest share of money launderers, varying from 0.8 to 4.9 % of the total population studied, have also committed at least one violent offence during a year. This might indicate that the relationship between committing a violent offence and money laundering or receiving proceeds from crime is relatively weaker compared to other offences, assuming that this relationship is existing.

Figure 3: Combinations of co-offences of individuals charged with money laundering or receiving proceeds from crime* from 2000 to 2019, in proportion

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.
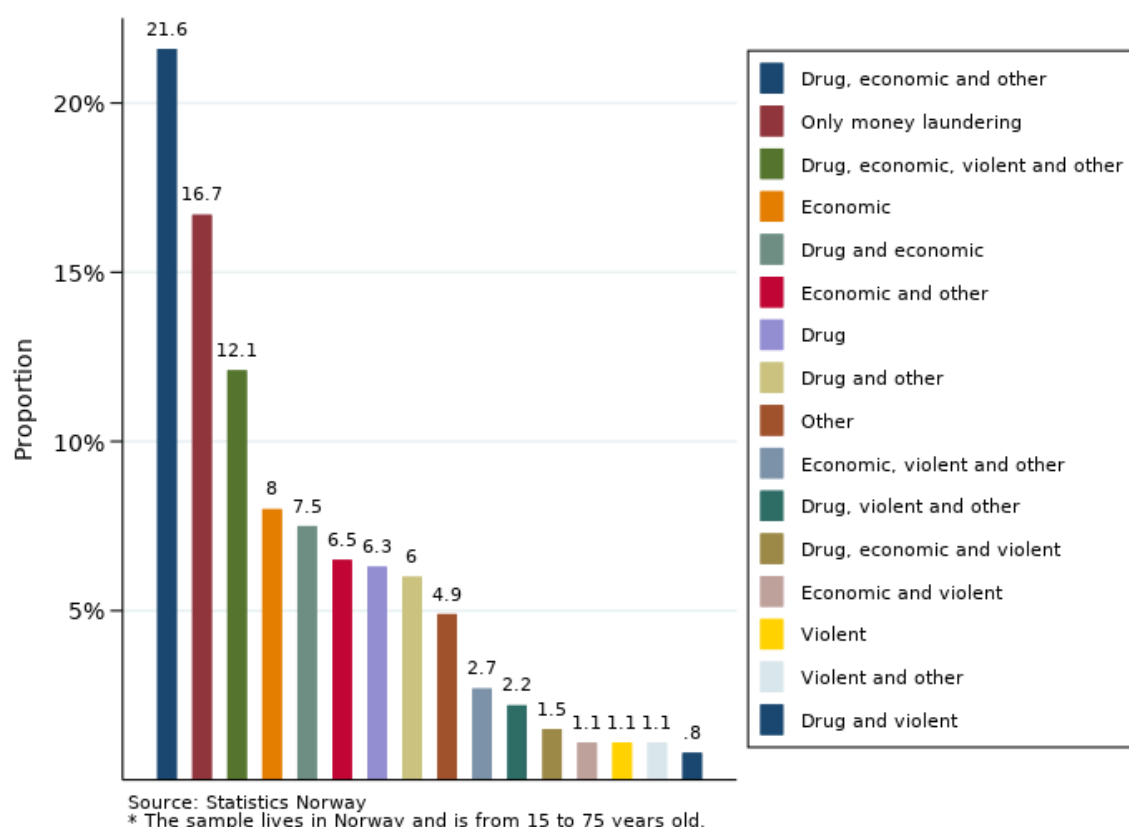
3.3.2 Gender

Starting with the gender of individuals, Figure 4 illustrates the development of the proportion of gender between 2000 and 2019 among individuals who have not been charged with any offence in Panel A and people who have been charged with at least one offence during a year belonging to any category of offence in Panel B. Next, Panel C, Panel D, Panel E and Panel F describe the yearly gender ratio among individuals who have been charged with at least one offence during a year belonging to the category of profit-motivated offence, drug offence, violent offence or other types of offences, respectively.

One can observe a clear tendency for men being on average charged with more offences than women. This observation applies to all the categories of crime although there are some small variations across categories. Violent offences are for instance executed by a larger proportion of men on average than economic offences. 88.9% of violent crime offenders in 2000 were men, although, in the same year, only 78.1% of economic offenders were men.

Remarkably, this tendency amongst violent offences has been declining with time as women comprise a larger proportion of violent offenders at the end of the period than in the beginning. This tendency is also observed amongst profit-motivated offences, as women's involvement in economic offences increased from representing 21.9 % in 2000 to 27.6 % in 2019 of all economic offenders. Drug crimes are on the contrary experiencing a slight decrease in women's participation. Regarding other types of offences, the gender ratio is quite stable over the years and similar to the gender disparity amongst all the offences.

Figure 4: Gender ratio of offenders and the remaining population* from 2000 to 2019, by main categories of offences and year
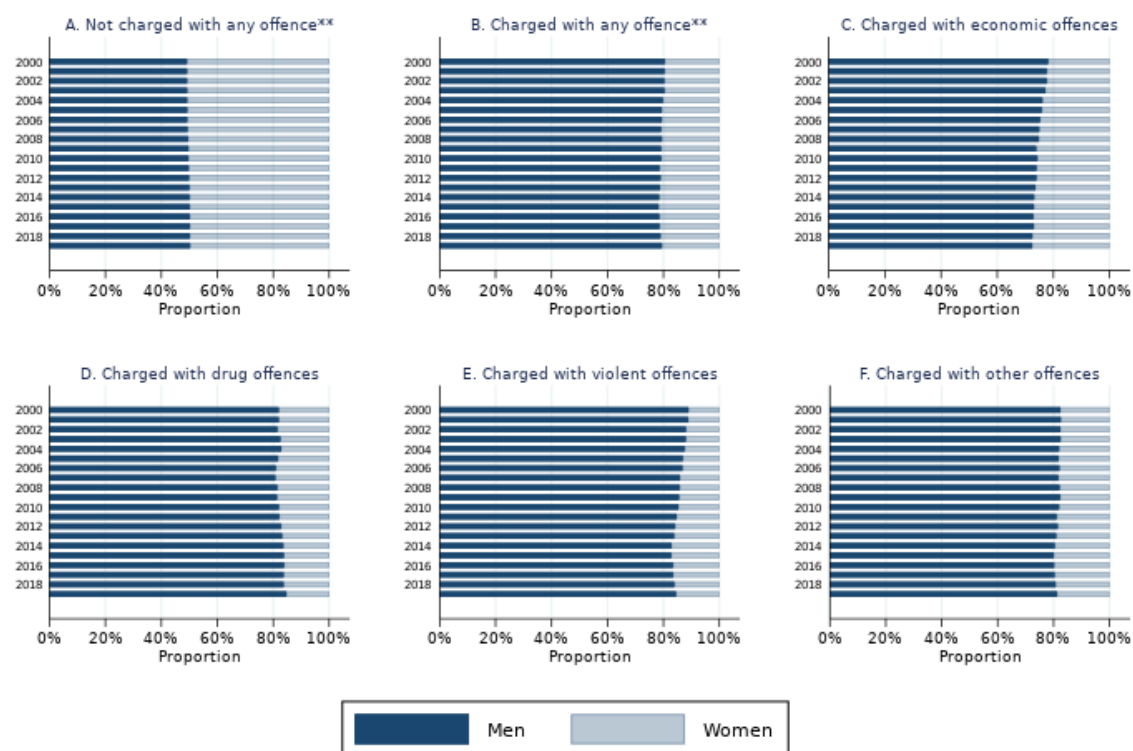
Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences..

As illustrated in Figure 5, a larger share of men has also been charged with money laundering or receiving proceeds from crime, compared to those who have not been charged with it. On average from 2000 to 2019, 84.4 % of these offenders were men, which is higher than the average ratio of offenders of any crime, but lower than the share of men violent offenders. The gender ratio has been quite stable over time.

Figure 5: Gender ratio of individuals charged with money laundering or receiving proceeds from crime and the remaining population* from 2000 to 20019, by year

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.
** Not charged with money laundering or receiving proceeds from crime.

3.3.3 Age

When compared to the rest of the population who has been charged with any crime, what is common for the different categories of crime regarding their age, is that there is a larger proportion of young individuals who tends to be charged with any offence relative to older persons. This is especially true for those charged with drug offences, where on average during the whole period, 38.7 % of drug offenders were between 15 and 24 years old, whereas this group of age represents only 16.4 % of the rest of the population who has not been charged with any offence. Individuals between 25 and 34 years represent also a larger proportion of drug offenders compared to the other types of offenders and the rest of the population. Individuals who are over 55 years represent a smaller proportion of all sorts of offenders compared to the rest of the population.

The age repartition amongst economic, violent, and other offenders is overall quite similar, although economic offenders tend to be a little bit older on average compared to violent offenders. 27.7 % of economic offenders were 45 years or older, whereas only 22.9 % of violent offenders belong to the same age group. Another similarity among economic, violent, and other

offences, is that there has been, over time, a slight increase in older offenders' participation in offences compared to younger, although this increase does not seem to be very significant. The proportion of persons who are between 35 and 44 is the group which has the most similar proportion among all the categories of offenders and the rest of the population.

Figure 6: Proportion of age of offenders and the remaining population* from 2000 to 2019, by main categories of offences and year

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences.

As illustrated in Figure 7, individuals charged with money laundering or receiving proceeds from crime are also on average younger than the rest of the population. However, it may seem that offenders between 25 and 44 years represent a larger share compared to the main categories of offences. There is a smaller proportion of them who are 45 years and older compared to those who have been charged with economic crime, but their share of offenders between 15 and 24 years is smaller than drug offenders. Over time, it seems that money launderers follow approximately the same trend as economic offenders, as the share of offenders older than 24 years increased until 2015 and started afterwards to decrease.

Figure 7: Proportion of age of individuals charged with money laundering or receiving proceeds from crime and the remaining population* from 2000 to 2019, by year
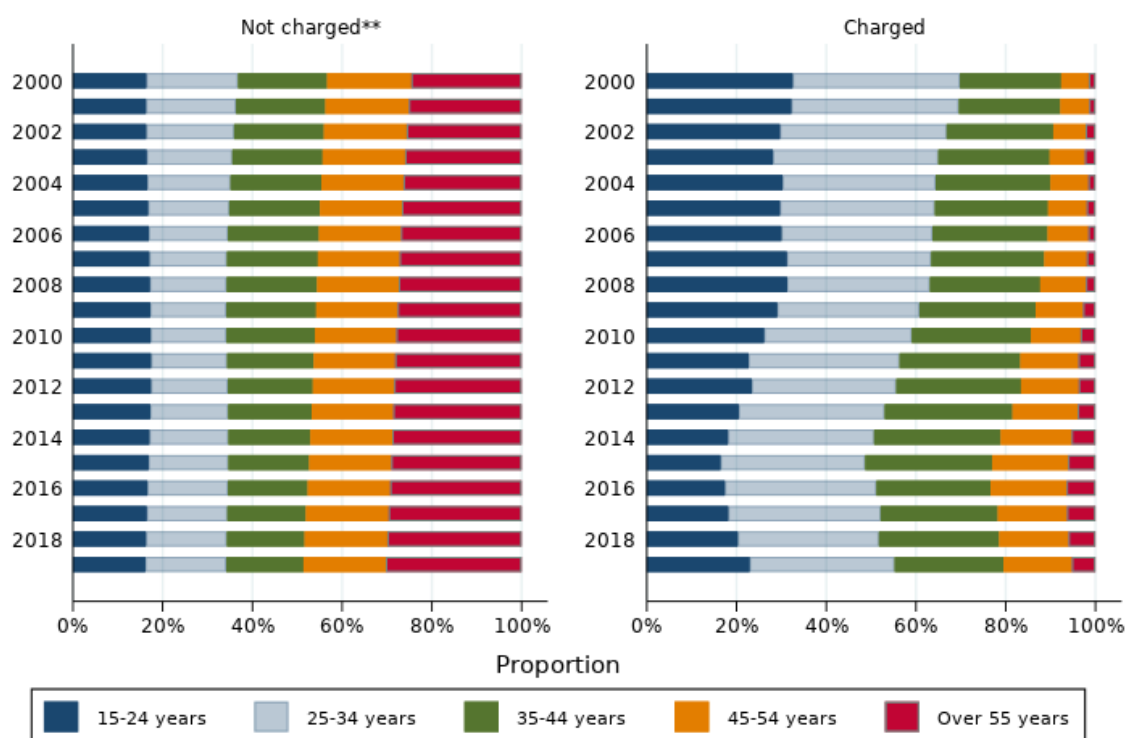
Source: Statistics Norway
* Living in Norway, between 15 and 75 years old.
** Not charged with money laundering or receiving proceeds from crime.

3.3.4 Immigration status

In Figure 8, one can observe that individuals with a foreign background tend to represent a larger proportion of offenders compared to the rest of the population. This is especially the case for violent offences. Moreover, the proportion of immigrants involved in offences has increased over time, but this is partly explained by the fact that the proportion of immigrants has increased in the rest of the population as well. However, the share of immigrants has increased more among offenders than those who have not committed any crime. This is particularly true for violent and economic offenders for which 32 % of offenders were immigrants in both categories of offences in 2019, whereas only 17.9 % of the rest of the population were composed of immigrants in the same year. The evolution of immigrant participation in drug offences and other offences is quite similar. The share of immigrants has also increased in these two categories of offences, but the difference between this evolution and the one that the rest of the population experienced is not as pronounced as it is for economic and violent offences.

Figure 8: Immigrant ratio of offenders and the remaining population* from 2000 to 2019, by main categories of offences and year
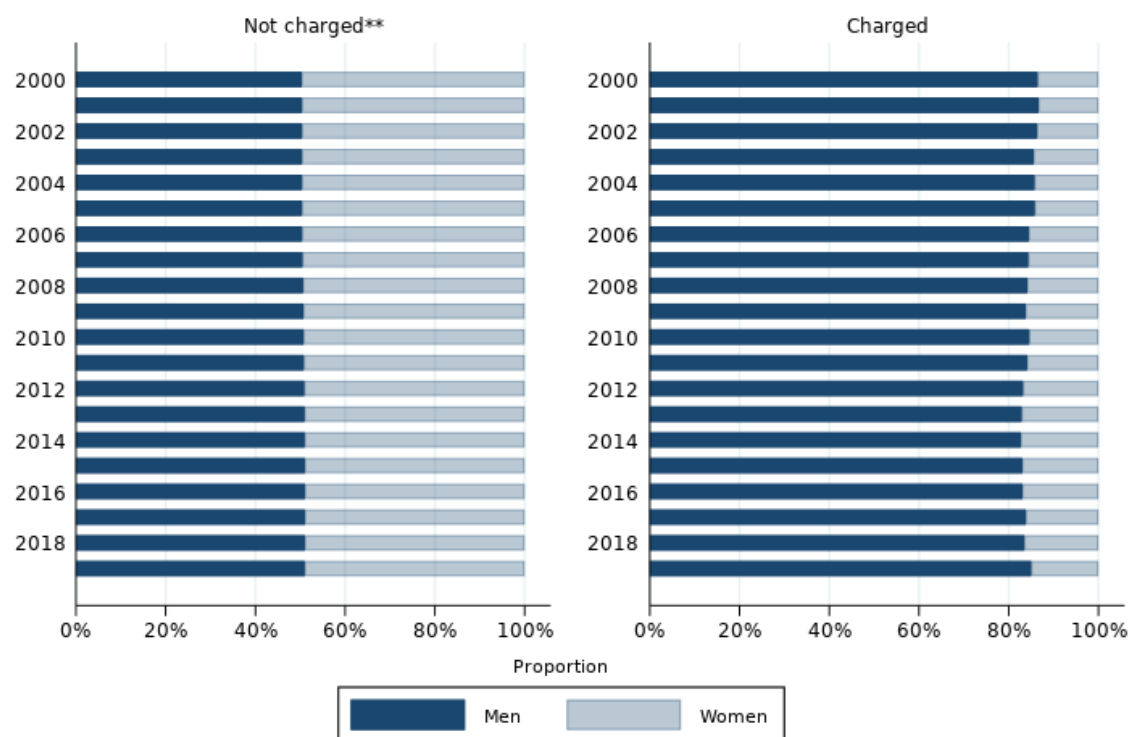

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences.

As well as for all other offences, Figure 9 illustrates that individuals charged with money laundering or receiving proceeds from an offence represent on average a larger proportion of immigrants compared to those who have not been charged with it. This observation applies each year of the period, even if those who have not been charged with these offences have also been experiencing a growing immigration ratio over time. On average during the whole period, 20 % of money launderers were immigrants.

Figure 9: Immigration ratio of individuals charged with money laundering or receiving proceeds from crime and the remaining population* from 2000 to 2019, by year

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.
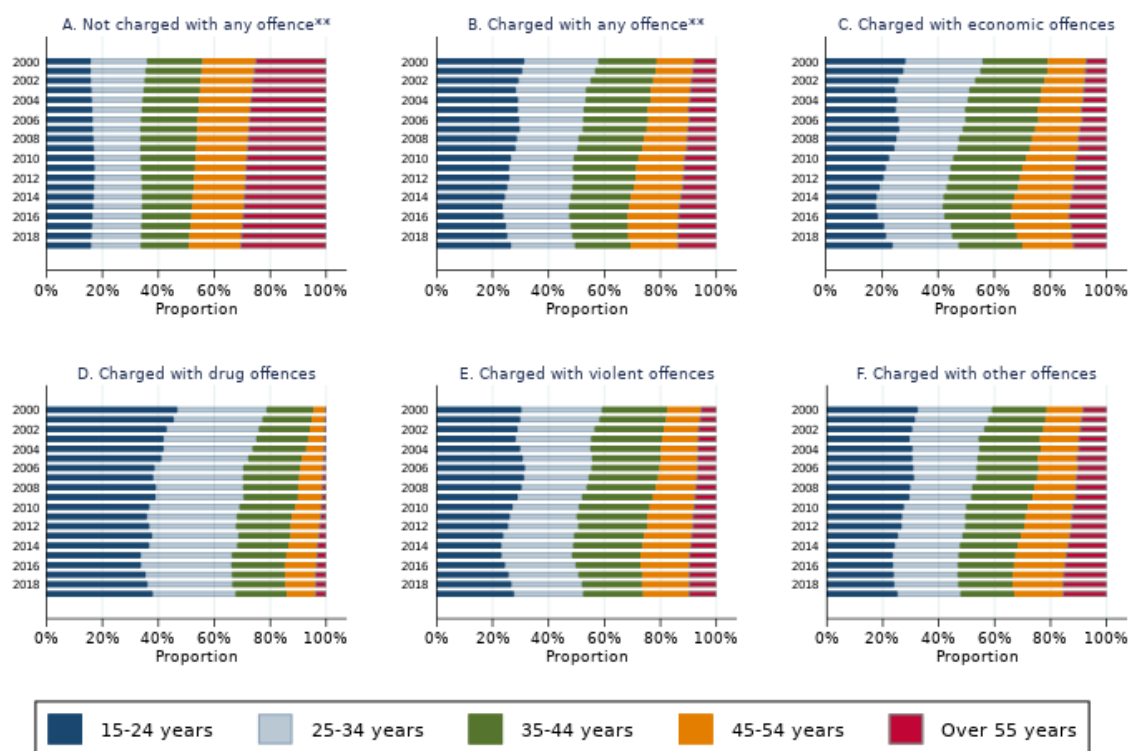** Not charged with money laundering or receiving proceeds from crime.

3.3.5 Living in a city

Next, there are only some small variations in the proportion of individuals living in a city among offenders and non-offenders as illustrated in Figure 10. There is a larger share of offenders living in a city among those who are charged with drug crimes than those who are not charged with any crime since around 92.6 % of drug offenders lived in a city on average from 2000 to 2019 and only around 88.5 % of inhabitants who were not charged with any crime lived in a city during the same period. This tendency is also noticeable among profit-motivated offenders, as 91.7 % of them were living in a city during the studied period.

This observation does not apply to offenders of violent and other types of crime, as their share of offenders living in a city is very close to the proportion of non-charged individuals living in a city. There are neither been any big changes in the proportion of individuals living in a city within each category of offence year after year. It is also noticeable that these proportions would vary depending on the definition of a city. Defining a city as comprising more than 5000 inhabitants is a quite broad definition which explains the large proportion of individuals living in a city. If a city were defined as including more inhabitants, the share of individuals living in a city would also be smaller.

Figure 10: Proportion of offenders and the remaining population living in a city* from 2000 to 2019, by main categories of offences and year

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old. A city includes more than 5000 inhabitants.
** Any offence includes economic, drug, violent and other offences.

A large proportion of individuals charged with money laundering or receiving profits from an offence were on average living in a city. On average from 2000 to 2019, 94.7 % of them lived in a city of more than 5 000 inhabitants. This proportion of offenders living in a city is largest than the share of the main categories of offences and it has moreover remained quite stable over time.

Figure 11: Proportion of individuals charged with money laundering or receiving proceeds from crime and the remaining population living in a city* from 2000 to 2019, by year
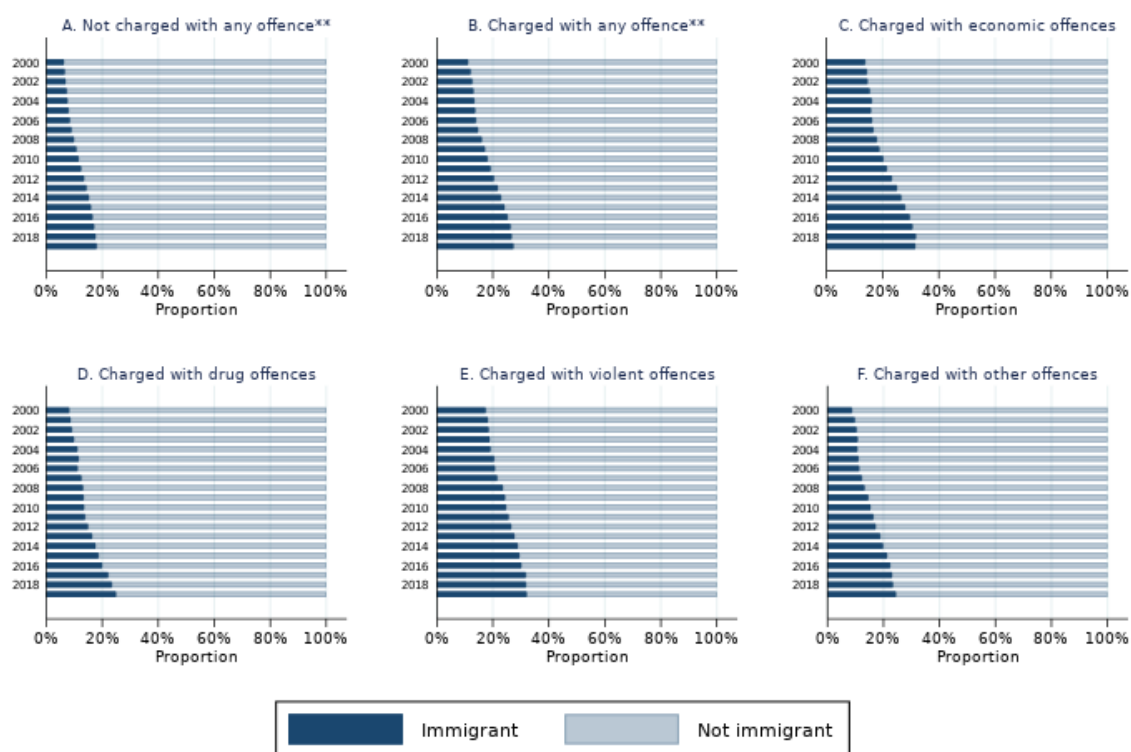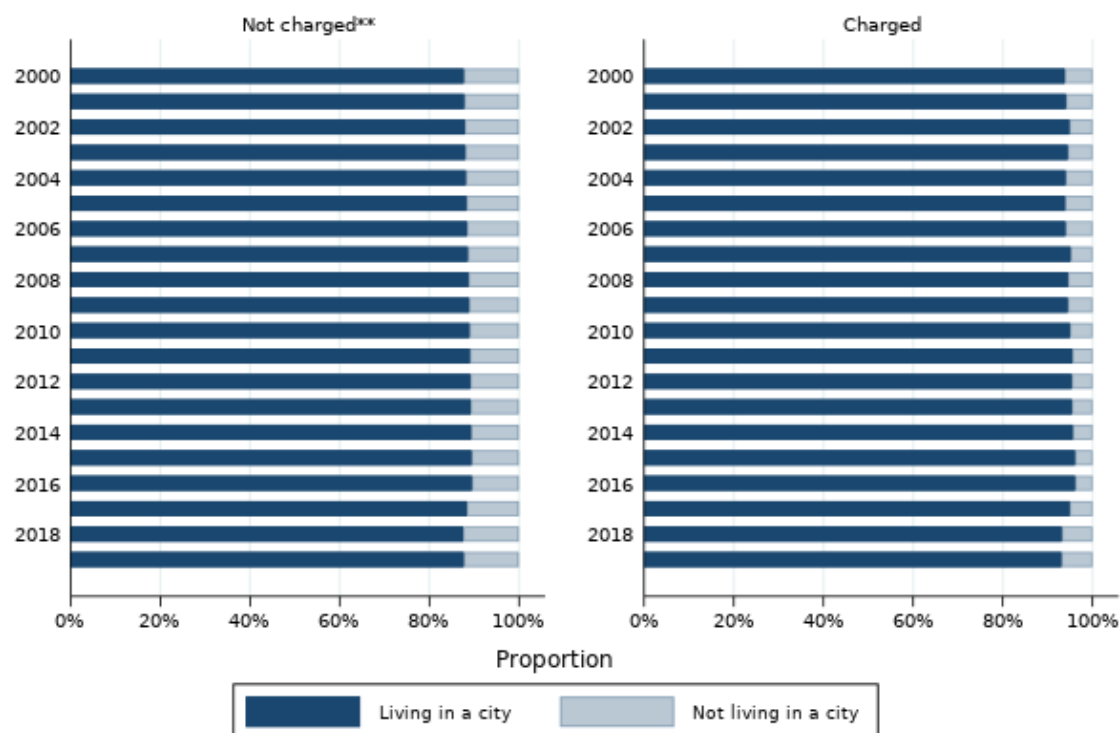

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old. A city includes more than 5000 inhabitants.
** Not charged with money laundering or receiving proceeds from crime.

3.3.6 Education level

Figure 12 describes the evolution of the share of education of the different groups of persons from 2000 to 2019. What is common for all the categories of offences, is that offenders in general have a lower education level than individuals who have not been charged with a crime. This is particularly the case for drug offenders, as on average during the whole period, 66.5% of them had secondary school as their highest level of education, whereas only 26.6% of those who were not charged with any crime reached the same level of education. As expected, on the higher side of the education level, a smaller proportion of offenders are having a higher education level compared to those who have not been charged with a crime. This is particularly the case for the bachelor level and higher, but it also applies to the high school level.

There has also been an increasing tendency for a higher education level among all types of offenders, especially for those studying at the bachelor's or higher level. However, this seems to be explained by the fact that the population, in general, is having a higher education level, as this increase is also observed among those who have not been charged with any crime. This

trend is less marked among drug and violent offenders and more among economic and other offenders.

An important remark is that the age distribution is quite different among charged and non-charged individuals. Since offenders tend to be younger than non-offenders, it might be the case that some offenders who have a low level of education will end up studying more later. Another graph could have compared otherwise similar non-charged and charged individuals in terms of age, gender and immigration. However, this is what will be done in the regression analysis later, when controlling for all the variables at the same time.

Figure 12: Proportion of education level of offenders and the remaining population* from 2000 to 2019, by main categories of offences and year
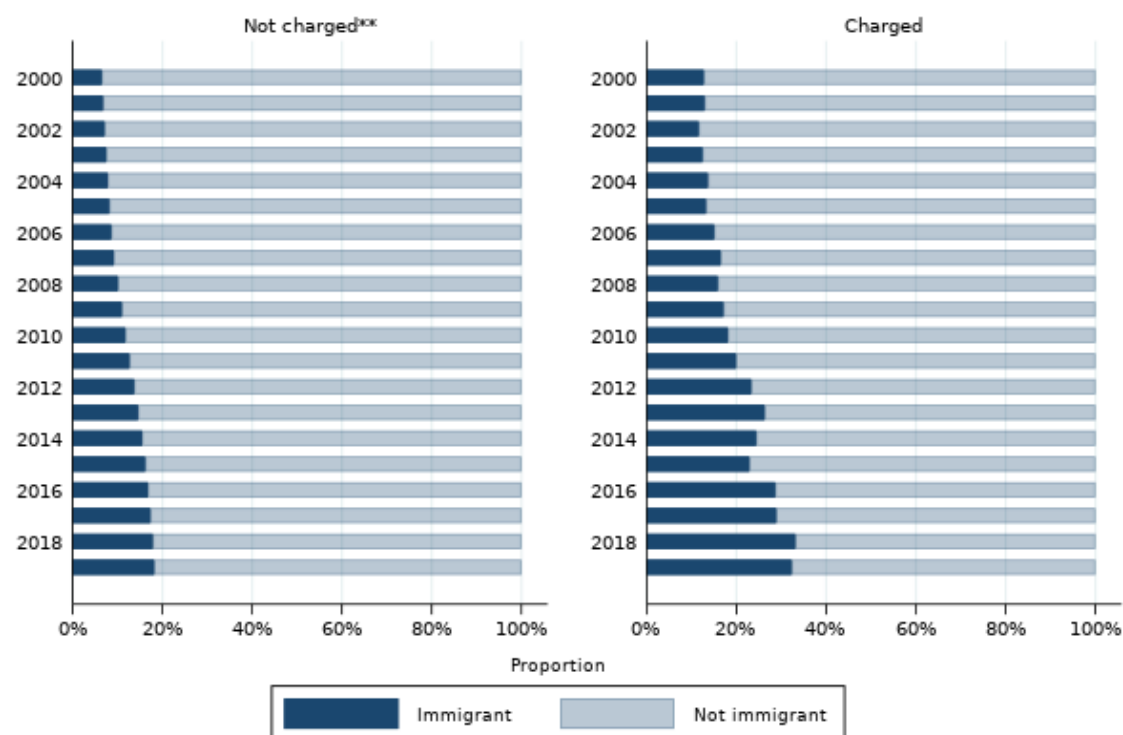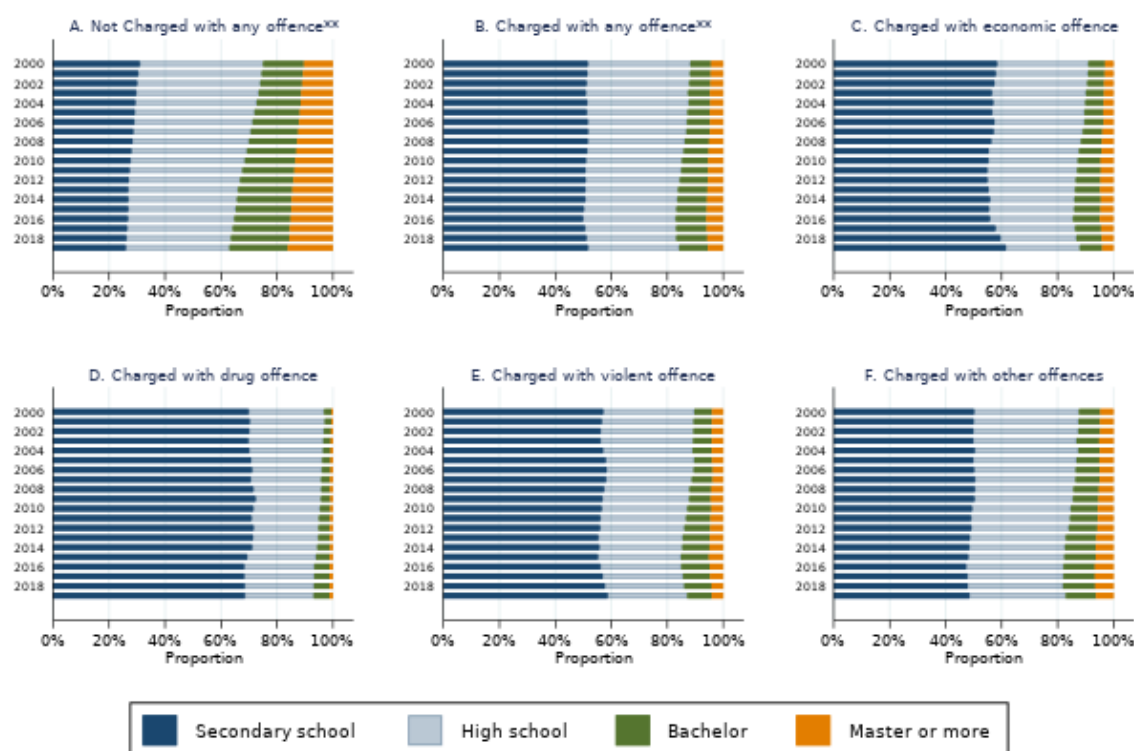

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences.

Individuals charged with money laundering or receiving proceeds from crime, as described in Figure 13, have also a lower education level on average compared to non-offenders. The proportion of each education level is most similar to the proportion of individuals charged with drug offences, as 70.9 % of money launderers or individuals who have received profits from an offence have stopped studying already after secondary school. However, those of them who have reached a bachelor, master or higher degree, are representing a smaller share compared to the other main categories of offence.

Figure 13: Proportion of education level of individuals charged with money laundering or receiving proceeds from crime and the remaining population* from 2000 to 2019, by year

Source: Statistics Norway
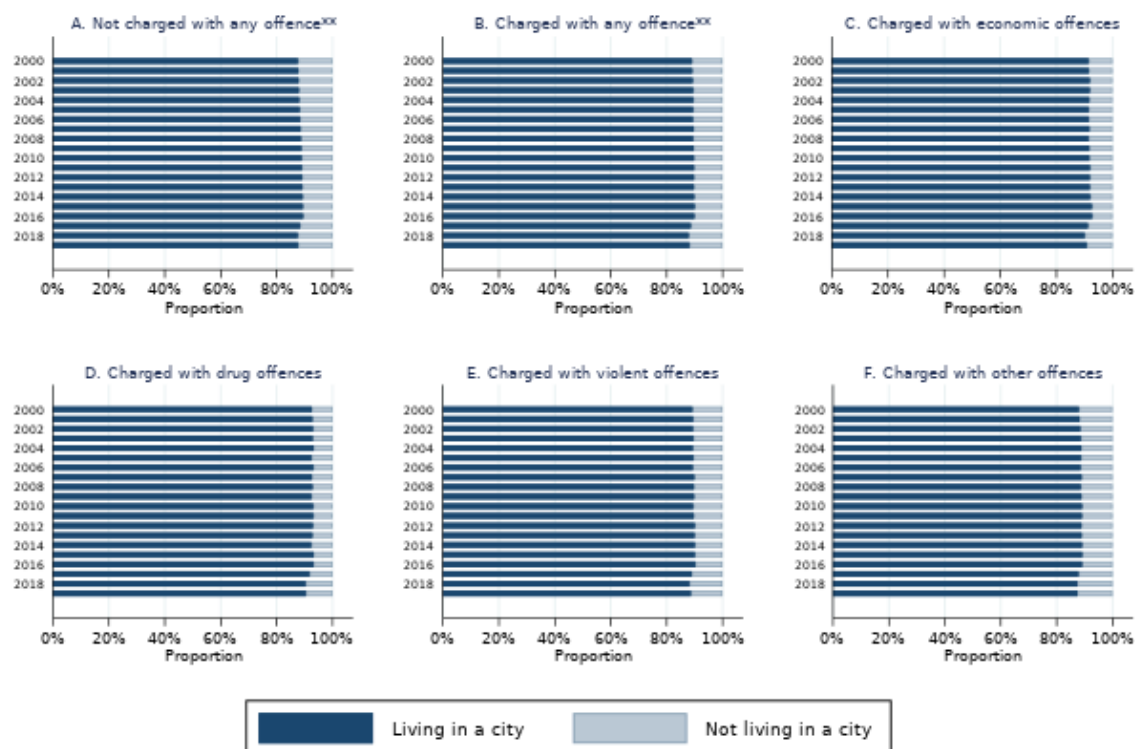* The sample lives in Norway and is from 15 to 75 years old.
** Not charged with money laundering or receiving proceeds from crime.

3.3.7 Labour market characteristics

Regarding the labour market status, as illustrated in Figure 14, the different categories of offences have in common that offenders have on average a larger unemployment rate than the rest of the population who has not been convicted of any crime. Whereas the average unemployment rate of observations who have not been charged with an offence has on average been 2.1 % from 2000 to 2019, this rate has been up to 19.4 % on average among drug offenders. Again, offenders of this type of criminality distinguish themselves the most from the rest of the population compared to the other categories of offenders. The unemployment rate has also been quite high for the other types of offences, as it has been on average 12.4 % for economic offences, 9.7 % for violent offences and 7.1 % for other sorts of offences.

Regarding the share of self-employment, offenders in general tend to have a larger share of self-employees than those who have not committed any offence. Moreover, profit-motivated offenders distinguish themselves from any other offenders as 15.6% of economic offenders have on average during the whole period been holding a sole proprietorship and only 6% of the non-charged are self-employed. This share of self-employment is also higher for the other

categories of offences compared to non-offenders, although it is less different for drug and other offenders.

As a result of this, offenders had a lower employment rate than non-offenders. Among offenders, violent and other offenders have the highest employment rate whereas economic and drug offenders had the lowest employment rate. With some fluctuations from year to year, the employment rate has slightly increased on average from 2000 to 2019 among the four categories of offence.

Figure 14: Proportion of labour market status of active offenders and the remaining population* from 2000 to 2019, by main categories of offences and year

Source: Statistics Norway
* The sample includes employed, self-employed or unemployed persons living in Norway, from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences.

Regarding individuals charged with money laundering and receiving proceeds from offences in Figure 15, the unemployment and self-employment rates are also relatively higher, and the employment rate lower compared to those who have not been charged with these offences. The proportion of unemployed, self-employed and employed money launderers rates are 11.5, 10.1 and 78.4 %, respectively. The employment distribution is quite similar to the shares of economic and drug offenders.

Figure 15: Proportion of labour market status of active individuals charged with money laundering or receiving proceeds from crime and the remaining population* from 2000 to 2019, by main categories of offences and year
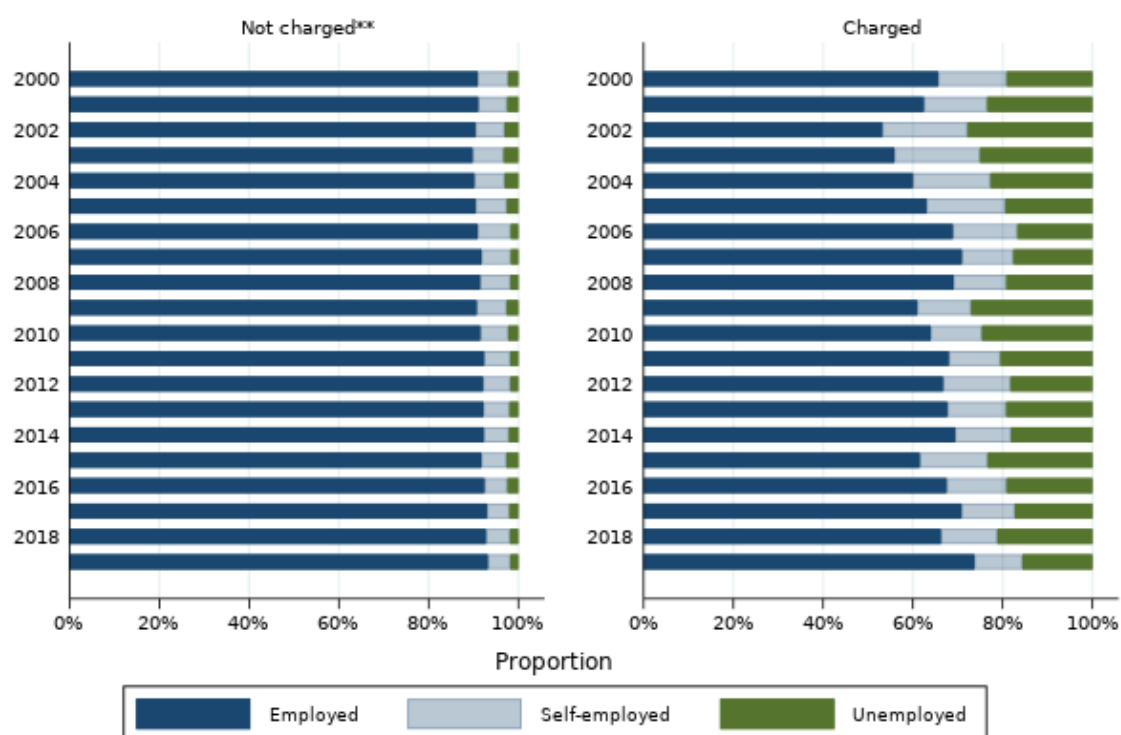
Source: Statistics Norway
* The sample includes employed, self-employed or unemployed persons living in Norway, from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences.

Figure 16 demonstrates the proportion of after-tax income among offenders and the rest of the population. A common feature of the different categories of offence is that offenders earn on average less than individuals who are not charged with any crime. However, the extent of it varies among the different offences. Drug offences are the category of offence in which offenders earn on average the least compared to the other types of crime. 86.3 % of drug offenders had an after-tax income of less than 300 000 NOK on average between 2000 and 2019, whereas during the same period, only 50.6 % of individuals who were not convicted of any crime earned such an income. A very small proportion of drug offenders, around 1.6 % of them, had on average a higher income than 500 000 NOK, versus 12.8 % for non-offenders in the same period.

Although this tendency is also observed among violent, economic and other offenders, the difference in after-tax income from the rest of the population is less pronounced for these categories of offence. This is especially the case for individuals charged with other offences. A

common feature for all the offenders and the rest of the population is that their after-tax income has on average increased over time, even though the income is adjusted for inflation.

Figure 16: Proportion of after-tax income of offenders and the remaining population* from 2000 to 2019, by main categories of offences and year
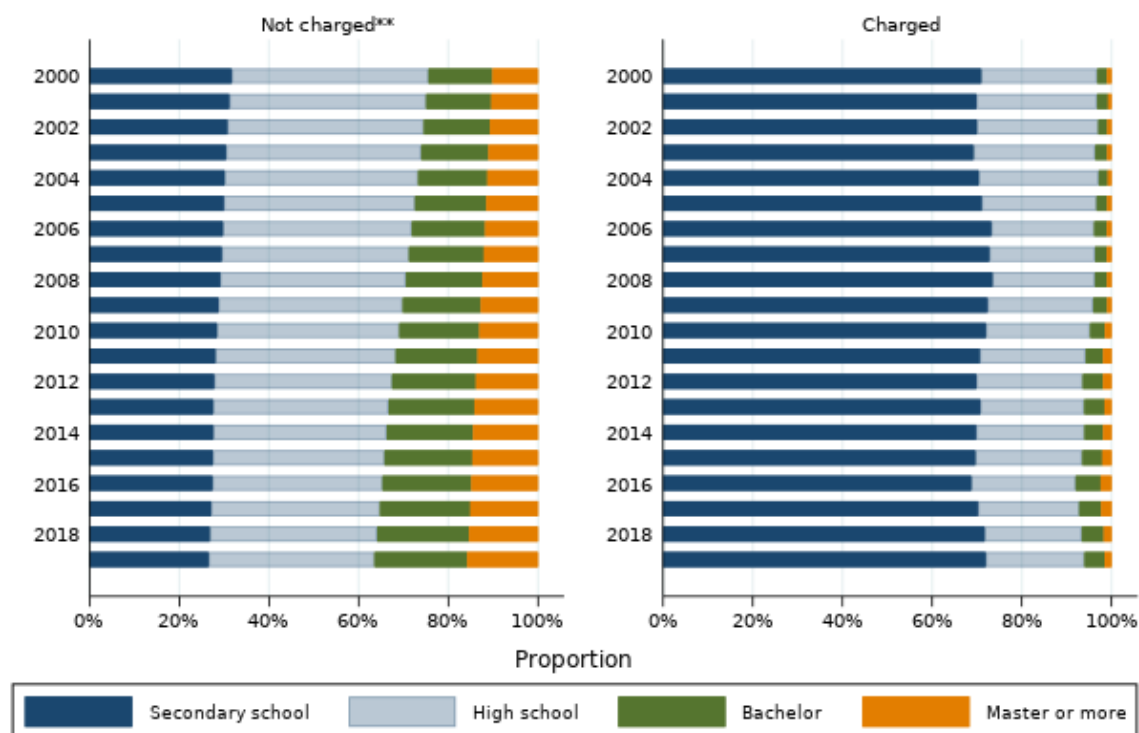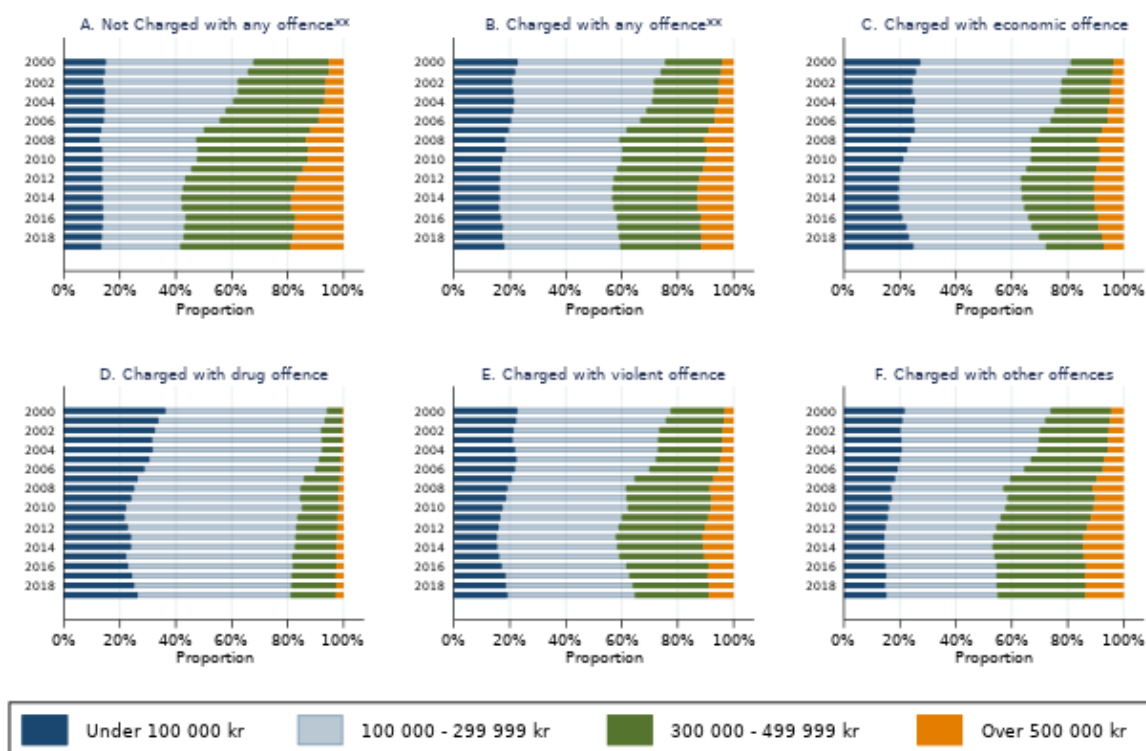

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old. Net income is adjusted for the 2019 Consumer Price Index.
** Any offence includes economic, drug, violent and other offences.

As well as for all the offences, persons charged with money laundering or receiving proceeds from crime are also earning on average a lower after-tax income than non-offenders as shown in Figure 17. 85.7 % of them had an after-tax income of less than 300 000 NOK on average between 2000 and 2019, which is quite close to the share of drug offenders earning this range of income. In general, individuals charged with money laundering and receiving proceeds from crime have a pretty similar repartition and evolution of their after-tax income compared to drug offenders.

Figure 17: Proportion of after-tax income of individuals charged with money laundering or receiving proceeds from crime and the remaining population* from 2000 to 2019, by year
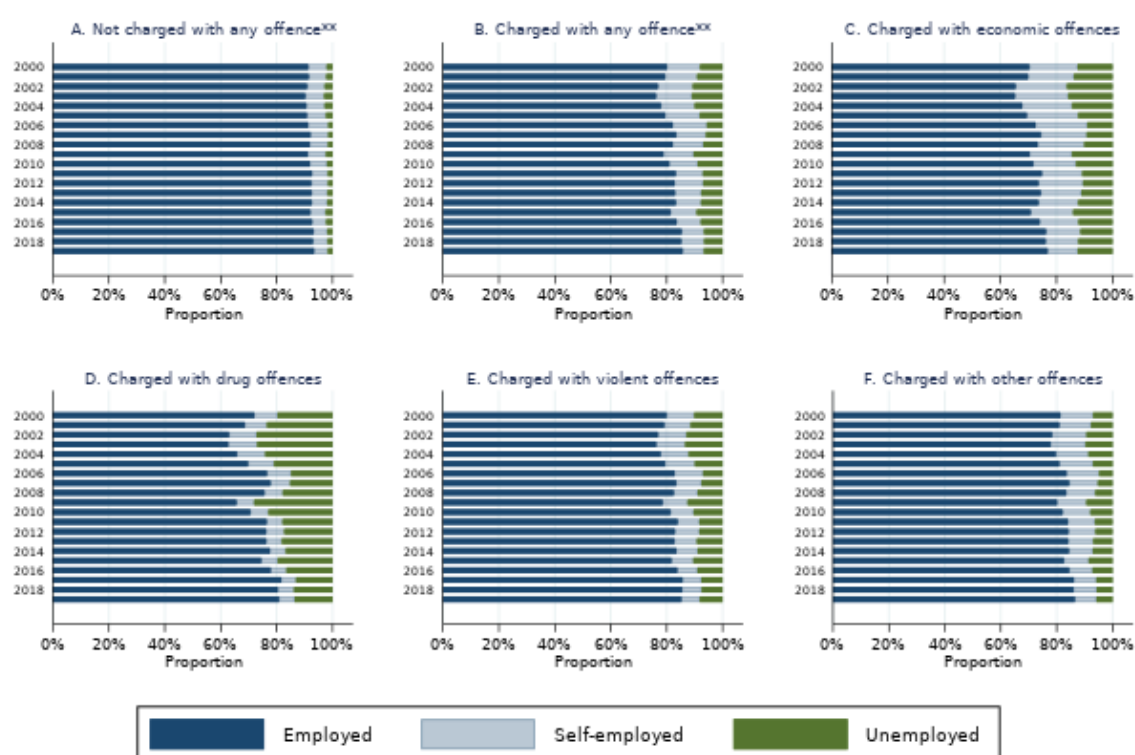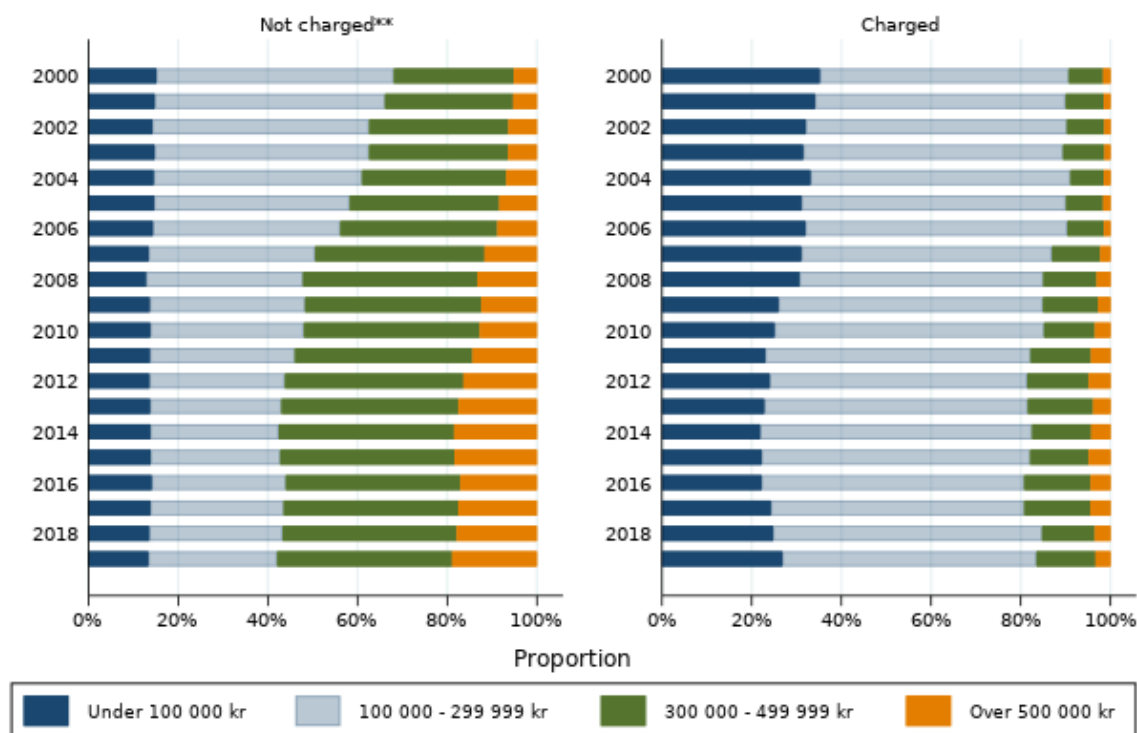

Source: Statistics Norway
* The sample lives in Norway and is from 15 to 75 years old. After-tax income is adjusted for the 2019 Consumer Price Index.
** Not charged with money laundering or receiving proceeds from crime.

As described in Figure 18, among employed and self-employed individuals, the proportion of individuals working in the private sector is on average higher for charged than non-charged individuals. Around 80.1 % of offenders were on average working in the private sector between 2000 and 2019, whereas only 63.8 % of those who have not been charged with any offence were working in the private sector during the same period. The proportion of persons working in the private sector is more or less equal across the different categories of offences, although it is a bit higher among drug offenders as 85.5% of them were working in the private sector from 2000 to 2019.

As a result of this, the proportion of individuals working in the state and municipal sector is lower among offenders compared to the rest of the population. The proportion of persons working in the state sector is quite similar among all the types of offences, but the share of individuals working in the municipal sector varies slightly more among offences as it is a little bit lower among economic and drug offences compared to violent and other offences. The distribution of each sector has remained quite stable over time.

Figure 18: Proportion of offenders and the remaining population working in the private, municipal and state sectors* from 2000 to 2019, by main categories of offences and year

Source: Statistics Norway
* The sample lives in Norway, is working and is from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences.

Similar to all offences, money launderers and persons charged with receiving profits from an offence who were employed and self-employed were working relatively more in the private sector and less in the municipal and state sector compared to those who have not been charged with these offences. As described in Figure 19, the share of those charged with the last-mentioned offences working in the private sector represents 87.9 % and is closest to the proportion of drug offenders working in this sector.

Figure 19: Proportion of individuals charged with money laundering or receiving proceeds from crime and the remaining population working in the private, municipal and state sector* from 2000 to 2010, by year
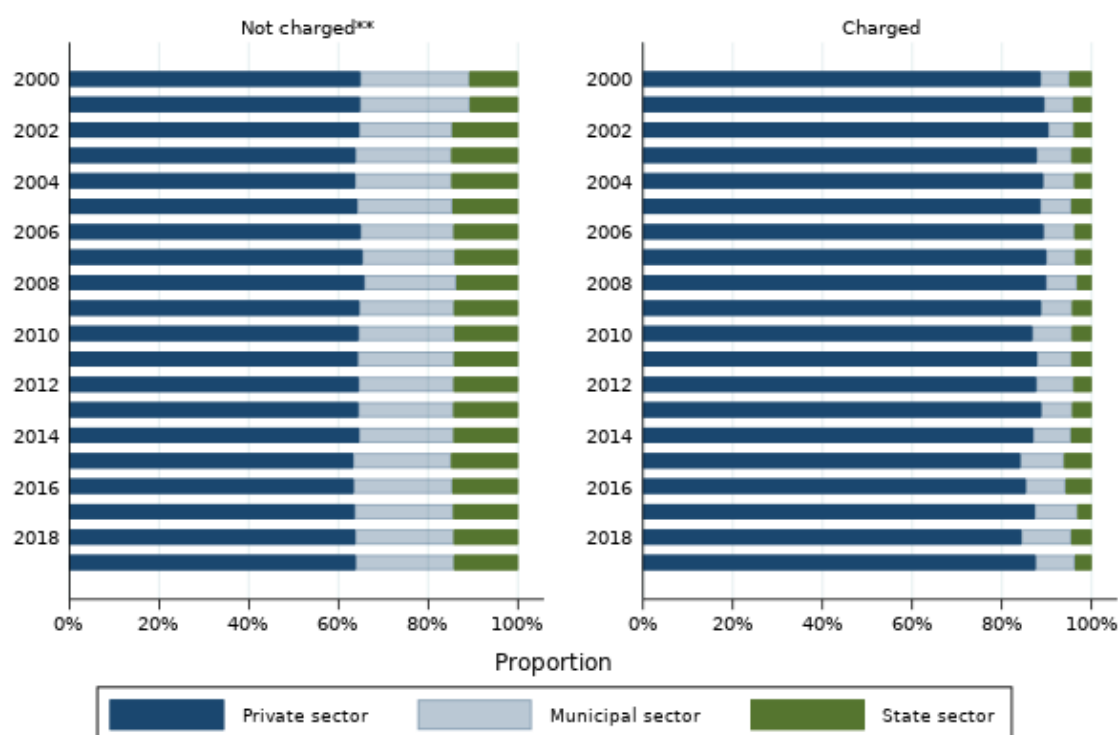
Source: Statistics Norway
* The sample lives in Norway, is working and is from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences.

Next, Figure 20 illustrates the share of private sector employed persons working in the different industrial categories. A larger proportion of offenders are employed in the sector of electricity, gas, steam and water supply, sewerage and waste management and construction activities among offenders compared to the rest of the population. 18.3 % of all the employed offenders from 2000 to 2019 were on average working in this industry, whereas only 11.1 % of the rest of the population were employed in this industry in the same period.

Regarding the hotel and restaurant industry, a slightly larger proportion of drug, economic and violent offenders were working in this branch than people charged with other offences and non-charged individuals in the period between 2000 and 2019. Moreover, there is a larger proportion of employees from the private sector working in the industry of manufacturing, retail trade, repair of motor vehicles, transport and storage, among violent and other offenders compared to non-offenders. For economic and drug offenders, the tendency is the opposite as a marginally smaller proportion of them were employed in the manufacturing industry relative to non-offenders, although this difference is tiny.

Next, a smaller share of offenders were employed in the finance and real estate industry compared to non-offenders. Around 4.9 % of non-offenders have been working in this industry whereas only 2% of all the offenders were on average employed in this industry between 2000 and 2019. There are no large variations across the different types of offenders.

Furthermore, offenders tend to be less employed in the industry of services than non-offenders. The extent of this tendency varies across the different types of offences. Persons charged with other offences are the ones who are less employed in the service industry as 18.7% of them were on average employed in this industry from 2000 to 2019, whereas 28.2% of active non-offenders were employed in this industry. After this group of offenders, violent offenders were relatively less employed in the service industry, followed by drug offenders and economic offenders.

Finally, the proportion of employees in the private sector working in the category regrouping all the other industries such as agriculture, forestry, fisheries, mining, quarrying of oil and gas, and international organisations, is relatively equal across offenders and the rest of the population. Over time, the proportion of employees from the private sector working in the sector of services and construction has been increasing, whereas the proportion of those working in the manufacturing industry has decreased among the whole population.

Figure 20: Proportion of industries of employed offenders and remaining population* from 2000 to 2019, by main categories of offences
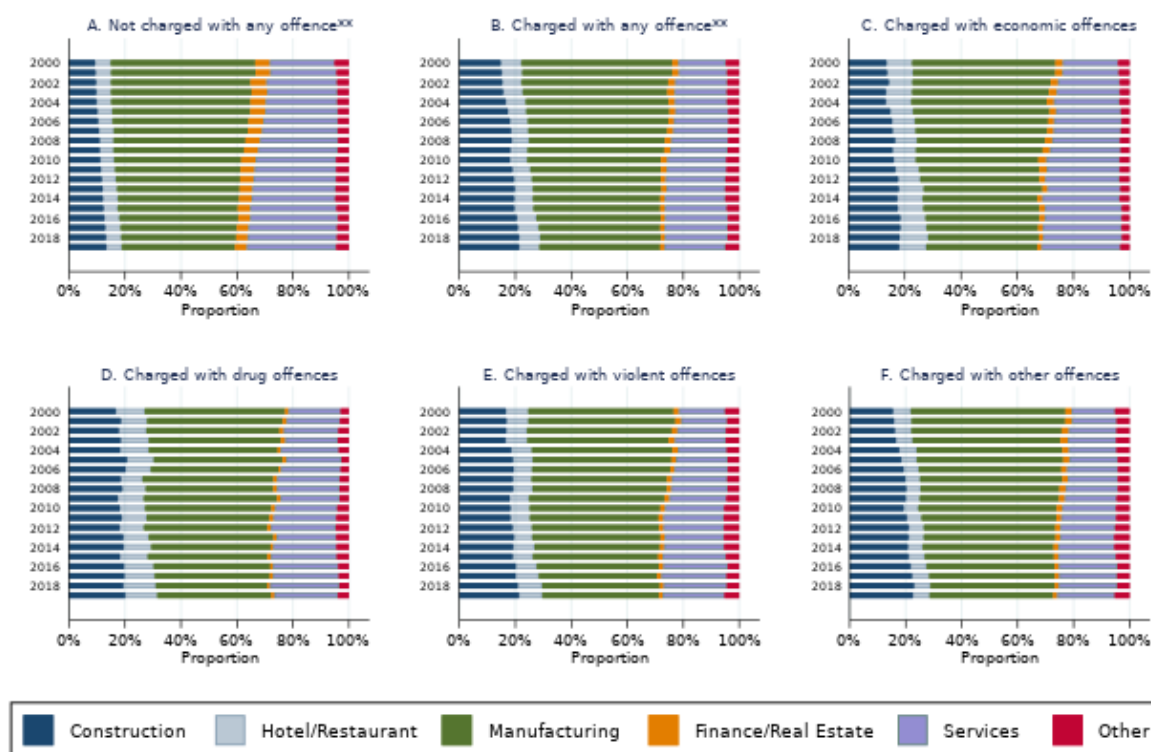
Source: Statistics Norway
ˣ The sample lives in Norway, is employed and is from 15 to 75 years old.
ˣˣ Any offence includes economic, drug, violent and other offences.

On average from 2000 to 2019, a larger proportion of individuals charged with money laundering or receiving proceeds from an offence being employed in the private sector have been working in the industry of construction, hotel and restaurant, and a smaller share of them have been working in the four other industries compared to those who have not been charged with these offences. The relative size of each sector is similar to the one of economic and drug offences. The proportions are illustrated in Figure 21.

Figure 21: Proportion of industries of employed individuals charged with money laundering or receiving proceeds from crime and remaining population* from 2000 to 2019, by year
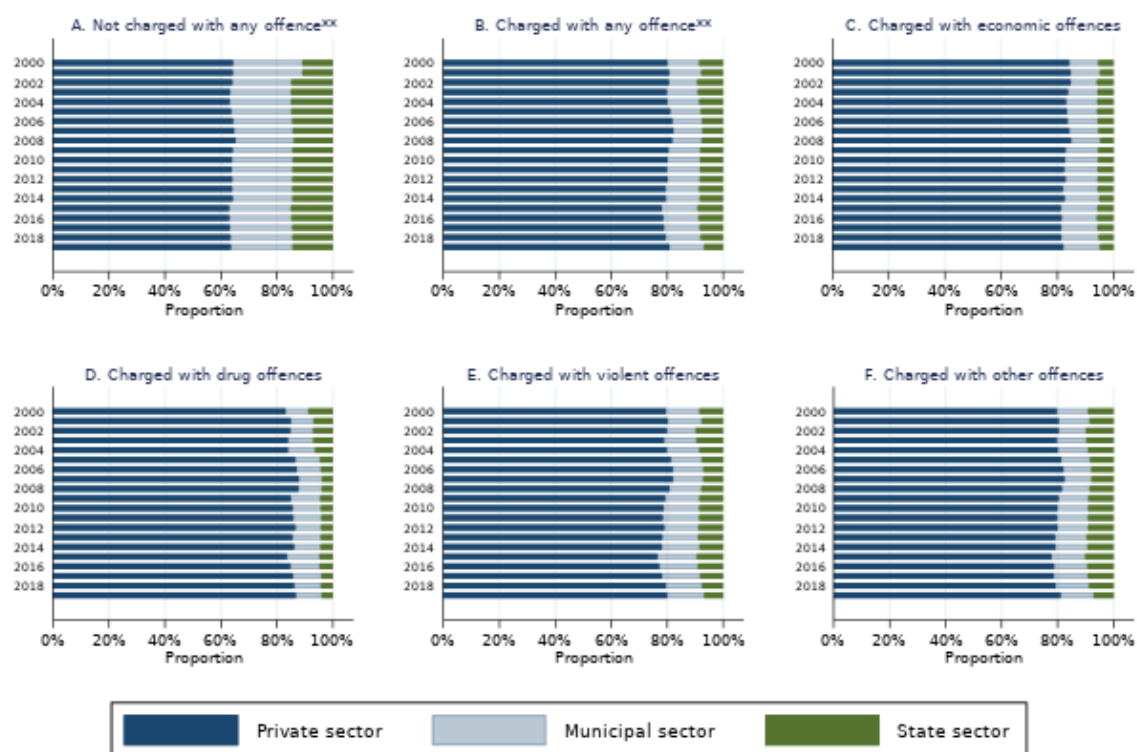

Source: Statistics Norway
* The sample lives in Norway, is employed and is from 15 to 75 years old
** Not charged with money laundering or receiving proceeds from crime.

Among self-employees in the private sector as well, a larger proportion of offenders compared to non-offenders were working in the construction industry, as described in Figure 22. On average, 21.4 % of all offenders were self-employed in this industry from 2000 to 2019, whereas only 13.5 % of non-offenders were self-employed in this industry during the same period. This tendency is especially true for economic offences, as 26 % of them were self-employed in the construction industry from 2000 to 2019.

The share of self-employees in the hotel and restaurant industry is quite similar among offenders and non-offenders, although it is a little bit higher among offenders. There are no substantial variations across the different categories of offence. This industry is also representing a smaller share of all the industries among self-employees compared to employees.

Moreover, the share of self-employees from the private sector working in the manufacturing industry has also been higher among all the offenders compared to non-offenders in the period from 2000 to 2019. The industry of finance and real estate, however, represents a very little share of the different industries among self-employed persons in the private sector, independently from whether one is charged with an offence or not.

Regarding the services industry, a larger share of self-employed offenders from the private sector is working in this industry compared to non-offenders. Only 20.6 % of non-offenders were self-employed in this industry from 2000 to 2019, whereas approximately 30.3 % of offenders were self-employed in this industry in the same period. There are no large variations across offences.

Finally, the proportion of self-employed persons from the private sector working in the industrial category regrouping all the other industries is on average smaller for offenders than non-offenders. The economic offence is the group of offence which distinguished itself the most, as the share of self-employees of this group of offenders was on average 12.5% from 2000 to 2019, whereas the proportion of self-employees of non-offenders working in this industry was on average about 26.1 %.

Another interesting observation is that the share of self-employed offenders increased suddenly in 2006 whereas, at the same time, there were relatively fewer offenders self-employed in the manufacturing industry. This sudden increase was especially drastic among drug offences and a bit among violent and other offences, but it was not very pronounced among economic offences. This development did not occur among non-offenders as the share of self-employment in manufacturing and other industries has increased constantly over time, and the proportion of self-employment in the service has been reduced with time.

Figure 22: Proportion of industries of self-employed offenders and remaining population* from 2000 to 2019, by main categories of offences and year
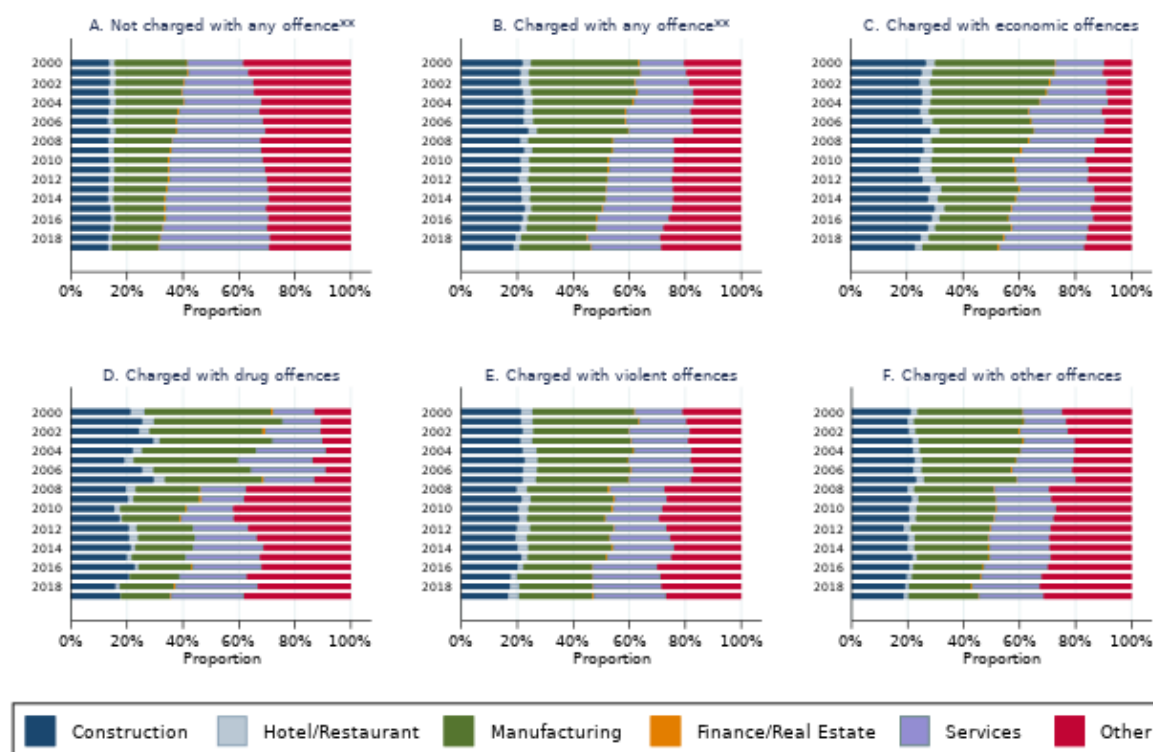
Source: Statistics Norway
* The sample lives in Norway, is self-employed and is from 15 to 75 years old.
** Any offence includes economic, drug, violent and other offences.

The share of self-employment across different industries is varying much more over time among money launderers than for offenders of the main categories of crime. This might be explained by the fact that the number of self-employed charged with these offences is relatively lower than for the main categories of offences. However, on average during the studied period, a larger proportion of self-employed individuals charged with money laundering or receiving proceeds from crime were self-employed in the industry of construction, manufacturing, hotel and restaurant relative to those non-charged. Consequently, a smaller share of them were working in the services and other industries. The finance and real estate sector, however, represents a very little share of all the sectors, among the whole population.

Figure 23: Proportion of industries of self-employed individuals charged with money laundering and receiving proceeds from crime* from 2000 to 2019, by main categories of offences and year
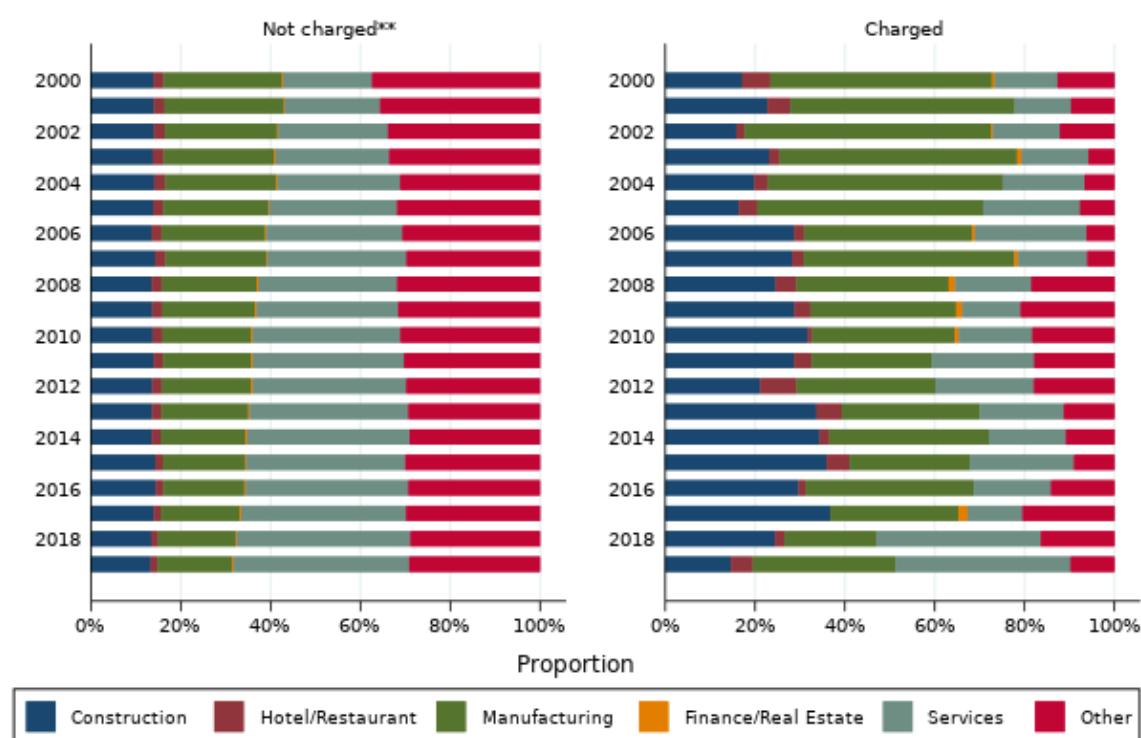
Source: Statistics Norway
* The sample lives in Norway, is self-employed and is from 15 to 75 years old
** Not charged with money laundering or receiving proceeds from crime.

Overall, compared to persons who have not committed any crime, offenders represent a larger proportion of individuals who are young, men, immigrants and have a lower level of education and after-tax income. Offenders tend to work relatively more in the private sector and less in the state and municipal sectors compared to non-offenders. Moreover, a larger proportion of offenders are unemployed or self-employed and a lower share of them is employed.

There is a higher proportion of self-employed individuals in the industries of construction, restaurant, manufacturing, and finance among offenders, including money launderers, compared to non-offenders. The employment rate is higher in the industries of construction, hotel and restaurant and lower in the industries of finance and services among offenders, including money launderers, compared to non-offenders.

Regarding manufacturing and other industries, the proportion of individuals employed in these industries is higher for offenders in general compared to non-offenders but is lower for money launderers relative to those who have not been charged with this offence. Finally, we note that

it seems that drug-related offenders often distinguish themselves the most from non-offenders compared to other offenders in terms of their age, education level, after-tax income, unemployment rate, and whether they live in a city and work in the private sector. These descriptive data provide a starting point for the estimation results.

4. RESULTS

4.1. Main groups of offences

The average marginal effects of sociodemographic and labour market characteristics on the probabilities of being charged with different offences are estimated with the help of binary choice logit models and the results are provided in Table 1. The size of each group of offences might be relevant to take into account when comparing these groups to each other. Individuals charged with any offence represent 3.3 % of all the observations, whereas other offenders represent 2.03 %, economic offenders 0.98 %, violent offenders 0.76 % and drug offenders 0.55 % of the sample. Furthermore, the log-likelihood values of each model are quite low. This is mainly due to the complexity of the models in terms of the number of observations and variables. The higher the dependent mean is the lower the log-likelihood of the respective model is.

First of all, being a man increases the probability of committing a crime of any sort by 4.23 percentage points, while holding all other variables constant. This estimate as well as the one related to each category of offences are positive and significant at a 99 % confidence level, implying that the gender of a person is associated with a change in the chances of committing a crime. Among the different offences, the coefficient is highest for offenders of other types of criminality and lowest for drug offenders, as being a male increases the chances of committing the last-mentioned offences by 2.76 and 0.85, respectively. However, when taking into account the dependent mean, the association between gender and criminality is strongest concerning violent offences and weakest regarding economic offences. This corresponds to the data described in section 3.3.2.

All the estimates of average marginal effects of age are positive and those of age squared are negative, regardless of the category of offences. These coefficients are all significant at a 99 % confidence level. The signs of the two age coefficients imply that the relationship between age and the probability of being charged with an offence is concave when holding all the other

variables constant. We also note that as age variables are scaled by 10, the coefficient estimates show the effects associated with an increase in age by 10 years. Based on the estimates in Column (1), the average marginal effect of an additional year of age for those aged a is 0.0024-0.000816(a/10). This implies that going from age 15 to 16 increases the probability of committing any offence by 0.11 percentage points while going from age 50 to 51 decreases this probability by 0.17 percentage points, holding everything else constant. The probability starts to decrease when going from age 30 to 31.

Among the different categories of offences, going from age 15 to 16 increases the probability of being charged with economic and drug offences the most, as it increases by 0.07 percentage points, whereas the chances of committing violent and other offences increase the least as it increases by 0.04 percentage points. When analysing the age function further, it is remarkable that the probability of committing an offence starts to decrease at different ages depending on the offence. The probability of being charged with other offences starts to decrease when going from age 27 to 28, whereas the probability of being charged with drug and violent offences starts diminishing from age 32 to 33. Finally, the probability of being charged with economic offences starts decreasing at the latest age as it starts declining from age 35 to 36.

Overall, being an immigrant increases the chances of committing any offence by 0.51 percentage points, while holding all the other variables constant. This coefficient is significant at a 99 % confidence level, as it is for each category of offence. However, the coefficient is positive for violent, economic and other offences, whereas it is negative for drug offences. Among violent, economic and other offences, the probability of committing each of these offences increases by 0.33, 0.13 and 0.02 percentage points, respectively, while holding all the other variables constant. When taking into account the dependent mean, the positive association between each offence and the immigration status is strongest for violent offences and weakest for other offences. The chances of committing a drug offence are however decreasing by 0.27 percentage points when being an immigrant and holding all the other variables constant.

Furthermore, living in a city of more than 5 000 inhabitants increases the probability of committing any crime by 0.19 percentage points, while holding the other variables constant. This coefficient is significant at a 99 % confidence level, which is also the case for all the offences except for other offences for which the coefficient is negative but not significant. This implies that committing other offences does not seem to be associated with living in a city. Among economic, drug and violent offences, the probability of being charged with these offences increases by 0.28, 0.21 and 0.01 percentage points, respectively, when living in a city

and holding all the other variables constant. When dividing these coefficients by each dependent mean, one can observe that the positive association between living in a city and each offence is strongest for drug offences and weakest for other offences.

A lower level of years of schooling is associated with an increased probability of being charged with any sort of crime. The coefficient of the average marginal effect is significant at a 99 % confidence level in the 5 different models. When spending one extra year at school, the probability of being charged with other, economic, violent and drug offences increases by 0.11, 0.06, 0.05 and 0.04 percentage points, respectively, while holding all the other variables constant. When taking into account the dependent means, the association between these offences and years of education is strongest regarding drug offences and weakest for other offences.

In terms of after-tax income, all the estimates of the average marginal effects of income and squared income are negative. For drug, violent and economic offences, these coefficients are significant at a 99 % confidence level. This means that the probability of being charged with these three offences decreases by 0.10, 0.02 and 0.01 percentage points, respectively, when the after-tax income increases by one unit, holding all the other variables constant. The order of percentage points decreases related to each offence corresponds also to the relative degree of correlation when taking into account dependent means. The fact that the squared income is also negative implies that the higher the after-tax income is, the more the probability of committing these offences will decrease.

The probability of being convicted of other offences, however, does not seem to be affected by the level of after-tax income, as neither the variable of income nor of squared income is significant. As a result of this, the probability of committing any type of offence decreases when the after-tax income increases, but this effect does not seem to be stronger when the after-tax income becomes higher, as the squared income variable in Column 1 is not significant. The variable of income is, however, significant at a 95 % confidence level in this model.

Next, being unemployed increases the chances of committing any sort of crime by 1.67 percentage points compared to those outside the labour market. The average marginal effects in the 5 models are positive and significant at a 99 % confidence level. Compared with those being out of the labour market, the probability of being charged with other, economic, violent and drug offences increases by 1.07, 0.36, 0.25 and 0.20 percentage points, respectively, when being unemployed and holding all the other variables constant. When taking into account the

dependent means, the association between each offence and being unemployed compared to those outside the labour market is strongest for other offences and weakest for violent offences.

Being employed in the state or the municipal sector is associated with a decrease in the probability of being charged with any crime of 3.29 and 2.71 percentage points, respectively, while holding all the other variables constant. All the estimates of the average marginal effects of working in the state or municipal sector are positive and significant at a 99% confidence interval. When taking into account the dependent means, the negative relationship between working in the state or municipal sector is strongest for drug offences and weakest for other offences.

Overall, when being employed in the private sector, the probability of being charged with any crime decreases when holding all the other variables constant, regardless of the concerned industry. All the corresponding coefficients among the 5 models are negative and significant at a 99 % confidence level. Among individuals employed in the private sector, the chances of being charged with any crime decrease the most when one is working in the sector of finance and real estate, as it decreases the chances by 3.58 percentage points while holding all the other variables constant. This observation is also applicable when analysing each offence individually.

On the other side of the scale, the probability of committing any offence decreases the least when one is employed in the industry of hotel and restaurant, as the probability is decreased by 1.08 percentage points while holding all the other variables constant. The estimated average marginal effect of working in the construction sector is, however, quite close to the last-mentioned industry, as working in the construction sector decreases the probability of committing any offence by 1.42 percentage points while holding everything constant. The probability of committing economic, drug and violent offences decreases also the least when being employed in the hotel and restaurant industry, but for other offences, the probability decreases the least when employed in the construction industry.

Another observation is that among employed workers in the private sector, the negative association between each offence and working in any industry is weakest for other offences, regardless of the industry and when taking into account the dependent means. This association is however strongest in the case of drug offences when being employed in any industry except for other industries for which the relationship is strongest in terms of economic offences. This

might indicate that industry is relatively less important for the probability of committing other offences.

A different tendency is observed in the case of self-employment, as being self-employed in the private sector increases the probability of being charged with any offence for all industries except for services and other industries. Being self-employed in services and other industries decreases the probability of being charged with any crime by 0.48 and 1.26 percentage points, respectively, when holding all other variables constant. This negative association is also observed for each of the offences separately.

The estimates of Column 1 with any offence as the dependent variable are all significant at a 99 % confidence level. Among the industries that are positively related to the probability of committing any crime, the relationship is strongest when self-employed in the hotel and restaurant industry as it increases the probability of being charged with a crime by 1 percentage point. The positive relationship is weakest when one is self-employed in the construction industry, as the probability increases in this case by 0.36 percentage points.

The signs of the average marginal effects on any offence are similar to the ones on economic and other offences, but they vary across drug and violent offences. Starting with economic offences, among the industries inducing a positive relationship with committing economic offences, the relationship is strongest when being self-employed in the finance and real estate industry and weakest when self-employed in the construction industry. All the estimates of the average marginal effects of being self-employed on economic offences are significant at a 99 % level.

Regarding the probability of being charged with other offences, all the estimates in Column 5 regarding self-employment are significant at a 99 % confidence level, except for the coefficient estimating the average marginal effect of being self-employed in the financial industry which is insignificant. This implies that being self-employed is not associated with a change in the probability of committing other offences. Among the industries inducing a positive significant relationship, the correlation is strongest when self-employed in the manufacturing industry and weakest when self-employed in the construction industry.

Next, the probability of being charged with drug offences is reduced when being self-employed in the private sector in any industry. It is reduced the most when being self-employed in the services industry as the probability has been reduced by 0.81 percentage points and it is reduced the least in the finance and real estate industry corresponding to a decrease in the probability of

0.30 percentage points while holding all the other variables constant. The coefficients are significant at a 99% confidence level for every industry, except for the finance and real estate industry for which the coefficient is only significant at a 90% confidence level.

Lastly, the estimated average marginal effects of being self-employed on the probability of being charged with violent offences, described in Column 4, are negative for all industries except for the industry of finance and real estate which is positive but only significant at a 90 % confidence level. The other estimates are significant at a 99 % confidence level, except for the estimate of self-employment in the hotel and restaurant industry which is not significant. Among the industries inducing a negative and significant relationship with committing violent offences, the correlation is strongest when self-employed in other industries and it is weakest when self-employed in the manufacturing industry.

Overall, it seems that the probability of being charged with any offence is highest for an around 30-year-old unemployed male with low education. A higher income and living in a city imply a higher probability of being charged with economic, violent and drug crimes, but these factors are not related to any changes in the probability of being charged with other offences. This might indicate that the profile of an offender of other crimes is more random compared to economic, violent and drug offenders who have a relatively more pronounced profile.

Being employed in the state or municipal sector or any industry in the private sector reduces the probability of committing any offence regardless of the industry. The association between being self-employed in the private sector and committing an offence varies depending on the industry and the offence, but the probability of committing any offence is reduced when self-employed in the services and other industries, while it increases when self-employed in the four remaining industries.

Table 1: Logit estimation of the average marginal effects of being charged with main categories of offences

	(1) Any offence	(2) Economic	(3) Drug	(4) Violent	(5) Other
Gender	0.04229***	0.01027***	0.00852***	0.01303***	0.02757***
	(0.00007)	(0.00003)	(0.00003)	(0.00003)	(0.00005)
Age	0.02401***	0.01343***	0.01433***	0.00845***	0.00997***
	(0.00020)	(0.00005)	(0.00005)	(0.00004)	(0.00007)
Age*Age	-0.00408***	-0.00196***	-0.00226***	-0.00134***	-0.00190***
	(0.00002)	(0.00001)	(0.00001)	(0.00001)	(0.00001)

Immigrant	0.00509***	0.00130***	-0.00273***	0.00327***	0.00020***
	(0.00007)	(0.00003)	(0.00003)	(0.00003)	(0.00005)
City	0.00192***	0.00277***	0.00212***	0.00015***	-0.00000
	(0.00007)	(0.00004)	(0.00003)	(0.00003)	(0.00005)
Education	-0.00198***	-0.00062***	-0.00042***	-0.00047***	-0.00113***
	(0.00001)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Income	-0.00018*	-0.00008***	-0.00101***	-0.00017***	-0.00000
	(0.00007)	(0.00000)	(0.00001)	(0.00000)	(0.00000)
Income*Income	-0.00000	-0.00000***	-0.00001***	-0.00000***	-0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Unemployed	0.01670***	0.00358***	0.00196***	0.00247***	0.01072***
	(0.00011)	(0.00005)	(0.00003)	(0.00005)	(0.00008)
Employed state sector	-0.03285***	-0.01897***	-0.01220***	-0.00856***	-0.01499***
	(0.00015)	(0.00008)	(0.00007)	(0.00005)	(0.00008)
Employed municipal sector	-0.02710***	-0.01392***	-0.00977***	-0.00632***	-0.01360***
	(0.00011)	(0.00006)	(0.00005)	(0.00005)	(0.00007)
Employed Private Construction	-0.01415***	-0.01079***	-0.00643***	-0.00496***	-0.00423***
	(0.00014)	(0.00006)	(0.00004)	(0.00004)	(0.00007)
Employed Private Hotel and Restaurant	-0.01078***	-0.00643***	-0.00443***	-0.00369***	-0.00577***
	(0.00015)	(0.00007)	(0.00006)	(0.00006)	(0.00011)
Employed Private Manufacturing	-0.02030***	-0.01229***	-0.00786***	-0.00624***	-0.00844***
	(0.00012)	(0.00004)	(0.00003)	(0.00003)	(0.00005)
Employed Private Finance and Real Estate	-0.03584***	-0.01482***	-0.01100***	-0.01010***	-0.01919***
	(0.00030)	(0.00014)	(0.00016)	(0.00013)	(0.00018)
Employed Private Services	-0.02403***	-0.01108***	-0.00752***	-0.00682***	-0.01243***
	(0.00015)	(0.00005)	(0.00004)	(0.00004)	(0.00007)
Employed Private Other	-0.02315***	-0.01460***	-0.00794***	-0.00613***	-0.00986***
	(0.00024)	(0.00012)	(0.00009)	(0.00008)	(0.00012)
Self-employed Private Construction	0.00357***	0.00188***	-0.00692***	-0.00313***	0.00353***
	(0.00021)	(0.00009)	(0.00014)	(0.00011)	(0.00016)
Self-employed Private Hotel and Restaurant	0.01001***	0.00259***	-0.00578***	-0.00017	0.00557***
	(0.00053)	(0.00023)	(0.00038)	(0.00025)	(0.00043)
Self-employed Private Manufacturing	0.00789***	0.00178***	-0.00643***	-0.00166***	0.00688***
	(0.00018)	(0.00008)	(0.00012)	(0.00009)	(0.00013)
Self-employed Privat Finance and Real Estate	0.00899***	0.00362***	-0.00297*	0.00211*	0.00158
	(0.00160)	(0.00070)	(0.00121)	(0.00082)	(0.00137)
Self-employed Private Services	-0.00478***	-0.00168***	-0.00807***	-0.00429***	-0.00223***
	(0.00024)	(0.00009)	(0.00014)	(0.00011)	(0.00016)
Self-employed PrivateO Other	-0.01261***	-0.00998***	-0.00691***	-0.00490***	-0.00271***
	(0.00021)	(0.00013)	(0.00012)	(0.00010)	(0.00014)
Number of observations	72995982	72995982	72995982	72995982	72995982
Mean of the outcome	0.03432	0.00980	0.00551	0.00758	0.02029
Pseudo R^2	0.09816	0.10364	0.18251	0.10605	0.08419
Log pseudolikelihood	-9838936	-3605200	-2036868	-2908419	-6629931

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
All the models are controlled for year-fixed effects and missing values on education.

4.2. Money laundering and receiving proceeds from crime

It is important to first analyse the association between the characteristics of individuals and their probability of being charged with money laundering or receiving proceeds from crime on a general basis being presented in Table 2, to thereafter analyse how this association varies across different criminality behaviour. This will enable establishing possible correlations between money laundering and other offences.

A first remark when observing the estimation results is that all the coefficients of average marginal effects, except for the coefficient of being self-employed in the finance and real estate industry of the private sector, are significant at a confidence level of 99%. This means that all the sociodemographic and working factors, except for the last mentioned, seem to be associated with a change in the probability of committing money laundering or receiving profits from an offence. First of all, being a man increases the probability of being charged with money laundering or receiving proceeds from offences by 0.18 percentage points when holding all the other variables constant. When taking into account the dependent means, this association is stronger compared to the association between gender and each of the main categories of offences.

Next, the estimate of the average marginal effect of age is positive, whereas the coefficient on squared age is negative. This implies that the relationship between age and being charged with money laundering or receiving proceeds from crime is concave when holding all the other variables constant. The probability of committing money laundering increases every year when one person is getting one year older until this person reaches the age of 35. When going from age 35 to 36 the probability of being charged with money laundering or receiving proceeds from crime starts to decrease. This is similar to what is previously observed for economic offenders in general.

As is the case for drug offences but not for any of the other sorts of offences, the probability of being charged with money laundering and receiving proceeds from offences is decreasing when a person is an immigrant. It decreases by 0.02 percentage points when being an immigrant and holding all the other variables constant. When considering the dependent mean, this negative association is weaker compared to drug offences.

Next, as is the case for economic, violent and drug offences, living in a city increases the chances of being charged with the offences of money laundering and receiving profits from crime by 0.07 percentage points, when holding all the other variables constant. This positive

association is stronger compared to any of the other categories of offences, taking into account the dependent mean.

The effect of schooling years is nevertheless persistent among all the offences, as the probability of being convicted of money laundering and receiving proceeds from crime decreases when one becomes more educated. More precisely, this probability decreases by 0.007 percentage points when spending one extra year on education while holding the other variables constant. When considering the dependent means, this association is only weaker than drug offences among all the offences.

The estimates of the average marginal effects of after-tax income and squared income are both negative. The probability of being charged with money laundering and receiving proceeds from crime is thus decreasing on average by 0.01 percentage points with one extra unit of after-tax income assuming the relationship is linear when holding all the other variables constant. Since the variable of squared income is also negative, it implies that the higher the after-tax income is, the more the probability of being charged with these offences will decrease with one extra unit of after-tax income. The average association between income and money laundering is only weaker than it is for drug offences when considering the dependent mean.

Furthermore, in contrast to the main categories of offences, the probability of committing money laundering or receiving proceeds from crime decreases when one becomes unemployed compared to those outside of the labour force. The reduction is however quite little, as the probability decreases by 0.007 percentage points when being unemployed compared to those outside the labour force while holding all the other variables constant.

However, since the labour market status of individuals and the charges is updated yearly in the dataset, a share of the offenders might be in prison during the year their offence is registered. This implies that they would belong to the basis group regrouping individuals outside of the labour market. In this case, it is the offence itself which affects the labour market status of a person, and not the inverse. This is important to have in mind when interpreting the estimates on unemployment.

The chances of being charged with money laundering or receiving proceeds from crime are also reduced when one person is employed in the state or the municipal sector. The probability decreases by 0.30 and 0.26 percentage points, respectively, while holding the other variables constant. Compared to the dependent mean of the main categories of offences, the association between being employed in the state or municipal sector and the probability to commit an

offence is strongest if this offence is money laundering or receiving proceeds from crime than any other main offences.

Similar to the main categories of offences, all the estimates of the average marginal effects of being employed in the private sector are negative regardless of the industry. The probability of being charged with money laundering or receiving proceeds from crime decreases the most when being employed in the finance and real estate industry, as it decreases by 0.26 percentage points when holding all the other variables constant. Right after this industry, it is the other industries which reduce the probability the most, followed by the industry of manufacturing, and subsequently, the services industry.

Being employed in the construction, hotel and restaurant industry reduces the probability of being charged with money laundering the least, as it reduces it by 0.18 and 0.15 percentage points, respectively, while holding everything constant. The association between being employed in any industry and committing an offence is strongest if this offence is money laundering than for any of the other main offences when considering the dependent means.

In contrast to the main categories of offences, being self-employed in any industry reduces the probability of committing money laundering or receiving proceeds from crime, except if working in the finance and real estate industry as the average marginal effect of self-employment in this industry is not significant and positive. The following industries are ranked according to the industry that decreases the probability of being charged with the last cited offences the most when being self-employed in each industry: other industries, services, construction, hotel and restaurant sectors, and finally the manufacturing industry. The probability is indeed decreased by 0.20 percentage points when being self-employed in other industries, whereas it is decreased by 0.08 when self-employed in the manufacturing industry.

Overall, it seems that the probability of being charged with money laundering or receiving proceeds from crime is the highest for an around 35-year-old male with low education, low after-tax income, living in a city and who is not an immigrant. Being unemployed, self-employed, or employed in the private, state and municipal sectors, is associated with a lower probability of committing money laundering compared to those outside the labour force. The probability is however decreased relatively less when employed in the construction, hotel and restaurant industries, and when self-employed in the manufacturing, hotel and restaurant industries.

Table 2: Logit estimation of average marginal effects of being charged with money laundering or receiving proceeds from crime

	Money laundering and receiving proceeds from crime
Gender	0.00175***
	(0.00001)
Age	0.00307***
	(0.00002)
Age*Age	-0.00045***
	(0.00000)
Immigrant	-0.00022***
	(0.00001)
City	0.00071***
	(0.00002)
Education	-0.00007***
	(0.00000)
Income	-0.00012***
	(0.00000)
Income*Income	-0.00000***
	(0.00000)
Unemployed	-0.00007***
	(0.00001)
Employed state sector	-0.00303***
	(0.00004)
Employed municipal sector	-0.00256***
	(0.00003)
Employed Private Construction	-0.00176***
	(0.00002)
Employed Private Hotel and Restaurant	-0.00148***
	(0.00003)
Employed Private Manufacturing	-0.00210***
	(0.00002)
Employed Private Finance and Real Estate	-0.00260***
	(0.00008)
Employed Private Services	-0.00208***
	(0.00002)
Employed PrivateO Other	-0.00214***
	(0.00005)
Self-employed PrivateC Construction	-0.00107***
	(0.00004)
Self-employed PrivateH	-0.00082***
	(0.00011)
Self-employed PrivateM Manufacturing	-0.00075***
	(0.00003)
Self-employed PrivatF Finance and Real Estate	0.00015
	(0.00029)
Self-employed PrivateS Services	-0.00148***
	(0.00005)
Self-employed PrivateO Other	-0.00200***
	(0.00006)
Number of observations	72995982

```
Dependent mean                                                                0.00101
Pseudo R²                                                                     0.17297
Loglikelihood                                                                 -480462
--------------------------------------------------------------------------------------
Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
All the models are controlled for year-fixed effects and missing values on education.
```

After obtaining some knowledge concerning which factors are associated with one person's probability to commit money laundering and receiving proceeds from crime, the variation in these relationships depending on which other offences a money launderer has been charged with will be studied. Panels A and B of Appendix 2 illustrate the logit estimations when decomposing the probability of being charged with money laundering or receiving proceeds from crime depending on possible co-offences committed by the charged individuals, including no other co-offences committed as one of the categories.

A remark is that in some of these models, some observations have been omitted from the regressions because, for some variables, almost all the data takes the value of either 0 or 1. It is the case for the variables representing whether one is employed or self-employed in the financial sector, self-employed in the construction sector and employed in the state sector. As such combinations occur rarely, there is not enough variation in the data to identify the effects of associated variables. This explains the reason for the variation in the number of observations of the different models in the estimation table. It is nevertheless considered interesting to include these variables as they might be significant for the other combinations of outcomes.

First of all, the estimated average marginal effect of being a man is positive and significant at a 99 % confidence level across all the combinations of outcomes. The combination of co-offences which explains the most the association between gender and money laundering is the one including drug, economic, violent and other co-offences. The probability of being charged with all these offences in addition to money laundering or receiving proceeds from crime increases on average by 0.03 percentage points when holding all the other variables constant. The combinations of co-offences implying the lowest increase in probability in terms of percentage points are the ones including either (a) economic and violent offences, or (b) drug and violent offences. The probability of being charged with these two alternatives of co-offences increases by 0.002 percentage points when being a man and holding all the other variables constant.

The association between age and the probability of committing an offence is similar across all the combinations of co-offences. The average marginal effects of age are positive and of squared age are negative. Both are significant at a 99 % confidence interval. The relationship

57

between age and the probability of being charged with each alternative of co-offences is thus concave. The age at which the probability of committing any co-offences varies across the different combinations. It varies from the age of 17 for which the probability of being charged with violent offences as the only co-offence is the highest, to the age of 46 for which the probability of committing drug, violent and other offences as co-offences is the highest. Moreover, similarly to the probability of committing money laundering or receiving proceeds from crime in general, the probability of committing the co-offences of (a) drug and economic offences and (b) drug, economic and other offences, reaches its peak at the age of 35.

The average marginal effect of being an immigrant is significant at a 99 % confidence level across all the combinations of charges, except for when the outcome is to be charged with economic and other offences as co-offences for which the coefficient is not significant. Moreover, the sign of the estimates varies across the different combinations of charges.

In 6 of the 16 models, the correlation is negative and significant. Drug offences are included as co-offences in these 6 models, and economic offences are included in 4 of them. These combinations of co-offences drive the negative association between immigration and committing money laundering in general. Among these models, when being an immigrant, the probability of being charged with drug, economic and other co-offences in addition to money laundering decreases the most in terms of percentage points change, as it decreases by 0.035 percentage points when holding everything else constant.

Of the 9 remaining models for which the association between immigration and the dependent variables is positive and significant, 6 of them include violent offences. The probability increases the most in terms of percentage point changes when committing no other offences than money laundering or receiving proceeds from crime, as it increases by 0.011 percentage points when holding all the other variables constant. This might indicate that it is more usual to commit a co-offence than no other offence than money laundering.

Next, the association between living in a city and any alternatives of co-offences is positive and significant at a 99 % confidence level across all the alternatives. The probability of being charged with all 4 main offences, or all of them except for violent offences in addition to money laundering, has the highest percentage points increase when living in a city, as it increases by 0.011 and 0.018 percentage points, respectively, while holding all the other variables constant.

On the other side of the scale, it is the probability of being charged with either (a) drug and violent co-offences, (b) only violent co-offences, (c) violent and other co-offences and (d)

violent and economic co-offences, which increases the least in terms of percentage points changes when living in a city. The probability of being charged with one of these 4 alternatives of co-offence in addition to money laundering increases by 0.001 percentage points each when holding all the other variables constant. The increase in the probability of only being charged with money laundering or receiving proceeds from an offence, is moderate compared to the other combinations of offences, as the probability increases by 0.005 percentage points when living in the city and holding other variables constant.

Furthermore, the relationship between the years of education and the probability of being charged with different combinations of money laundering is negative and significant at a 99 % confidence level across all the outcomes. The coefficients of the average marginal effects are however all relatively small. The combination of co-offences which explains the most the association between education and money laundering is the combination that is composed of drug, economic and other offences. The probability of being charged with these offences decreases by 0.002 percentage points when spending one extra year at school and holding all the other variables constant. This group of co-offences is however also representing the largest group in terms of the number of offenders.

In 9 models, the decrease in percentage points in the probability of being charged with each of the outcomes when spending one extra year on education is equal to 0 when rounded to 5 decimal places, although it is significant. 7 of these models include violent offences as a co-offence.

Next, what is interesting about income, is that after-tax income does not seem to be associated with a change in the probability of being charged with (a) no other co-offences and the co-offences of (b) violent and other offences since the coefficients on the average marginal effects of income and squared income are insignificant in the respective models. The fact that the effect of income is insignificant for the probability of only committing money laundering or receiving proceeds from crime might indicate that the total effect of income on being convicted of these offences is primarily driven by committing additional offences.

All the estimates of the after-tax squared income are negative, indicating a concave relationship between income and being charged with an offence, which is in line with the estimations concerning money laundering in general. These estimates are significant at a 99 % confidence level in 12 models out of 16. It implies that the probabilities of being charged with these

offences decrease even more with an extra unit of after-tax income when the after-tax income is at a relatively higher level.

The negative association between higher income and money laundering is mainly driven by 4 combinations of co-offences as only 5 models have negative and significant estimates at a 99 % level. These outcomes are composed of the following co-offences: (a) economic, violent and other offences, (c) economic and other offences, (b) only economics offences, (d) only other offences and (e) drug, violent and other offences. Remarkably, economic and other offences are the most recurrent co-offences in these models.

Furthermore, in 8 of the models, the average marginal effect of after-tax income is positive and significant at a 99 % confidence level, except for the outcome of violent co-offences which is only confident at a 90 % confidence level. These combinations of offences tend to explain less the probability of committing money laundering in general compared to the 5 last mentioned alternatives of co-offences because the association between income and money laundering is negative. The signs of the estimates imply that the probability of being charged with the offences in each model increases relatively more with one extra unit of income when the income is low. When the income level is higher, the probability will increase at a slower rate and even decrease at a certain level of income.

An interesting observation is that among these 8 models, 7 of them include drug offences. The coefficients are relatively small, but the probability of being charged with additional offences increases the most in terms of percentage points increase when the co-offences are drug, economic, violent and other. It increases by 0.011 percentage points with an extra unit of income while holding all the other variables constant.

Regarding the average marginal effect of being unemployed compared to those outside the labour force, the significance and the sign is varying a lot across the different outcomes. As studied earlier, the relationship between committing money laundering or receiving proceeds from offences and being unemployed compared to those out of the labour market is negative. This probability decrease is mainly driven by the negative and significant estimates in the following combinations of outcomes: (a) drug and economic offences, (b) drug, economic, violent and other offences, (c) drug, economic and other offences, (d) drug, violent and other offences and (e) drug, economic and violent offences. Among these outcomes, the probability of being charged with all four offences in addition to money laundering decreases the most in terms of percentage points change when being unemployed, as it decreases by 0.005 percentage

points while holding all the other variables constant. Remarkably, drug offences are included as co-offences in all the last-mentioned combinations and economic offences are included in 4 of 5 models.

The models including the following co-offences are explaining the probability of money laundering or receiving proceeds from crime relatively less as their estimates regarding unemployment are positive: (a) only money laundering and receiving proceeds from offences, (b) economic, violent and other offences, (c) other offences and (d) violent offences. The coefficients are significant at 99 % in the three first-mentioned models and at a 90 % confidence level in the model only including violent offences as co-offences. In all the other models which have not been mentioned, the correlation between unemployment and given co-offences is not significant.

As is the case for the main variable of interest, money laundering and receiving proceeds from crime, being employed in the state or municipal sector decreases the probability of being charged with any combination of co-offences. An exception is observed regarding the outcome of being charged with drug, economic and violent co-offences for which the coefficient of being employed in the state sector is positive and not significant. Otherwise, the coefficients are negative and significant at a 99 % confidence level. The probability decreases the most in terms of percentage points change if one is convicted of drug, economic and other co-offences, when working either in the state or the municipal sector, implying a decrease of 0.099 and 0.080 percentage points, respectively, while holding the other variables constant. This might be related to the fact that this combination of co-offences represents the largest share of money launderers.

Regarding the estimated average marginal effects of being employed in the different industries of the private sector compared to those outside the labour force, all the coefficients are negative and significantly different from 0 except for the estimate of being employed in the financial sector when being charged with violent and other offences meaning that there does not seem to be any relationship. The fact that the other estimates are negative is in line with the previous result on money laundering and receiving proceeds from crime in general.

Another observation is that the outcome for which the probability decreases the most in terms of percentage points changes when being employed in any industry is the outcome of being charged with the co-offences including drug, economic and other offences. The probability of being charged with these co-offences decreases the most when being employed in the financial

industry, by 0.073 percentage points, and it decreases the least when being employed in the construction industry, meaning by 0.048 percentage points when holding all the other variables constant.

On the other hand, the combination of offences for which the probability decreases the least in terms of percentage points changes when being employed in any industry is the outcome of only being charged with violent co-offences. In this co-offence alternative, the probability decreases the most in the services industry and it decreases the least in the construction sector, in terms of percentage points changes. The relative effect of each combination of co-offences on the probability of committing money laundering corresponds to their relative size, presented in sub-section 3.3.1.

There is more variation in the relationship between being self-employed in the different industries of the private sector and being charged with different combinations of co-offences. First of all, the probability of being charged with no other offences than money laundering and receiving proceeds from offences, is increasing when self-employed in the manufacturing, hotel and restaurant industries and is decreasing when self-employed in the 4 remaining industries. The estimates are however not significant regarding the industry of construction and finance, whereas they are significant at a 99 % confidence level for the remaining industries.

The association between being self-employed and being charged with money laundering or receiving proceeds from crime, in general, was negative when working in any industry except for the financial one. This does not correspond to the estimates of the construction, restaurant and manufacturing industries on the probability of committing no other offences than money laundering. This might indicate that at least for these three industries, the probability of committing money laundering in general is driven by committing other co-offences.

Starting with the construction industry, the estimated average marginal effect of being self-employed in this industry is also negative and significant at a 99 % confidence in 7 different models which have in common that they all include drug offences.

Next, in 6 of the models, the average marginal effect of being self-employed in the hotel and restaurant industry is negative and significant. Drug and economic offences are the most recurrent co-offences in these models. Moreover, it is only the probability of being charged with drug, economic and other offences as co-offences that is significant at a 99 % confidence level. This combination is therefore mainly explaining the probability change of the main offence in interest. Furthermore, in 9 out of 16 models, there is no correlation between being

self-employed in this industry and being charged with the co-offences of the respective models, as their estimates are not significantly different from 0. Remarkably, 7 of these 9 models include violent offences. The same tendencies apply to the manufacturing industry, although there are 9 models for which the estimates of the marginal average effects are negative and significant.

The average marginal effects of being self-employed in the financial and real estate industry are not significantly different from 0, except for when being charged with only economic co-offences. The coefficient is significant at a 90 % confidence level and implies that the probability of being charged with these offences increases by 0.010 percentage points when being self-employed in the financial sector and holding all the other variables constant. Although all the other coefficients are not significant, they are positive, which corresponds to the estimate of money laundering in general.

Regarding services and other industries, the average marginal effects correspond to the estimate of being charged with money laundering or receiving proceeds from crime in general. Indeed, all the coefficients are negative and significant at a 99 % confidence level except in the case of being charged with drug and violent co-offences in both industries and only violent co-offences in other industries, for which the coefficients are insignificant. When being self-employed in these two industries, the probability of being charged with drug, economic and other offences as additional offences decreases the most in terms of percentage points changes.

Based on the results above, it seems that laundering money is less associated with being convicted of violent offences too, whereas it seems that it is relatively more linked to committing drug, economic and other offences. This last-mentioned combination of co-offences tends to drive the association between the different factors and the probability of being charged with money laundering or receiving proceeds from crime in general.

4.3 Implications for Policymakers and Countermeasures

This analysis suggests that there is a significant relationship between the probability of being charged with most of the offences and the gender, age, immigrant status, resident place, education level, income and working status of individuals. Identifying the characteristics of offenders can be used to develop more appropriate and effective investigation guidelines for the police, but it can also provide some proposals for policies related to preventing white-collar crime. However, the findings of this study imply only correlation and not causality, meaning that no strong policy recommendations can be made. The analysis is still of great importance

as there is little data on criminality and it can provide some valuable information. Moreover, one should be cautious in using the results in other countries than Norway as the institutional setting, as well as the sociodemographic and labour market characteristics, may differ.

First of all, this analysis has developed the profile of a typical offender of not only money laundering and receiving proceeds of crime but also offender of drug, economic, violent and other crimes. A person is more likely to be charged with money laundering or receiving proceeds from crime if this person is an around 35-year-old male with low education, low after-tax income, living in a city and who is not an immigrant. Offender profiling is a common practice when investigating criminality. It consists of narrowing the group of potential suspects based on information available on passed criminality. It allows differentiating offenders from non-offenders. (Dabney et al., 2006) The offender profiles developed in this thesis based on past criminality might therefore be used during the screening process of law enforcement agents in Norway.

Moreover, the association between the offence of money laundering or receiving proceeds from crime and other offences might also be beneficial in the process of screening suspects. As shown previously, a person who has been charged with money laundering or receiving proceeds from crime has often also been charged with other drug, economic and other offences at the same time. If one is investigating an individual who has been charged with money laundering or proceeds from crime, it might be beneficial to use more resources on investigating further whether this person has also committed other drug, economic and other offences, compared to investigating if this person has also committed a violent offence. The reason for this is that a smaller proportion of money launderers have been charged with violent offences, compared to the three other offences.

However, when using experiences from past charges to influence the direction of the present or future charges, one issue arises if these past charges are based on biased judgments as this bias might be reproduced in the future judgment. An example is that the police arrest a larger proportion of immigrants compared to the actual share of it in society due to a thought or an assumed statistic that immigrants are more likely to commit an offence. In this case, when profiling offenders based on past charges, the police will continue to arrest immigrants disproportionally based on biased statistics. (Dabney et al., 2006)

Secondly, more specifically in the case of money laundering, institutions that are subject to reporting obligations to FIU are also required to establish measures preventing money

laundering and terrorist financing based on an assessment of the risk of it, cf. Anti-Money Laundering Act § 6. This includes assessing the risk of their customers committing the last-mentioned offences. However, the Act is somewhat vague as it does not specify how the risk assessment should be conducted, but it provides some guidelines. The guide to the Money Laundering Act mentions that the risk should be assessed according to the institution's own business, products, services, customers and geographic factors. It states that the assessment should also be based on own experience or external sources such as reports published by authorities or organisations. (*Veileder til hvitvaskingsloven*, 2022)

However, when a reporting institution is newly established or does not have a lot of customers, it might be challenging to establish effective anti-money laundering measures complying with the Act as they do not have a lot of experience with cases of money laundering among their customers. In this situation, it might be useful to provide information on the typical profile of a money launderer to the Act or its guidelines. Knowing which sociodemographic characteristics are associated with a higher probability of committing this crime can make it easier to prevent money laundering but it also increases the chances to comply with the law if the Act were more specific than currently. It might also be useful for any reporting organisation because creating a common framework might make their work more targeted and effective.

5. CONCLUSION

To summarise the findings on the sociodemographic characteristics of offenders, the probability of being charged with any offence is highest for an unemployed male with low education. Regarding age, the probability of being charged with money laundering or receiving proceeds from crime is highest for a 35-year-old person, whereas the probability of committing any offence is highest for a 30-year-old person.

Moreover, it seems that economic, drug and violent offenders, including money launderers, have a more specific profile than other offenders who seems to be relatively more random. The reason for this statement is that there seems to be no relationship between the probability of committing other offences and the after-tax income or whether one lives in a city. In contrast, the chances of being charged with drug, economic and violent offences, including money laundering or receiving proceeds from crime, decrease with higher after-tax income and increase when living in a city. Regarding the immigrant status of a person, being an immigrant

is associated with a higher probability of being charged with economic, violent and other offences, whereas the probability decreases if the offences are money laundering, receiving proceeds from crime or drug-related.

Next, regarding the labour market characteristics, being employed in the municipal, state or private sector is associated with a decrease in the probability of being charged with any offence. This relationship does not vary across the different industries in the private sector. Being unemployed, however, is correlated with a lower probability of being charged with money laundering or receiving proceeds from crime, whereas the relationship is positive if the offence belongs to any of the four main categories of offences.

Being self-employed in the private sector is associated with a decrease in the probability of being charged with any offence if working in manufacturing and other industries. The relationship varies across the other four industries, but it is consequently positive for economic offences and negative for drug offences. The relationship is also negative for money laundering and receiving proceeds from crime, except for the financial sector which does not seem to be correlated.

Finally, being charged with money laundering or receiving proceeds from crime tends to be more correlated with being charged with economic, drug or other co-offences, than violent co-offences. It is important to develop more knowledge on money laundering as it is harming society economically and politically. Having more information on it might help to prevent these offences. Moreover, the data on criminality is very limited which makes this research subject even more valuable. Although these findings contribute to more information on criminality profiling which might be useful for policymakers, it is important to have in mind that this study is only based on reported criminality and no causality can thus be drawn. Furthermore, the results cannot apply to other countries than Norway.

REFERENCES

Alalehto, T., & Larsson, D. (2012). Vem är den ekonomiske brottslingen?: En jämförelse mellan länder och brottstyper. *Sociologisk Forskning*, *49*(1), 25–44. https://doi.org/10.37062/sf.49.18390

Benson, M. L., & Kerley, K. R. (2001). LIFE COURSE THEORY AND WHITE-COLLAR CRIME. *Contemporary Issues in Crime and Criminal Justice: Essays in Honor of Gil Geis*, 121–136.

Buele, I., Nieves, J., & Cuesta, F. (2019). Money Laundering in Ecuador: Profile of the Involved Person and the Socio-Economic Impact. *Journal of Legal, Ethical and Regulatory Issues*, *22*(4), 1–380.

Cohen, L. E., & Felson, M. (1979). *Social Change and Crime Rate Trends: A Routine Activity Approach*. *44*(4).

Dabney, D. A., Dugan, L., Topalli, V., & Hollinger, R. C. (2006). The Impact of Implicit Stereotyping on Offender Profiling: Unexpected Results From an Observational Study of Shoplifting. *Criminal Justice and Behavior*, *33*(5), 646–674. https://doi.org/10.1177/0093854806288942

Daly, K., & Tonry, M. (1997). Gender, Race, and Sentencing. *Crime and Justice*, *22*, 201–252.

Dømt til fengsel for heleri og hvitvasking. (2022, November 4). Økokrim. https://www.okokrim.no/doemt-til-fengsel-for-heleri-og-hvitvasking.6567672-549344.html

Endringer i regler på hvitvaskingsområdet. (2021, June 2). Finanstilsynet. https://www.finanstilsynet.no/nyhetsarkiv/nyheter/2021/endringer-i-regler-pa-hvitvaskingsomradet/

Gilmour, N. (2016). Understanding the practices behind money laundering – A rational choice interpretation. *International Journal of Law, Crime and Justice*, *44*, 1–13. https://doi.org/10.1016/j.ijlcj.2015.03.002

Gottschalk, P. (2018). White-Collar Crime Research. In L. Gunnesdal (Ed.), *White-Collar Crime in the Shadow Economy: Lack of Detection, Investigation and Conviction Compared to Social Security Fraud* (pp. 1–14). Springer International Publishing. https://doi.org/10.1007/978-3-319-75292-1_1

Hansen, K. (2003). Education and the Crime-Age Profile. *The British Journal of Criminology*, *43*(1), 141–168.

Hawaii Criminal Justice Information Data Center. (1982). *Demographic Characteristics of Offender Population—Final Report*. *95224*, 1–147.

Heleri. (2020, June 22). Jusinfo.no - presentert av Oslo Advokat RUV AS. https://jusinfo.no/strafferett/heleri/heleri/

Iversen, M. L. (2021, September 16). *Hvitvasking*. Økokrim. https://www.okokrim.no/hvitvasking.422268.no.html

Jojarth, C. (2013). Money Laundering: Motives, Methods, Impact, and Countermeasures. In Heinrich-Böll-Stiftung & R. Schönenberg (Eds.), *Transnational Organized Crime* (pp. 17–34). Transcript Verlag. https://www.jstor.org/stable/j.ctv1fxh0d.5

Ningtyas, V., Ismail, M., & Wahyudi, S. (2022). The Determinants of Money-Laundering Behavior in Indonesia. *Journal of Indonesian Applied Economics*, *10*(1), 8–16. https://doi.org/10.21776/ub.JIAE.2022.010.01.2

Riksadvokaten. (2018). *Retningslinjer om heleri-, hvitvaskings- og selvvaskingssaker*. https://www.riksadvokaten.no/wp-content/uploads/2018/09/Retningslinjer-for-heleri-hvitvasking-og-selvvaskingssaker.pdf

Singh, K., & Best, P. (2019). Anti-Money Laundering: Using data visualization to identify

    suspicious activity. *International Journal of Accounting Information Systems*.

    https://doi.org/10.1016/j.accinf.2019.06.001

Straffeloven. (1902). *Almindelig borgerlig Straffelov* (LOV-1902-05-22-10). Lovdata.

    https://lovdata.no/NLO/lov/1902-05-22-10

The Anti-Money Laundering Act. (2018). *Act relating to Measures to Combat Money*

    Laundering and Terrorist Financing (Lovdata). LOV-2018-06-01-23.

    https://lovdata.no/NLE/lov/2018-06-01-23

The Penal Code. (2005). *The Penal Code* (LOV-2005-05-20-28). Lovdata.

    https://lovdata.no/NLE/lov/2005-05-20-28

Veileder til hvitvaskingsloven. (2022, November 15). Finanstilsynet.

    https://www.finanstilsynet.no/nyhetsarkiv/rundskriv/2022/veileder-til-

    hvitvaskingsloven/

Verbeek, M. (2017). *A guide to modern econometrics* (Fifth edition). Wiley Custom.

Weisburd, D., Waring, E., & Chayet, E. F. (2002). White-Collar Crime and Criminal Careers.

    Contemporary Sociology, *31*(5), 599. https://doi.org/10.2307/3090075

APPENDIX 1: DECOMPOSITION OF THE OUTCOME VARIABLE

Variable name	Money laundering or proceeds from crime	Drug offence	Economic offence	Violent offence	Other offence
Only money laundering	Yes	No	No	No	No
Drug	Yes	Yes	No	No	No
Drug and economic	Yes	Yes	Yes	No	No
Drug, economic and violent	Yes	Yes	Yes	Yes	No
Drug, economic, violent and other	Yes	Yes	Yes	Yes	Yes
Economic	Yes	No	Yes	No	No
Economic and violent	Yes	No	Yes	Yes	No
Economic, violent and other	Yes	No	Yes	Yes	Yes
Violent	Yes	No	No	Yes	No
Violent and other	Yes	No	No	Yes	Yes
Other	Yes	No	No	No	Yes
Drug and other	Yes	Yes	No	No	Yes
Drug and violent	Yes	Yes	No	Yes	No
Economic and other	Yes	No	Yes	No	Yes
Drug, violent and other	Yes	Yes	No	Yes	Yes
Drug, economic and other	Yes	Yes	Yes	No	Yes

APPENDIX 2: LOGIT ESTIMATION OF AVERAGE MARGINAL EFFECTS OF THE OUTCOME ALTERNATIVES WHEN CHARGED WITH MONEY LAUNDERING OR RECEIVING PROCEEDS FROM CRIME

Panel A

	(1) Only ML	(2) D	(3) D E	(4) D E V	(5) D E V O	(6) E	(7) E V	(8) E V O
Gender	0.00019*** (0.00000)	0.00008*** (0.00000)	0.00008*** (0.00000)	0.00003*** (0.00000)	0.00034*** (0.00001)	0.00011*** (0.00000)	0.00002*** (0.00000)	0.00008*** (0.00000)
Age	0.00016*** (0.00001)	0.00022*** (0.00001)	0.00034*** (0.00001)	0.00007*** (0.00000)	0.00060*** (0.00001)	0.00013*** (0.00000)	0.00002*** (0.00000)	0.00007*** (0.00000)
Age*Age	-0.00003*** (0.00000)	-0.00003*** (0.00000)	-0.00005*** (0.00000)	-0.00001*** (0.00000)	-0.00009*** (0.00000)	-0.00002*** (0.00000)	-0.00000*** (0.00000)	-0.00001*** (0.00000)
Immigrant	0.00011*** (0.00000)	-0.00001** (0.00000)	-0.00008*** (0.00000)	-0.00001*** (0.00000)	-0.00009*** (0.00000)	0.00004*** (0.00000)	0.00001*** (0.00000)	0.00002*** (0.00000)
City	0.00005*** (0.00001)	0.00006*** (0.00000)	0.00009*** (0.00001)	0.00002*** (0.00000)	0.00011*** (0.00001)	0.00005*** (0.00000)	0.00001*** (0.00000)	0.00002*** (0.00000)
Education	-0.00001*** (0.00000)	-0.00000*** (0.00000)	-0.00001*** (0.00000)	-0.00000*** (0.00000)	-0.00001*** (0.00000)	-0.00001*** (0.00000)	-0.00000*** (0.00000)	-0.00000*** (0.00000)
Income	0.00000 (0.00000)	0.00001*** (0.00000)	0.00006*** (0.00000)	0.00001*** (0.00000)	0.00011*** (0.00000)	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00001*** (0.00000)
Income*Income	-0.00000 (0.00000)	-0.00001*** (0.00000)	-0.00002*** (0.00000)	-0.00000*** (0.00000)	-0.00004*** (0.00000)	-0.00000 (0.00000)	-0.00000 (0.00000)	-0.00000*** (0.00000)
Unemployed	0.00004*** (0.00001)	-0.00000 (0.00000)	-0.00003*** (0.00000)	-0.00000* (0.00000)	-0.00005*** (0.00001)	0.00000 (0.00000)	-0.00000 (0.00000)	0.00001*** (0.00000)
Employed state sector	-0.00023*** (0.00001)	-0.00017*** (0.00001)	-0.00030*** (0.00002)	0.00000 (.)	-0.00049*** (0.00003)	-0.00019*** (0.00001)	-0.00004*** (0.00001)	-0.00008*** (0.00001)
Employed municipal sector	-0.00019*** (0.00001)	-0.00015*** (0.00001)	-0.00026*** (0.00001)	-0.00007*** (0.00001)	-0.00045*** (0.00002)	-0.00017*** (0.00001)	-0.00003*** (0.00000)	-0.00008*** (0.00001)
Employed Private Construction	-0.00009*** (0.00001)	-0.00009*** (0.00001)	-0.00016*** (0.00001)	-0.00003*** (0.00000)	-0.00026*** (0.00001)	-0.00009*** (0.00001)	-0.00002*** (0.00000)	-0.00003*** (0.00000)

Employed Private Hotel and Restaurant	-0.00008*** (0.00001)	-0.00007*** (0.00001)	-0.00017*** (0.00001)	-0.00003*** (0.00001)	-0.00032*** (0.00002)	-0.00008*** (0.00001)	-0.00002*** (0.00000)	-0.00004*** (0.00001)
Employed Private Manufacturing	-0.00011*** (0.00000)	-0.00011*** (0.00000)	-0.00022*** (0.00001)	-0.00005*** (0.00000)	-0.00037*** (0.00001)	-0.00012*** (0.00000)	-0.00002*** (0.00000)	-0.00005*** (0.00000)
Employed Private Finance and Real Estate	-0.00022*** (0.00002)	-0.00011*** (0.00002)	-0.00021*** (0.00003)	-0.00004** (0.00001)	-0.00037*** (0.00005)	-0.00016*** (0.00002)	-0.00002** (0.00001)	-0.00005*** (0.00001)
Employed Private Services	-0.00014*** (0.00001)	-0.00010*** (0.00000)	-0.00020*** (0.00001)	-0.00004*** (0.00000)	-0.00032*** (0.00001)	-0.00012*** (0.00001)	-0.00002*** (0.00000)	-0.00004*** (0.00000)
Employed Private Other	-0.00015*** (0.00001)	-0.00011*** (0.00001)	-0.00018*** (0.00002)	-0.00004*** (0.00001)	-0.00035*** (0.00003)	-0.00013*** (0.00001)	-0.00002*** (0.00000)	-0.00005*** (0.00001)
Self-employed Private Construction	-0.00002 (0.00002)	-0.00010*** (0.00002)	-0.00015*** (0.00002)	-0.00003*** (0.00001)	-0.00016*** (0.00002)	-0.00002* (0.00001)	-0.00001* (0.00000)	-0.00002* (0.00001)
Self-employed Private Hotel and Restaurant	0.00010*** (0.00003)	-0.00007* (0.00003)	-0.00014** (0.00005)	0.00000 (.)	-0.00028** (0.00009)	-0.00007* (0.00003)	-0.00001 (0.00001)	-0.00003 (0.00002)
Self-employed Private Manufacturing	0.00006*** (0.00001)	-0.00007*** (0.00001)	-0.00013*** (0.00002)	-0.00002** (0.00001)	-0.00016*** (0.00002)	0.00001 (0.00001)	-0.00001* (0.00000)	-0.00001 (0.00001)
Self-employed Privat Finance and Real Estate	-0.00007 (0.00017)	0.00005 (0.00006)	0.00000 (.)	0.00000 (.)	0.00010 (0.00009)	0.00010* (0.00005)	0.00000 (.)	0.00000 (.)
Self-employed Private Services	-0.00005*** (0.00001)	-0.00009*** (0.00001)	-0.00021*** (0.00003)	-0.00004*** (0.00001)	-0.00027*** (0.00003)	-0.00006*** (0.00001)	-0.00001* (0.00000)	-0.00003*** (0.00001)
Self-employed Private Other	-0.00017*** (0.00002)	-0.00014*** (0.00002)	-0.00021*** (0.00003)	-0.00003*** (0.00001)	-0.00025*** (0.00002)	-0.00014*** (0.00002)	-0.00003** (0.00001)	-0.00007*** (0.00002)
Number of observations	72995982	72995982	72987727	66040485	72995982	72995982	72987727	72987727
Dependent mean	0.000168	0.0000636	0.0000753	0.0000169	0.000122	0.0000804	0.0000106	0.0000269
Pseudo R^2	0.0621	0.126	0.190	0.168	0.236	0.0905	0.127	0.154
Log-likelihood	-111438	-43249	-46738	-11151	-68036	-55664	-8416	-19124

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
ML = Money laundering and receiving proceeds from crime, D = drug offence, V = violent offence, E = economic offence, O = other offence
All the models are controlled for year-fixed effects and missing values on education

Panel B

	(9) V	(10) V O	(11) O	(12) D O	(13) D V	(14) E O	(15) D V O	(16) D E O
Gender	0.00003*** (0.00000)	0.00003*** (0.00000)	0.00011*** (0.00000)	0.00013*** (0.00000)	0.00002*** (0.00000)	0.00014*** (0.00000)	0.00008*** (0.00000)	0.00043*** (0.00001)
Age	0.00002*** (0.00000)	0.00002*** (0.00000)	0.00007*** (0.00000)	0.00028*** (0.00001)	0.00003*** (0.00000)	0.00016*** (0.00001)	0.00009*** (0.00000)	0.00131*** (0.00002)
Age*Age	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00001*** (0.00000)	-0.00004*** (0.00000)	-0.00000*** (0.00000)	-0.00002*** (0.00000)	-0.00001*** (0.00000)	-0.00019*** (0.00000)
Immigrant	0.00001*** (0.00000)	0.00001*** (0.00000)	0.00002*** (0.00000)	-0.00003*** (0.00000)	0.00000*** (0.00000)	-0.00000 (0.00000)	0.00001*** (0.00000)	-0.00035*** (0.00001)
City	0.00001*** (0.00000)	0.00001** (0.00000)	0.00002*** (0.00000)	0.00005*** (0.00000)	0.00001*** (0.00000)	0.00004*** (0.00000)	0.00002*** (0.00000)	0.00018*** (0.00001)
Education	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00001*** (0.00000)	-0.00000*** (0.00000)	-0.00002*** (0.00000)
Income	0.00000* (0.00000)	-0.00000 (0.00000)	-0.00000*** (0.00000)	0.00001*** (0.00000)	0.00001*** (0.00000)	-0.00001*** (0.00000)	-0.00000*** (0.00000)	0.00001*** (0.00000)
Income*Income	-0.00000*** (0.00000)	-0.00000 (0.00000)	-0.00000*** (0.00000)	-0.00001*** (0.00000)	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00003*** (0.00000)
Unemployed	0.00000* (0.00000)	0.00000 (0.00000)	0.00001*** (0.00000)	0.00001 (0.00000)	-0.00000 (0.00000)	0.00000 (0.00000)	-0.00001** (0.00000)	-0.00005*** (0.00001)
Employed state sector	-0.00002*** (0.00000)	-0.00004*** (0.00001)	-0.00011*** (0.00001)	-0.00019*** (0.00001)	-0.00003*** (0.00001)	-0.00021*** (0.00001)	-0.00008*** (0.00001)	-0.00099*** (0.00004)
Employed municipal sector	-0.00002*** (0.00000)	-0.00002*** (0.00000)	-0.00009*** (0.00001)	-0.00018*** (0.00001)	-0.00002*** (0.00000)	-0.00017*** (0.00001)	-0.00007*** (0.00001)	-0.00080*** (0.00002)
Employed Private Construction	-0.00001*** (0.00000)	-0.00001*** (0.00000)	-0.00004*** (0.00000)	-0.00009*** (0.00001)	-0.00001*** (0.00000)	-0.00010*** (0.00001)	-0.00004*** (0.00000)	-0.00048*** (0.00001)
Employed Private Hotel and Restaurant	-0.00001** (0.00000)	-0.00001*** (0.00000)	-0.00004*** (0.00001)	-0.00008*** (0.00001)	-0.00001*** (0.00000)	-0.00009*** (0.00001)	-0.00004*** (0.00000)	-0.00057*** (0.00003)
Employed Private Manufacturing	-0.00001*** (0.00000)	-0.00002*** (0.00000)	-0.00006*** (0.00000)	-0.00012*** (0.00000)	-0.00002*** (0.00000)	-0.00012*** (0.00000)	-0.00006*** (0.00000)	-0.00064*** (0.00001)

73

Employed Private Finance and Real Estate	-0.00001*	0.00000	-0.00009***	-0.00016***	-0.00002*	-0.00019***	-0.00007***	-0.00073***
	(0.00001)	(.)	(0.00001)	(0.00003)	(0.00001)	(0.00002)	(0.00002)	(0.00007)
Employed Private Services	-0.00001***	-0.00002***	-0.00006***	-0.00012***	-0.00001***	-0.00013***	-0.00005***	-0.00062***
	(0.00000)	(0.00000)	(0.00000)	(0.00001)	(0.00000)	(0.00001)	(0.00000)	(0.00002)
Employed Private Other	-0.00001*	-0.00002***	-0.00005***	-0.00011***	-0.00001**	-0.00012***	-0.00005***	-0.00059***
	(0.00000)	(0.00000)	(0.00001)	(0.00001)	(0.00000)	(0.00001)	(0.00001)	(0.00004)
Self-employed Private Construction	-0.00000	-0.00001	-0.00000	-0.00009***	0.00000	-0.00002*	-0.00003***	-0.00030***
	(0.00000)	(0.00000)	(0.00001)	(0.00001)	(.)	(0.00001)	(0.00001)	(0.00002)
Self-employed Private Hotel and Restaurant	-0.00000	-0.00001	0.00000	-0.00010*	-0.00000	-0.00003	-0.00001	-0.00063***
	(0.00001)	(0.00001)	(0.00002)	(0.00004)	(0.00001)	(0.00002)	(0.00001)	(0.00016)
Self-employed Private Manufacturing	0.00000	0.00000	0.00000	-0.00006***	-0.00001*	-0.00001	-0.00004***	-0.00027***
	(0.00000)	(0.00000)	(0.00001)	(0.00001)	(0.00000)	(0.00001)	(0.00001)	(0.00002)
Self-employed Privat Finance and Real Estate	0.00000	0.00000	0.00003	0.00003	0.00000	0.00006	0.00000	-0.00014
	(.)	(.)	(0.00005)	(0.00006)	(.)	(0.00005)	(.)	(0.00021)
Self-employed Private Services	-0.00001*	-0.00002*	-0.00003**	-0.00007***	-0.00000	-0.00006***	-0.00004***	-0.00051***
	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00000)	(0.00001)	(0.00001)	(0.00003)
Self-employed Private Other	-0.00001	-0.00002*	-0.00006***	-0.00013***	-0.00001	-0.00011***	-0.00004***	-0.00049***
	(0.00001)	(0.00001)	(0.00001)	(0.00002)	(0.00000)	(0.00001)	(0.00001)	(0.00003)
Number of observations	72987727	71635699	72995982	72995982	72622496	72995982	72987727	72995982
Dependent mean	0.0000108	0.0000116	0.0000493	0.0000605	0.00000799	0.0000656	0.0000226	0.000217
Pseudo R^2	0.114	0.121	0.101	0.164	0.136	0.133	0.163	0.247
Log-likelihood	-8689	-9021	-35309	-39546	-6383	-44133	-16185	-112651

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
ML = Money laundering and receiving proceeds from crime, D = drug offence, V = violent offence, E = economic offence, O = other offence
All the models are controlled for year-fixed effects and missing values on education.