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THE OCCURRENCE AND DIAGNOSIS OF BIOMARKERS OF ETHYL ALCOHOL CONSUMPTION

MATEUSZ WOŹNIAK, MAREK WIERGOWSKI, MAREK BIZIUK

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Abstract: Ethyl alcohol is a legal and a widely available psychoactive drug. However, its excessive consumption causes addiction. This leads to aggressive behaviors, family battery, difficulties in interpersonal relations, legal offences, suicides, car accidents and deterioration in labor productivity, what causes financial problems. Despite many social actions against alcohol consumption, this problem is still unresolved. Therefore, fast and easy diagnosis of alcohol consumption is required to introduce proper and effective therapy and control sobriety during treatment. The determination of ethanol in human breath or in body fluids, due to fast metabolism rate of this substance, allows to monitor only recent drinking. Therefore, biomarkers of alcohol consumption are becoming more and more popular to confirm alcohol consumption in a wider range of time. This paper describes in details direct alcohol biomarkers, due to the possibilities of their determination by chromatographic techniques, what is an interesting area of study for an analytical chemist.

Keywords: biomarkers of ethyl alcohol consumption, ethanol metabolites, ethanol biomarkers determination

Introduction

Ethyl alcohol (further referred to as alcohol or ethanol) is a legal and freely accessible psychoactive substance. It has been consumed for centuries in the form of various alcoholic beverages and is used today in the chemical, distilling, brewing, pharmaceutical and other industries. It is consumed mainly for some positive mental effects it has when drunk in small amounts, such as improved mood, feeling well, satisfaction, euphoria and talkativeness [1]. According to the latest epidemiological data, the acceptable daily intake (ADI) of
alcohol, without any negative effects on health, is 2.6 g/day [2], whereas in the 1970s the amount was estimated at approx. 7 g/day [3]. It is worth knowing that 2.6 g of ethanol is almost 10 times less than the alcohol content in, for example, 0.5 l of beer. Consumption of alcohol in quantities exceeding the ADI becomes dangerous for human health and life, and its long-term consumption leads to addiction and degeneration of the society (Table 1) [1].

<table>
<thead>
<tr>
<th>Concentration of ethanol</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood (BAC)</td>
<td>Breath (BrAC)</td>
</tr>
<tr>
<td>&lt; 1 ‰</td>
<td>&lt; 0,5 mg/L</td>
</tr>
<tr>
<td>1 - 2 ‰</td>
<td>0,5 - 1 mg/L</td>
</tr>
<tr>
<td>2 - 3 ‰</td>
<td>1 - 1,5 mg/L</td>
</tr>
<tr>
<td>&gt; 4 ‰</td>
<td>&gt; 2 mg/L</td>
</tr>
</tbody>
</table>
Table 1. Symptoms associated with alcohol consumption in relation to blood alcohol content (BAC) and breath alcohol content (BrAC) [4, 5]

Alcoholics are the largest group of all addicts. Aggressive behavior, domestic violence, problems with interpersonal relations, criminal issues, suicides, traffic accidents and low productivity at work, and the resulting financial problems, are the most frequent types of problems affecting alcoholics and people around them [6]. Moreover, a report of the World Health Organization from 2015 says that over 3 million people all over the world die each year due to alcohol abuse, which accounts for 5.9% of all deaths. While over 37% of all crimes are committed under the influence of alcohol, in the category of homicide, rape and assault and robbery, the rate is as high as 80%. Studies demonstrate that up to 70 percent of domestic violence is associated with drinking alcohol. Alcoholics and people convicted of committing crimes under the influence of alcohol are often ordered by the court to undergo an obligatory course of treatment as the prerequisite for suspension or mitigation of the sentence. The order frequently proves to be a fiction due to the fact that although convicts take up treatment and submit relevant certificates to the court, they then fail to continue the therapy – the end of the probation period usually means the end of consent to treatment. Such people often relapse into drinking, which results in their returning to criminal behavior. The situation is worst among young people (age group 20-39), where nearly 25% of accidents, offences and crimes take place under the influence of alcohol. This shows that despite the society’s growing awareness of the consequences of excessive alcohol consumption, the problem remains unsolved [1].

Adequate treatment of people abusing alcohol relies on determining the amount of alcohol consumed and controlling their sobriety in the course of therapy. It is extremely difficult since the detection of alcohol intake is currently based solely on the measurement of
ethanol concentration in the exhaled air and bodily fluids (mainly in the blood and urine) and an oral questioning of the patient. However, due to the fast metabolism of alcohol in the human body (approx. 8-10 g of ethanol per hour) and the fact that people abusing alcohol very often hide the actually consumed amount of alcohol, contemporary diagnostics fail to bring satisfactory results. This is why a lot of attention is given to biomarkers of alcohol intake which would offer a broader detection window than the measurement of ethanol concentration, enabling the selection of an appropriate method of treatment [6].

**Occurrence of alcohol consumption biomarkers and their classification**

Markers (the term “biomarkers” is used with reference to biological markers) have been widely used in medicine for many years for the assessment of health. Scientific literature proposes a variety of definitions of the term. Generally speaking, biomarkers are all the markers, signals and bioindicators (observed from outside the patient) measurable by means of appropriate apparatuses, enabling the assessment of the correctness of biochemical processes in the body and changes in the cells which could be indicative of pathological conditions [7]. A biomarker can also be defined as any substance and biomolecule, or their metabolites, the presence of which can point to a disturbance of homeostasis as a result of exposure to xenobiotics [8]. In other words, a biomarker is anything that can be measured and used to make a quick and unambiguous diagnosis of health [6]. An analysis of biomarkers present in the body is used to obtain the following information:

- whether an organism has been exposed to a xenobiotic,
whether exposure to a harmful factor has had an effect on health,
- whether an individual is susceptible to a given factor.

Additionally, an ideal biomarker should:

i) be easy to measure,
ii) occur in concentrations high enough to be detected by commercially available equipment using available methods of assay sample preparation,
iii) clearly point to a specific disease,
iv) give the smallest possible number of false positive samples,
v) show a quantitative correlation with the size of the absorbed dose of toxic substance [9].

The presence of alcohol intake markers (so-called alcohol markers) in the body results from disturbances in metabolic processes caused by the consumed ethanol, leading to quantitative and qualitative changes in naturally occurring compounds or the synthesis of new characteristic compounds [6].

Ethyl alcohol is removed from the body by various routes (Table 2). About 5-8% of the consumed alcohol is not metabolized and is excreted from the blood through the kidneys, lungs and skin. The remaining alcohol is transformed into other chemicals in aerobic (90-95%) and anaerobic (c. 1.5%) metabolic processes. The metabolites produced can serve as biomarkers of alcohol [10].

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Percent of total ethyl alcohol consumed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct excretion of alcohol</td>
<td></td>
</tr>
<tr>
<td>Kidneys</td>
<td>0.5 - 2.0</td>
</tr>
<tr>
<td>Lungs</td>
<td>1.6 - 6.0</td>
</tr>
<tr>
<td>Skin</td>
<td>&lt; 0.5</td>
</tr>
</tbody>
</table>
Metabolism of alcohol

<table>
<thead>
<tr>
<th>Oxidative process</th>
<th>90.0 - 95.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-oxidative process:</td>
<td></td>
</tr>
<tr>
<td>Conjugation with glucuronic acid</td>
<td>0.6 - 1.5</td>
</tr>
<tr>
<td>Conjugation with sulfates</td>
<td>0.1</td>
</tr>
<tr>
<td>Conjugation with fatty acids</td>
<td>&lt; 0.1</td>
</tr>
</tbody>
</table>

Table 1. Routes of elimination of ethyl alcohol from the body [10]

The classification of biomarkers of alcohol consumption is not clear-cut (a list of abbreviations and acronyms of biomarkers are included in table 3).

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-HIAA</td>
<td>5-Hydroxyindoleacetic acid</td>
</tr>
<tr>
<td>5-HTOL</td>
<td>5-hydroxytryptophol</td>
</tr>
<tr>
<td>AA</td>
<td>Acetaldehyde adducts</td>
</tr>
<tr>
<td>AcAld</td>
<td>Acetaldehyde</td>
</tr>
<tr>
<td>ALT</td>
<td>Glutamic pyruvic transferase</td>
</tr>
<tr>
<td>AST</td>
<td>Aminotransferase aspartate</td>
</tr>
<tr>
<td>EtG</td>
<td>Ethyl glucuronide</td>
</tr>
<tr>
<td>EtP</td>
<td>Ethyl phosphate</td>
</tr>
<tr>
<td>EtS</td>
<td>Ethyl sulphate</td>
</tr>
<tr>
<td>FAEE</td>
<td>Fatty acids ethyl esters</td>
</tr>
<tr>
<td>GGT</td>
<td>Gamma-glutamylotranserase</td>
</tr>
<tr>
<td>MCV</td>
<td>Mean corpuscular volume</td>
</tr>
<tr>
<td>MeOH</td>
<td>Methanol</td>
</tr>
<tr>
<td>PEth</td>
<td>Phosphatidyl ethanol</td>
</tr>
<tr>
<td>SA</td>
<td>Sialic acid</td>
</tr>
</tbody>
</table>
Table 3. Abbreviations and acronyms of biomarkers

They can be divided into those describing a genetically determined predisposition to alcoholism in the form of “markers of predisposition” to alcohol abuse (traitmarkers) and those characterizing alcohol-related behaviors, i.e. providing information on the time of consumption and the quantity of consumed alcohol, called markers of state following alcohol consumption (state markers) (Fig. 1) [11].

Fig. 1. Classification of alcohol consumption biomarkers [11]

Markers from the “state markers” group have been subdivided into direct and indirect ones. Direct alcohol markers, similarly to ethanol, contain an ethyl fragment in their structure and are the result of aerobic and anaerobic metabolism of alcohol. Indirect markers are associated with disturbance in numerous biochemical routes and the appearance of structural damages to cells or even entire organs, as a result of alcohol consumption. These are parameters whose changes in the blood may point to the consumption of ethyl alcohol. Indirect markers also include chemicals that are not ethanol metabolites but occur, like methanol for example, in alco-
holic beverages as a by-product of fermentation. This leads to the conclusion that alcohol biomarkers can also be defined as compounds or products resulting from aerobic and anaerobic metabolic processes of alcohol and as molecules released from cells damaged by ethanol (Fig. 2) [6, 11]. However, chromatography techniques can only be used to detect indirect markers, therefore they are an interesting area of study for an analytical chemist.

Fig. 2. Correlation between ethyl alcohol metabolism and selected markers of its consumption [6].
Another typology of alcohol biomarkers is connected with their varied half-life in the body, and consequently – the different time-window of detection after the end of alcohol consumption, which is the principal limitation in toxicological assays (Fig. 3). Direct alcohol biomarkers can be classified as short-lived (detection time, e.g. in body fluids, ranges from several hours to 3 weeks), while indirect biomarkers can be detected for a longer period of the time (up to 3-4 months) but they are produced only after a longer period of alcohol consumption. Therefore, this helps to distinguish between an alcoholic incident (“acute consumption”) and chronic consumption of alcohol [11].

* The definitions of acute and chronic drinking are not specified and depending on the literature they are different. In this study, "acute" means single consumption of ethanol in dose 60 g [12], "chronic" means alcohol abuse and consumption of ethanol in doses comparable to an "acute" consumption per day.

Fig. 3. Detection time window of selected alcohol biomarkers [11]
Diagnostics of alcohol consumption biomarkers

Immediately after the ingestion of ethyl alcohol, the whole digestive system is exposed to its effects. Due to the polarity of ethanol molecules enabling them to mix unrestrictedly with water, ethanol is quickly absorbed into the bloodstream through the mucous membranes of the oral cavity and pharynx (up to 15%), stomach (up to 25 %), duodenum and small intestine (up to 75 %). It circulates with the blood in the entire body until it is metabolized [13, 14]. Therefore, ethanol is most often detected in the blood and urine [15]. Moreover, from the bloodstream alcohol gets through to the alveoli, thus it can be detected in the exhaled air [14]. Trace amounts of ethanol have also been found in sweat [16] and saliva [17]. However, because of the rapid metabolism of alcohol, the assessment of ethanol concentration in the above materials allows only for the detection of recent consumption [18]. Moreover, it has been found that alcohol metabolism is considerably accelerated in individuals who chronically abuse it (in certain cases even by 70 percent), which often makes it impossible to estimate the amount of consumed alcohol [19].

This is the reason why alcohol biomarkers, which could significantly improve the sensitivity of toxicological assays, have been gaining importance in recent years. Biomarkers, as the oxidative and non-oxidative metabolites of ethanol from the organs involved in the detoxification of the body (the liver above all), permeate into the blood, which carries them around the body [6]. Hence, these compounds can also be detected in the same biological materials as alcohol. Moreover, in chronic alcohol abuse they can accumulate in hair, which prolongs their detection time because of the slow growth of these appendages of the skin [11]. Still, studies of the use of hair are not finished yet and their results are not clear-cut.
Ethanol and its biomarkers can also be detected in various organs (such as the liver, kidneys and brain). It is not difficult to obtain such study material from a dead person. In the living, however, it is vital that assay material be collected in the least invasive way. Therefore, bodily fluids are the most frequently used material in toxicological studies [6].

Biological samples are very difficult material for assays as they are characterized by complex composition of the matrix, which frequently contributes to the co-elution of interfering compounds and analytes. That is why it is very important to choose the right method of sample preparation. Biological samples contain large amounts of proteins so they have to be precipitated prior to extraction. Organic solvents (e.g. acetonitrile or methanol) are usually used for this purpose [27-40]. In the isolation of analytes, liquid-liquid extraction is used and depending on the chemical character of the analytes, polar solvents (chloroform) [23] or non-polar solvents (hexane with a little polar solvent, e.g. acetone or isopropanol) [32-44] are used. Frequently, it is necessary to purify samples prior analysis [26, 27] or extracts, e.g. using solid-phase extraction (SPE) [41, 44]. For liquid biological materials (e.g. blood), it is also possible to use dispersive liquid-liquid microextraction (DLLME) [33]. Unfortunately, due to the varied polarity of alcohol biomarkers, their simultaneous extraction is impossible. Gas chromatography with flame ionization detector (GC-FID) and mass spectrometry (GC-MS) and liquid chromatography-tandem mass spectrometry (LC-MS/MS) are the most frequently used techniques during final assessments [15]. Some alcohol biomarkers can also be determined using capillary electrophoresis (CE) [25, 29] and enzymatic methods [15]. A detailed description of direct alcohol biomarkers and the methods used to measure them in medical diagnostics is presented in Table 4.
Table 4. Direct alcohol consumption biomarkers and methods used to measure in different biological materials [click to open]

Summary

Statistical data indicate that the co-occurrence of alcohol and certain types of crime in particular cannot be accidental and that the criminogenic role of alcohol is, generally speaking, very serious. Therefore, biomarkers of alcohol ingestion can significantly facilitate the monitoring of sobriety in a broad-based group of patients including victims and perpetrators of crimes during the treatment of addiction, allowing to shorten its duration. However, no alcohol biomarker is currently sensitive and specific enough to be used in medical diagnostics. It is possible to use a combination of several markers, which improves the precision of results. The multistage preparation of samples considerably prolongs assay time and causes a high consumption of organic solvents. Nevertheless, attempts at using green extraction techniques (such as DLLME) produce good results, which opens up vast possibilities for experiments and interdisciplinary scientific research.

References


SITE EXAMINATION AS A SOURCE OF INFORMATION REGARDING INCIDENTS CAUSING THREAT TO PUBLIC SAFETY

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Abstract: In the modern world constant evolution of various threats to public safety is being observed and needs to be tackled effectively by law enforcement institutions. Such threats may take various forms especially in the context of global terrorist activities that are far from classic crime classifications and expectations. Utilization of explosive materials and fire incidents might need careful evaluation as such incidents might be the weapon of choice of terrorist groups aimed at causing public unrest and widespread fear among citizens. Therefore attention needs to be paid by law enforcement institution investigating incidents in question and in particular optimal means of collection of both evidence and information concerning such events, in order to identify perpetrators and develop targeted prevention programs. The key enabling development of appropriate protection measures lies in incident site examination that needs to be performed in a professional manner meeting current scientific and knowledge standards. The current paper provides an insight into a subject matter, identifies areas of top concern and discusses most important issues regarding of forensic examination of explosion and fire incidents especially in the context of information collection and utilization.

Keywords: forensic examination, crime scene examination, explosives, fire incidents, terrorist threat

Introduction

Modern world is a subject to many threats including wars, terrorist attacks, and various crimes (including cyber and economic ones), having sources in tensions of political, economic or religious nature. Therefore appropriate State Services should be prepared to prevent such threats and when incidents happen also to deal with them in the appropriate manner, including use of necessary force. It cannot be excluded that incidents posing threat to public safety will
occur also in Poland – like for example terrorist attack utilizing homemade explosives. Self-made bombs are both cheap to produce and quite effective – and difficult to detect. The main advantages of explosives are ability to destroy by explosion, blast and pieces large groups of humans and objects of various sizes. Due to the production process and acquisition opportunities they can be either of military or mining origin – or pyrotechnic mixtures. Explosives like TNT, plastic explosives or dynamite utilized up to now in terrorist attacks are nowadays often superseded by more primitive mixtures that possess ability to detonate pending application of an appropriate external incentive. Contrary to utilization of the aforementioned explosives setting fires is generally not within main interest of terrorist organizations. It can be however assumed that such actions might be actually utilized to force execution of goals of importance to terrorists in case they cannot be reached by political methods. The goal of the present paper is to present methodology of fire and explosion sites examination with a view to obtain valuable information leading ultimately to apprehension of suspects and allowing for effective prevention of such incidents that might be of a criminal nature.

Site of incident examination

The first and utmost important phase of an investigation leading to establishment of circumstances of an incident is site of incident examination. It allows to establish whether an incident is of criminal nature (in such case it is commonly known as crime scene examination), suicide or just an accident. Professional site examination allows to gather valuable information that may be then utilized at all later stages of an investigation. It concerns especially the most serious crimes against life and health of citizens. Both fires and all kinds of terrorist attacks with utilization of explosives can be qualified to such category. In this context it might be worth to provide the most general definition of site of incident formulated by
J. Sehn, who described it the context of criminalistics as ‘not only the place where perpetrator executed his intentions but also all the other places that demonstrate connection to the act and can provide information on facts and circumstances of importance to establishment of the nature of incident or detection of the perpetrator. In addition to the actual place of crime this includes also all the places of perpetrator’s actions that demonstrate connection to the crime in question, roads used to get to and away from the site of crime as well as all the other places where traces of crime could be revealed and places where witnesses may have observed the crime’\(^1\). T. Hanausek qualified site examination to the actions executed at the incident place aimed to obtain information necessary for investigations\(^2\). It is also worth to mention position of K. Chodkiewicz who stated that further from the actual crime place we look for traces, less cautious is the perpetrator and he might actually leave more of his traces\(^3\). Still, no matter what is the real nature of an incident, the priorities are to grasp the site, detect, reveal and secure forensic traces and an objective reconstruction of an event.

**Explosion site examination**

The goal of explosion site examination is to establish the center of explosion, type and amount of utilized explosives and also the place where explosion has triggered from. Proper technical securing of the revealed traces in connection with appropriated documentation allows for reconstruction of an incident as well as formulation of investigatory versions\(^4\). The foundation of all the actions under-

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\(^1\) J. Sehn, *Ogładziny*, p. 74-75.


\(^3\) K. Chodkiewicz, *Technika i taktyka kryminalna*, Przemyśl 1931.

\(^4\) I. Sołtyszewski, *Badania kryminalistyczne (wybrane aspekty)*, Olsztyn 2007, p. 82.
taken at the incident site is proper securing of the place and attached areas, protection of all the forensic traces from taking any damage and establishment of possible witnesses of an incident. Following general observations detailed examination actions shall be undertaken. Establishment of the type of used explosives is usually difficult due to chemical and psychical processes that take place at the moment of an explosion, therefore even possessing the explosives material in question it might be difficult to reconstruct it’s state from before explosion. Significant changes in the remains of the explosives and area of explosion are also cause by fire associated with an incident.\(^5\) The consequences of explosions and fire cause significant damage especially to vehicles and buildings – which is another difficulty as it might result in structural construction damage making it even more dangerous to conduct site examination. Appropriate additional safety precautions need to be considered and applied as necessary by site examination team in such circumstances.\(^6\)

**Establishment of origin of explosion**

Establishment of the origin of explosion (or explosion center) is connected to the issue of various consequences of utilization of the same explosives on various surfaces and on various spaces. The consequences will be different in an open space in comparison with the ones in closed space. On the basis of the damage it will be possible to determine the actual placement of the explosives. The place where explosive reaction commenced is the pressurization zone – area of the highest pressure and temperature. In case of devices hidden under the surface it is being called demolition zone and is responsible for throwing away bits of the surface as well as construction elements of an object in question. In both cases particular


\(^6\) Ibid. p. 112.
Krzysztof Krassowski, *Site Examination as a Source of Information Regarding Incidents Causing Threat to Public Safety*

shock zone can be established where pressure wave causes oscillations that damage the structure of the object (for example building). An important factor in establishment of the explosion center is the type of surface. On soft surfaces detonation causes craters while on hard ones cracks, mangles and craters too. In case of metal surfaces there are melts, surface movements and losses. Revealing of such traces enables firm determination of the explosion center. Difficulties may occur in case of very thick and solid surfaces as well as very elastic ones as there are no easy to spot consequences of explosion present.

**Specifics of explosion of materials hidden in the surface**

Explosion of materials hidden in the Surface of soft nature creates a crater where upper layers of surface are thrown to the outside and lower are crumpled into the surface. The shape of the crater is depending on the shape of used explosives, but in most cases it looks like a cone. Examination of such crater concerns it’s dimensions. Diameter and depth, pressurization zone are measured, changes in the surface structure are described. It is important for detection of fragments of explosive device or material as they are often revealed within the pressurization zone or demolition zone. An important element of explosion site examination is also making so-called open pit in order to obtain intersection of the crater which helps in identification of particular layers of pressurization and crumbling and their impact on particular layers of surface. Such open pit and screening of surface with magnetic devices enables to detect remains of utilized explosive material. It is impossible to assess quantity of explosive material on the basis of dimension of the crater as the same material may cause different damage depending on the type of surface. An important factor is also the packaging
of explosives. In case of metal package (grenade, pipe bomb) the surface will be scratched with bits of packaging and they may even be impacted into surface. Some explosives may leave other traces like smoky paths and sputtering – especially mining ones. Securing material for identification research is quite straightforward. In cases when surface has been powdered, traces of blast wave consequences will be visible. Majority of information concerning explosive material is to be revealed within pressurization zone, where explosives were in direct contact with the surface. Consequently the most valuable traces will be the bits of surface collected from various distances from the explosion center depending on their dimensions and striking power. Each case of explosion has to be analyzed in the context of both chemical processes and psychical phenomena no matter what damage has been observed.  

**Examination of traces of explosive materials**

Examination methods applicable to research on trace amounts of explosive materials depend on various factors. First of all reactions that occur between durability of material and it’s reactions with surface are taken into account. Another issue is actual goal and intended utilization of research results. Such results usually taking the form of expert opinions are being forwarded to law enforcement institutions for utilization in cases brought before courts of law. They are presented as the evidence material in criminal cases and as such, have to be admissible as the scientific evidence, reliable and unquestionable, obtained through application of proven scientific methods and in accordance with the current state of science and knowledge regarding explosives. It is also important not to destroy actual evidence material in the research process while maximizing range of information available thanks to application of the modern science. In the framework of the present paper focus has been

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8 Ibid. p 122.
placed on the methods that prevent any damage to the evidence while provide fast and reliable results. Initial research phase covers colored tests. Utilizing chemical reagents characteristics of either non-decomposed materials or visible traces of their decomposition are being examined. Such tests allow to reveal trace amounts of explosives. In case of positive reaction it is possible to decide on further research path. Another research method is chromatography. It is based on division and identification of substances sampled from the evidence material collected at the explosion site. Such division is achieved through desorption – exchange of ions and elution of the substances from examined material. There are different chromatography methods applicable – thin layer, gas and liquid. Each of them utilizes different substances in the mobile phase. Chromatography allows to obtain results at fast pace, with simplicity and high sensitivity of detection of explosives. Next research method is Infrared Spectroscopy. It is based on absorption of infrared radiation by examined material. Each substance absorbs only these frequencies that are in line with its own oscillation frequencies. Depending on the structure of the compound specific spectrum is being obtained. Spectroscopy allows for examination of non-decomposed explosive materials, components of pyrotechnical materials, gunpowder and various explosive mixtures. In recent years more advanced research methods have been also utilized for research in question – including but not limited to SPE (Solid Phase Extraction) and SPME (Solid Phase Microextraction). In case of SPE polipropylen columns with active gel are being utilized for cleaning and preconcentration of obtained samples while in case of SPME adsorption and desorption processes are being conducted on special fiber material utilizing frugality obtained thanks to heating of the sample of explosive material. In any case it has to be noted

that because of damaging power of the explosives, the traces revealed at examined site may very well lead to wrong conclusions and this might have a negative impact on the ongoing investigation.

**Specifics of fire site examination**

Taking into account that fire is a non-controlled burning process taking happening in non-intended place the most basic goal of fire site examination would to establish the actual place it started. This is the first action to undertake as soon as the fire has been extinguished. Examination of fire site and associated areas are being conducted in order to explain circumstances that led to the incident, its development, revilement of forensic traces and establishment of the perpetrators (if any). Successful examination of an incident will result in determination of the place the fire was initiated including the source of the burning process and any flammable materials that contributed to development and spread of the fire in question.\(^{10}\)

Establishment of the place the fire initiated is possible thanks to particular factors of the burning process, observation and examination of traces and changes like intensity of consequences of flame – these are usually completely burned flammable objects like for example wooden elements or plastics. Other changes are damaged and fused electrical installation components, burned paints and smoky or lack of glass windows as well as other glass elements. Smoky traces might also be observed at doorways, ventilation channels. Smoke direction can be established by examination of existence of smoke drifts and changes of the colors of present materials (traces on walls, ceilings, plaster or bricks). Other important factors can be determined on the basis of existence of the cracks on the walls and visible effects walls overheating. In accordance with current methodology it is necessary to establish presence of any installations, electrical devices, flammable materials

and other objects that might have contributed to development of the fire. In many cases application of layer approach to examination of fire site in connection with precise analysis of collected data may lead to conclusions that determine actual cause of fire. An important part of described methodology is examination of electrical installation and power supply wiring of electrical devices to establish short circuits and electric arches. An important evidence information might be obtained from photos, images, CCTV and rescue operations recordings. Also own observations of investigators and site examination team members, interrogations of witnesses, firemen and Police officers might provide valuable data leading to determination place where fire was initiated. Technology development provides new useful tools helping ongoing investigations. This includes drones or thermographic cameras. One of the specifics of fire site examination is ability to gather information while the fire has not been extinguished yet – these include color of flames and smoke, intensity of fire, wind direction, particular odor around site of fire. It is a common standard to begin fire site examination after it has cooled down, basic information concerning burned object has been collected and at the daylight. When spatial blast is suspected it is necessary to conduct detailed recon on the object and it's intended utilization, types and technical condition of existing installations. It has to be also taken into account that different gases and types of dust can move at large distances through ventilation channels, installation or sanitary tunnels.

While securing evidence material from the fire site it is advisable to observe few basic rules which will help to maintain good quality and completeness of the material. The objects have to be secured complete, together with everything that is connected to them – for example electrical heater shall be collected together with power cord, power plug and power socket it was connected to. All the
objects shall be marked as appropriate. Flammable fluids shall be collected into glass packaging while loose metal objects shall be secured within matching packages to prevent any damage in transport. It is also absolutely necessary to remember about taking control samples whenever necessary. Samples with control material shall be taken from different places of the fire site as well from different places of the surface which was untouched by impact of high temperature.

**Electrotechnical research**

It is not always possible to determine circumstances how the fire initiated and developed only on the basis of sole site examination or information obtained from witnesses. In complicated cases when there are doubts it might be necessary to provide forensic expertise. Electrotechnical research of lighting or heating equipment revealed at the site of fire help to determine whether it was connected and in operation at the time of fire and if it could have been the actual cause of fire incident. In order to assess possibilities of ignition of flammable materials from heating device the temperature is being measured on the device surface and in different distances from heating elements. Heating devices connected to electrical network are set in a special arrangement and further temperature measurements are being conducted involving device construction elements. Time to heat up is also being assessed. Further research is being conducted to verify technical condition of thermoregulator and temperature limiter – to check their working positions at the time of fire. Sometimes experimental research is also conducted on the heating devices of the same type in order to verify if in certain environmental conditions the device might be causing ignition and be potential cause of fire. In order to establish possibilities of ignition of flammable materials from lighting device temperature measurements are being taken utilizing thermocouple in different distances from the light bulb as well as on the bulb surface set in particular
positions. Within the research process abnormal working conditions of the lighting device are simulated (for example by covering light bulb with fiberglass blanket). In such case temperature measurements are being taken at the place where bulb touches blanket. Microscopic research on the filament is performed with a view to discover any deformations of filament, traces of oxidation and split endings. Existence of these traces allows to determine whether at the time of an incident the bulb was lighting.\textsuperscript{11}

Experimental research is aimed to establish if in specified particular conditions given device might have been the reason of ignition and fire. Special site to conduct an experiment is being constructed on the basis of data acquired from the site examination as well as interrogated witnesses. Environmental conditions of lighting device operation are simulated to be as close as possible to the ones at the incident site. In reality such experimental research often eliminates the device as possible cause of an event. It has to be also noted that provision of incomplete evidence material for research may lead to inability to establish the real cause of fire incident.

**Standards of conduct within NFPA 921 Guide**

In 1992 in the USA the National Fire Protection Association published for the first time Guide for Fire and Explosion Investigations (NFPA 921) – a guideline that is particularly important for setting the standards regarding the methodology of assessment of the causes of fires and explosions. For the very first time current research results and achievements concerning determination of cause of such events has been put together in a single document. The ultimate goal in development of this document (often recog-

\textsuperscript{11} R. Zieliński, Badania instalacji elektrycznej na miejscu pożaru, Warszawa 1992.
nized as Norm ) has been to introduce scientific approach to investigations of fire and explosion incidents. The NFPA 921 was developed by the dedicated Technical Committee on Fire Investigations ”[…] to assist in improving the fire investigation process and the quality of information on fires resulting from the investigative process […]’. The document contains catalogue of stages of investigation which, if observed, allow to conduct an effective investigation and enables optimal collection of information that are necessary to determine important circumstances of an event. This of course results also in better rate of establishment of perpetrators of fire and explosion incidents. The stages in question are as follows:

- Recognition of the problem – whether given incident requires any actions to determine its cause;

- Definition of the problem – if fire or explosion has been recognized as a problem, an expert or team of experts sets up methodology of investigation including incident site examination;

- Data collection – gathering of information from diverse sources - including results of experiments conducted in order to help determination of origin of fire or explosion;

- Data analysis – based on induction where an expert or team of experts formulates conclusions on the basis of his/their knowledge;

- Hypothesis analysis - based on deduction where available evidence material is being confronted with working hypothesis;

- Hypothesis approval – selection and confirmation of final version of hypothesis that is in line with conclusions from
deduction analysis as well as with results of conducted scientific research and experiments.\textsuperscript{12}

It has to be noted that in practice the aforementioned standards of conduct of investigations are not always observed. Except for lack of appropriate supervision the key issue seems to be conducting site examination in accordance with prearranged assumptions and versions. Such approach happens to be motivated by not always reliable scientific theories. The consequence is there are important pieces of information being often ignored when they do not match set investigation approach – and in result available forensic traces are lost or assessed in a wrong way. Another problem seems to be negligence in actions related to incident site examination due to very practical reasons – like pressure of property owners. Finally there are also laboratory research issues in caused by wrong research methodology applied or utilization of poor ( not sensitive enough ) research equipment.

**Concluding remarks**

Investigations rely heavily on an effective incident site examinations as any event is unique and forensic traces revealed and secured in the course of examination provide an objective evidence material\textsuperscript{13}. It has to be also recognized that information collected in the course of examination can not only be applied to particular investigation, but can be also utilized for general prevention purposes. In such context the information concerning utilized explosives, way detonation has been triggered or modus operandi of the perpetrator is crucial for development of an effective prevention

\textsuperscript{12} NFPA 921-2014 Guide for Fire and Explosions, NFPA, Quincy, MA 2014.

\textsuperscript{13} K. Juszka Perspektywa doskonalenia systemu wykrywalności sprawców przestępstw, Prokuratura i Prawo, 7-8, 2009 p. 219-230.
measures. Also traditional way of assessing such cases seems to be no longer reliable and reasonable approach in view of constantly changing modern global crime threats with terrorism being the best example. It is increasingly difficult to introduce effective prevention programs aimed at crime that has not been committed yet, especially as these mostly concern objective elements of psychical protection against execution of criminal actions. These usually involve Police street patrols and supervision over known criminals. Because of that, there is an urgent need to adjust theory of criminalistics to current real threats. Therefore it has to be demanded that practical knowledge gained in the course of performance of incident site examinations should be utilized by competent law enforcement authorities that are responsible for public safety and security of citizens of our country.
IDENTIFICATION OF VICTIMS OF A SOCIAL BUILDING FIRE IN POLAND

GRAŻYNA ZIELIŃSKA, ANDRZEJ OSSOWSKI, MARTA KUŚ, JAROSŁAW PIĄTEK, KATARZyna JAŁOWiŃSKA, PIOTR WALOSZCZYK

Abstract: When it comes to mass disasters, Forensic Medicine Departments and Forensic Labs face a problem with identifying the victims. Nowadays, when this kind of event happens more and more often, fast and effective identification methods are extremely important. In the case of disasters such as fires, classic victim identification often fails. Highly charred and dismembered bodies can be completely identified only with the use of genetic methods. But when compared to conventional methods, this solution can be more expensive, more complicated and takes more time. This is why each lab should develop an efficient process of identifying the victims. Our case report concerns the complete identification process of victims of a social building fire in Poland. The steps taken and the methods used showed its efficiency and effectiveness, resulting in obtaining the first results in 24 hours, which were confirmed in a week.

Keywords: DNA; human identification; fire victim identification; DVI

Introduction

By a mass disaster we mean an unexpected event causing the death or injury of many people. More and more often we hear about huge traffic accidents, natural disasters, technical accidents (e.g. fires), terrorist attacks and events occurring within the context of war. [1]. The disaster can be open or closed, resulting in having or not a list of the people missing. Each of these events involves a lot of victims
who have to be identified. Forensic labs face the problem of identifying every single individual killed in a disaster.

In the case of fire accidents, classic identification based on traditional morphological methods often fails. Bodies are mostly charred and dismembered. That is why DNA testing becomes the only method which makes the identification process possible. Nowadays, molecular methods are highly sensitive, and small amounts of genetic material are needed. These help to profile each body fragment, even if corpses are badly burnt. Nonetheless, charred remains are extremely sensitive to contamination, and the biological material needs to be treated with special care [2]. This is why the identification process has to be done according to procedures.

Our paper describes the identification of a fire victims. Just after midnight, on the second day of Easter, April 2009, a fire occurred in a social building in Kamień Pomorski, Poland. Only the ground floor was made of non-flammable materials. The rest of the building, made of wood and plaster panels, caught fire in a few minutes. 77 people were registered as residents. At the beginning it was not certain how many of them were present in the building at the time of the accident. After the rescue, 23 people were found to be missing, including 3 entire families.

Charred human remains were protected in sterile bags, and named and numbered with the room numbers in which they were found. The number of people missing included 7 men and 16 women. The group’s age range was wide, from 2 years old to 89 years old.

**Purpose of the research**

The purpose of the research was to identify all the 23 victims with the use of two DNA extraction methods, following the general identification process conducted by our Forensic Medicine Department.
Material and methods

1. Identification process
The complete process was divided into stages.
First:
- gathering the DVI team
- creating the identification team and identification protocols
- autopsy
and later:
- histopathology
- forensic genetics
- forensic toxicology
- analyzing and interpreting the results

All the work was led by a coordinator who was responsible for the complete identification process. During the work, two types of protocols were done. The first one, the identification protocol, included post-mortem information. All of the collected data are included in a table. The second protocol included all possible ante-mortem information about victims.

Table 1. Data gathered during the autopsy [click to open]

2. Evidence material
The genetic profiling process started immediately after the remains were delivered to the Department. During the autopsy, biological evidence material was collected, namely blood on sterile swabs, muscle fragments, long bones and teeth. In the fire’s high temperatures, the human remains had become deformed, were incomplete, and were mixed with soil. Tissues were burned and charred, and limbs were missing, partly or entirely. The total number of 123 evidence samples collected included:
- 27 muscle fragments,
- 25 bone fragments,
- 25 teeth,
- 46 muscle swabs (two swabs from each tissue fragment).

The process of collecting and securing the samples was done in our Forensic Medicine Department’s mortuary and took two days. It was done according to ISFG guidelines [3]. To minimize the possibility of contamination, a forensic geneticist supervised the process. Additionally, the evidence material was taken from the deepest parts of the remains, where they were least charred and contaminated. All the tools used were sterile, and after the collection the material was secured in sterile packages. Immediately after, the sealed packages were delivered to the genetics lab.

3. Reference material

For 23 victims, including three entire families, the total number of reference samples was 18. The reference material was collected as swabs, taken from the victim’s closest family members. There was no possibility to use the victims’ personal belongings as comparative material because all of it had been burned in the building. While collecting the swabs the team also collected all possible information about the victims. This was included in the protocol, together with information on the kinship between the victims and the sources of the reference material.
Family 1

Photo 1.
FAMILY 2

Photo 2. Genealogical tree
Photo 3. Genealogical tree
REST OF THE VICTIMS

<table>
<thead>
<tr>
<th>Victim</th>
<th>Presumed victim</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>NN-child1</td>
<td>born in 2006</td>
<td>putative father</td>
</tr>
<tr>
<td>NN-man</td>
<td>born in 1953</td>
<td>putative brother and two sisters</td>
</tr>
<tr>
<td>NN-child2</td>
<td>born in 1997</td>
<td>putative father and mother</td>
</tr>
<tr>
<td>NN-woman1</td>
<td>born in 1920</td>
<td>putative nephew</td>
</tr>
<tr>
<td>NN-woman2</td>
<td>born in 1959</td>
<td>putative daughter</td>
</tr>
<tr>
<td>NN-woman3</td>
<td>born in 1957</td>
<td>putative daughter</td>
</tr>
<tr>
<td>NN-woman4</td>
<td>born in 1966</td>
<td>putative mother</td>
</tr>
</tbody>
</table>

Table 2 – Rest of victims

4. Material preparation
For isolation from the muscles, the deepest parts were cut into small pieces and lysed.
For isolation from the blood swabs, whole swabs were lysed.

5. DNA extraction
DNA from all the evidence and reference samples was isolated with the PrepFiler® Forensic DNA Extraction Kit (Applied Biosystems). The extraction itself was carried out following the optimized manufacturer’s protocol, according to the type of material (reference or evidence) [4].

At the same time, for evidence material a second isolation method was used. This was an organic method (phenol/chloroform), based on the optimized protocol developed by the team of Prof. Dobosz [5],[6],[7]. Supernatant obtained in this way was purified with the QIAquick PCR Purification Kit (QiaGen) following the manufacturer’s instructions [8].

6. Real-Time PCR

Real-Time PCR analysis was performed to measure the concentration of extracted human DNA and to ascertain the presence of possible PCR reaction inhibitors. The Quantifiler® Human DNA Quantification Kit (Applied Biosystems) was used following the manufacturer’s instructions [9]. The analysis was performed with the use of an Applied Biosystems 7500 Real-Time PCR System (Applied Biosystems) [10].

7. STR amplification

DNA was amplified in PCR multiplex reaction using the commercial kits AmpFlSTR®SGM Plus™, AmpFlSTR®MiniFiler and AmpFlSTR®Y-filer™(Applied Biosystems) in accordance with the manufacturer’s protocol [11], [12], [13]. The obtained PCR products were separated in a capillary electrophoresis process with the use of the ABI Prism 3130 Genetic Analyzer (Applied Biosystems). The results were analyzed with the GeneMapper® ID-X 1.1 (Applied Biosystems, USA), and the biostatistical calculations were made with the use of DNA STAT v.1.0. and PATCAN V.1.1.
8. Non-human material

During the autopsy three charred fragments were evaluated as non-human parts, probably ham, etc. To be sure that no STR amplification was a result of DNA degradation, RSID™-Blood was used. Swabs taken from the material were extracted in 1 ml of RSID™-Blood Extraction Buffer for 1-2 hours at room temperature. After that, the extract was transferred into a sample well.

**Results**

After analysis of genetic profiles obtained from 123 collected samples, 23 genetic profiles were established. After comparing them with reference genetic profiles, all the victims were identified. The genetic profiles of the victims were obtained within 24 hours of the fire. The complete identification process took one week.

1. Amplification degree

   **Chart 1. Amplification degree results** [click to open]

**SGM Plus and MiniFiler**

After analyzing, 78 samples with SGM Kit amplification resulted in 63 full profiles. 13 profiles showed a decrease in the amplification of long markers, which is typical for degraded samples. Only 2 samples showed no amplification.

For both SGM plus and the Mini Filer kit the best results were obtained after isolation from blood swabs performed by the PrepFiler method. This also showed a small degree of degradation and allowed faster comparative studies.

**YFiler**

After analyzing, 25 samples with Y Filer amplification resulted in 11 full profiles. Isolation from muscles performed with PrepFiler
resulted in degraded and empty profiles. Organic isolation from muscles showed the best results.

Chart 2. Comparison of PrepFiler and organic method for Y-STR amplification [click to open]

2. Real-Time PCR

Table 3. DNA concentration after PrepFiler extraction for blood swabs [click to open]

Table 4. DNA concentration after PrepFiler and organic extraction for muscles [click to open]

DNA concentration in the case of extraction by means of the PrepFiler Kit from blood swabs ranged from 0.381 ng/µl to 329.467 ng/µl, while the average DNA concentration was 10.521 ng/µl.

DNA concentration in the case of extraction by means of the PrepFiler Kit from muscles ranged from 0.024 ng/µl to 204.080 ng/µl, while the average DNA concentration was 15.069 ng/µl.

DNA concentration in the case of extraction by means of the organic method from muscles ranged from 3.922 ng/µl to 1529.170 ng/µl, while the average DNA concentration was 439.902 ng/µl.

Conclusions

The results showed that when it comes to Y-STR analysis (using YFiler kit), the best amplification degree was obtained after the use of the organic extraction method. DNA isolation from blood swabs with the PrepFiler kit showed comparable results, but the use of this extraction method with muscle fragments failed. As a result of the research done our Department started using the organic extraction
method, with each piece of trace evidence later profiled with the YFiler kit. This helped in solving a lot of criminal cases.

Using the PrepFiler kit for DNA extraction from blood swabs was the fastest way to separate genetic profiles and estimate the number of victims. Also, this isolation method gave the highest percentage of full profiles after first extraction (91% for SGM Plus and 96% for MiniFiler). The results obtained with PrepFiler extraction were later confirmed with the use of organic DNA isolation for muscles.

**Discussion**

The first mass disaster victim identification done by our Department was after an air accident which occurred in Poland on 23 January 2008, when an EADS CASA C-295 military transport plane crashed as it approached the Mirosławiec runway, killing all passengers and crew (20 people). The DVI procedures used then were improved and used for the identification of fire victims.

While using molecular methods in the DVI process we have to consider their limitations and be mindful of their continuous and rapid development. Therefore, genetic identification of victims is still discussed during forensic medicine symposiums. Scientists aim at the improvement of the methods used. We also have to remember that the identification process does not take place only in a laboratory. Success depends on the whole procedure, starting with securing the remains at the scene, through transporting them to the lab, and collecting the proper reference material.

In Poland, in the case of a mass disaster, the identification process is handled by prosecutors. They conduct the investigation and choose the institution that will perform further steps. Identification of the victims of large fires depends to a great extent on the degree of body charring, which, when severe, can disable a classical autopsy and odontological analysis. Moreover, the lack of a data-
base of dentistry cards or fingerprints in Poland forces experts to use other identification methods. Most DVI rely on classical and odontological methods [15], [16]. In our case, the genetic identification of victims was the only possible option.

Findings from our research show that the procedures used enabled an efficient identification process. At least two types of biological material were sampled from each body fragment for genetic identification. In most cases these were swabs from muscle surface and muscle fragments dissected from deep layers of remains. All the results from amplification were reproducible, so we can be sure that the material sampling and preservation were carried out carefully. The results also indicate that good quality DNA suitable for comparative tests can be isolated from highly charred body remains. Similar observations have been made by other research teams [17], but with the limitation that attempts to isolate DNA from bladder swabs do not provide the expected positive results [18]. The fact that no mixed profile from amplification was obtained for any of the samples also proves that the identification procedure was carried out with due precaution. A similar protocol was described by the team of Antoinette Westen [2].

The choice of the appropriate method for the isolation of genetic material is the key element in each identification procedure. Four fundamental questions should be answered: which method offers the highest efficiency, how long does it take to carry out a complete analysis, what degree of sample purification can be obtained, and what is the cost of the procedure. In our study we used two isolation techniques in parallel: isolation with the PrepFiler kit, and organic extraction with phenol and chloroform. We used standard methods applied by the laboratory of forensic genetics at Pomeranian Medical University in Szczecin and recommended by ISFG, which sug-
gests that isolation methods implemented in other centers should be used for the identification of mass disaster victims [3].

Material for autopsy was sampled and secured according to a strictly uniform protocol. In this case a geneticist participated in the examination of remains and in autopsies. The geneticist was responsible for the sampling and securing of material during autopsy, and decided on the type of tissue material to be sampled. The involvement of the geneticist in the autopsy was extremely important and prevented the contamination of samples, which often happens during mass disasters and has been reported by teams investigating such events [19]. The inhibition of PCR was prevented because the geneticist decided from which part of the remains samples should be taken to be further sent to the genetics laboratory. At this stage the degradation of biological material can be controlled and we can slow down this process.

Study results suggest that a high degree of charring and prolonged exposure of bodies to high temperatures do not degrade DNA completely. Methods used for the isolation and amplification of DNA were found sufficient to carry out comparative DNA tests. Successful identification was due to many factors, including the fact that the remains of the victims of the fire were collected immediately after the incident and sent to the dissecting room. The inspection of the bodies and their autopsy immediately after the incident, the presence of the geneticist overseeing the sampling of material during these procedures, and the almost immediate transfer of samples for tests had a considerable effect on the rapid identification of the victims. Slowing down decomposition largely contributed to the efficient and rapid identification of the victims. The short time between the moment of death and securing material for genetic tests significantly inhibits the decomposition processes that lead to the degradation of DNA.
The biggest problem faced during the study was to obtain reference materials. Because personal items could not be used to obtain the genetic profiles of the missing persons, the only option was to carry out comparative studies using samples of material from relatives. When sampling reference genetic material, detailed reports were prepared, including the degree of kinship and family correlation, as pointed out by other authors [20].

References:


The Agreement of Parents on the Exercise of Parental Authority and the Maintenance of Contact with the Child after Divorce in the Light of Art. 58 of the Family and Guardianship Code

Mirosław Kosek
Cardinal Stefan Wyszyński University

Abstract: The paper provides analysis of the July 2015 amendment to the Family and Guardianship Code regarding exercise of parental authority and maintenance of contact with the child after divorce. The amendment in question basically introduces a new institution of agreement of the parents regarding the exercise of parental authority and the maintenance of contact with the child after divorce. The Author presents critical opinion in the subject matter, based both on doctrine and actual justification of the said amendment.

Keywords: child's welfare, family law, parental authority, agreement of parents

Introduction

The amendment to the Family and Guardianship Code of November 6th, 2008, which came into force on June 13th, 2009, introduced numerous, significant changes into Polish family law, especially in the field of parent-child relations. One of these changes - and undoubtedly the most important one from the point of view of the strengthening of child welfare protection, in the event of the divorce of the parents - was the introduction of a new institution, namely, the agreement of the parents regarding the exercise of parental authority and the maintenance of contact with the child after divorce.

Mirosław Kosek, The Agreement of Parents on the Exercise of Parental Authority and the Maintenance of Contact with the Child after Divorce in the Light of Art. 58 of the Family and Guardianship Code

The present article concentrates on this institution. The basis of discussion is - as will be clear from the title – the Provision of Art. 58 of the Family and Guardianship Code as enacted by the above-mentioned amendment of November 6th, 2008. The present article also addresses the changes introduced by the amendment of June 15th, 2015.2

The Agreement of Parents in the Light of Art. 58 of the Family and Guardianship Code as amended by the Novella of November 6th, 2008

The agreement of parents on parental authority and the maintenance of contact with the child after divorce is governed by Art. 58 of the Family and Guardianship Code. In accordance with §1 of the same provision, “In the divorce decree, the court decides on the parental authority over the common, minor child of both spouses and on the parents' contacts with that child and decides on the amount each spouse is obliged to contribute to the costs of the maintenance and upbringing of the child. The court takes into account the agreement of the spouses on the exercise of parental authority and on the maintenance of contact with the child after divorce, provided it is in the best interests of the child”. On the other hand, in accordance with the Provision of §1a quoted above, “The court may leave parental authority to both parents by their mutual petition, if they have presented an agreement referred to in §1, and it can reasonably be expected that they will co-operate in matters relating to the child.”

2 Even though the above-mentioned amendment has not yet been signed into law by the President -and therefore is not legally binding - we may presume, at the time of submitting this article to print, that it will pass into legislation imminently.
In the Justification attached to the draft Bill of November 6th, 2008, amending the Family and Guardianship Code, it was underlined\(^3\) that there is a need to change existing regulations as it is becoming ever more common judicial practice to leave parental authority to both divorcing parents without adequate verification of the real possibilities for its consistent execution by both parents. Demands in this regard, formulated in the doctrine by Prof. W. Stojanowska, concerning the conditions for such decisions, to present to the court the parents' agreement on the exercise of parental authority and the maintenance of contact with the child by the divorcing parent, have also been evoked. The above-mentioned postulates concern the transposition into Polish law, in the best possible way\(^4\), of the American concept of the "parental child care plan" as a tool to ensure child protection in the case of divorce.

Art. 58 §1 of the FGC provides for the obligation of the court to take into consideration an agreement presented by the parents as long as it is in the best interests of the child. This clause, as aptly

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\(^4\) For more on this topic see W. Stojanowska: Postulat przeniesienia amerykańskiej koncepcji „planu wychowawczego” rozwodzących się rodziców na grunt prawa polskiego [Postulate to transpose the American concept of "child-care plan" of divorcing parents to Polish law, „Zeszyty Prawnicze UKSW” [Legal Papers UKSW] 2007, No 7.2, pp. 7-44; Ibidem: Ochrona dobra dziecka rozwodzących się rodziców – „plan wychowawczy” według koncepcji stosowanej w USA i postulat przeniesienia jej na grunt polskiego prawa rodzinnego [Protecting children’s welfare in divorce - "child-care plan" based on the American concept and the postulate to transpose it to Polish family law], „Rodzina i Prawo” [Family and Law] 2009 No. 12, pp. 36-61; cf. also T. Sokolowski, Skutki prawne rozwodu [Legal effects of divorce], Poznan 1996, p. 96 ff.
highlighted in the doctrine,\(^5\) introduces some sort of restriction on the freedom of parents in shaping the content of the agreement and also authorises and requires the court carrying out the hearing, to evaluate it in the light of the principle of the child's welfare. Also worth stressing is that the provision of Art. 58 of the Family and Guardianship Code, cited above, points to an integral link between this agreement and the ruling of the court allowing both parents to exercise parental authority without restrictions after divorce. This ‘entering into agreement’ by the parents and its submission to the court is, in this case, one of the requirements of this settlement.

In the doctrine, despite the generally positive opinion on the new regulations adopted,\(^6\) a need to clarify certain "fields" of the institution has been expressed. There is a need to clarify, not only the explicit wording as to the form of the agreement, both oral and written\(^7\) but, more importantly, where this wording neglects to present specific information as to the obligatory elements of the agreement. In this respect, the "agreement" discussed, substantially deviates from its "formula" that is, from the "child-care plan" operating in

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\(^7\) In the course of parliamentary work on the novella discussed, the above issue considered, however there was no final decision to clarify the form of the agreement and its details. For more on this topic see W. Stojanowska in: W. Stojanowska, M. Kosek, Nowelizacja prawa rodzinnego [Amendment to family law], op. cit., p. 46.
The institution of the "agreement" governed by Art. 58 of the Family and Guardianship Code undoubtedly requires detailed normalisation in order to become the equivalent of the above-described "child-care plan" of divorcing parents, as provided for in the US legal system, in order to make the protection of the child a reality since this is the main objective of this legal institution of the family.

The doctrine also indicates another area not clarified by the legislator of the institution under discussion, which may create too ineffective a protection of the child's welfare in a situation of parental divorce. The situation in question is where the divorcing spouses agree to the request for no apportionment of blame during the divorce proceedings but do not apply for unrestricted parental authority to be left to both of them. It is regrettable that the legislature has not added a provision, imposing an obligation to provide the agreement in question in such a situation, when needed, and in

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9 In this context, it seems worthwhile to recall the position of W. Stojanowska: "At this stage of the evolution of the legal institution of parental authority of divorced parents, the mere mention of the "agreement" between parents is a big step forward. Further regulations should be preceded by studies of judicial practice in this type of "agreement" in order to gain experience in this field. It seems that it is too early to regulate these issues discussed by law. However, leaving the institution of "agreement" in the novella, to the Family and Guardianship Code as a provisional discussion, without any indications as to the mode in which it should be drawn up and executed, could cause the provision which regulates it, to be fruitless or, at the very least, to become irrelevant to the purpose and idea for which it was originally formulated. "W. Stojanowska. in: W. Stojanowska, M. Kosek, Nowelizacja prawa rodzinnego na podstawie ustaw z dnia 6 listopada 2008 r. i 10 czerwca 2010 r. [Family law amendment pursuant to the laws of November 6th, 2008 and June 10th, 2010] op. cit., p. 90.
particular to clarify the "certain obligations and rights" of the parent whose parental authority the court intends to restrict.\(^{10}\)

It should be noted that in the course of legislative work on the solution discussed, one of the experts proposed the addition of the following wording to Art. 58 §1 of the Family and Guardianship code: "Parents have an obligation to provide the above-mentioned agreement. Where such an agreement is not forthcoming or where there is conflict with the child's welfare or differences in the parents' opinions, the court will establish what should be included in the agreement"\(^{11}\). In support of this proposal, it has been stressed that while the criterion of the child's welfare allows the court not to take "the parents' agreement" into account, there are no guidelines for the court's resolution where the "parents' agreement" is, in the court's opinion, against the child's best interests. In such a case, the obvious effect is the "shifting" onto the court of the obligation to make specific arrangements that should be included in the body of such an "agreement". The Provision of Art. 58 § 1a of the amendment to the Family and Guardianship Code does not provide for such situations, which may cause doubts for the courts. To prevent this, the above-mentioned legislative proposal has been formulated. Alas, this has not been taken into account. In the situation described, theoretically it would be possible to apply Art. 56 §2 of the Family and Guardianship Code on the basis of which the court could dismiss the action for divorce bearing in mind more, the child's welfare.\(^{12}\) If the parents do not want to ensure that their child enjoys an indispensable level of protection by entering into an "agreement", the court then has grounds to presume that a divorce

\(^{10}\) Ibidem.

\(^{11}\) Ibid, p. 91.

\(^{12}\) Ibidem.
could threaten the child's well-being. The threat of a dismissal of the divorce action in this situation could have a positive effect and galvanise spouses into concluding this "agreement". The situation seems to be more difficult when one spouse does not agree to a divorce, which has nevertheless been ruled upon. This proposal of the expert would clearly oblige the court to replace the parents in the drawing up of an "agreement" which would undoubtedly strengthen the level of protection of the child's welfare.\footnote{13}

In this context, it should be mentioned that a difference of opinion has occurred as to the interpretation of the Provision of Art. 58 of the Family and Guardianship Code, in terms of the obligation to rule on contacts with the child in a divorce decree. The result of this controversy was the legal question addressed to the Supreme Court by the Ombudsman for Children:\footnote{14} "Does an agreeable agreement on the parents' contacts with the child in divorce proceedings, including an “agreement” approved by the court, release the court from obligatorily ruling on contacts with the child, further to any joint request of the parents to forego the ruling on these contacts?"

The Supreme Court responded to this issue in a resolution of 5\textsuperscript{th}. of June 2012. It is worth quoting a substantial part of this conclusion. In the above-mentioned resolution, the Supreme Court handed down the following judgement:

"The new text of these provisions does not provide grounds to assume that the court has been released, in the verdict, from the obligation to cover all issues relating to the family which have been mentioned in these paragraphs. Neither can a joint and agreeable request of the divorcing spouses influence abandonment of the set-

\footnote{13} Even though such a provision is currently missing, as has been stressed in the doctrine, "such an obligation of the court results from another obligation provided for over a long time, concerning a ruling on parental responsibility in a divorce decree (Art. 58 §1 sentence 1 of Family and Guardianship Code). " Cf. W. Stojanowska in: The amendment to Family Law, op. cit., p. 91.

\footnote{14} Cf. Ombudsman's Letter of 26\textsuperscript{th}. of August 2011, Legalis.
tlement of these matters. Such an understanding of Art. 58 §1 and §1a of the Family and Guardianship Code has been indicated by a literal interpretation which includes the term "decides" which leaves no doubt that it establishes the obligation of the court. The same conclusion follows from an interpretation of the system and functionalities. Concentration of all issues concerning the family in a single judgement takes into account the effects of a divorce, the spouses and the shaping of the family relations to the extent to which they will continue after the dissolution of the marriage (...).

In justification of the Draft Act of 6th of November 2008, it has been emphasised that a mandatory part of the divorce judgement has been extended to include decisions about contacts with the child (Sejm of the sixth term, print No. 629). This means that the interpretation of Art. 58 §1 of the Family and Guardianship Code, enacted into law in the period preceding this change, gained a normative expression. 

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The resolution cited has been met positively in the doctrine.16 It has stabilised the practice of adjudication on contacts with the child in a divorce decree and has thus cemented the changes implemented by the novella of November 6th, 2008.

On the basis of the arrangements discussed above, it is worth drawing attention to another dispute in the doctrine concerning the possibility of ruling in the legal situation of the so-called ‘alternating access’. This issue will only be signalled here. Two tendencies can be distinguished in the approach to the above-mentioned problem within the doctrine. The first17 is characterised not only by allowing the possibility of ruling on ‘alternating access’ but even sees it as

15 Cf.. Resolution of the Supreme Court of June 5th, 2012., OSNC 2012/12/135.
16 Cf. for example. W. Stojanowska, „Porozumienie” rodziców…, ["Agreement" of the parents ...], op. cit., p. 305.
the optimum solution to the problem of contact with the child after divorce. According to the second position, the current provisions of the Family and Guardianship Code do not take into consideration any ruling regarding ‘alternating access.’ The essence of the dispute is not so much the mere possibility of ruling on such a method of contact with the child; the essence concerns the agreement (or disagreement) as to the effect that ‘alternating access’ has upon the child's welfare. Without going any deeper into the essence of this dispute, we cannot fail to notice that even supporters of so-called ‘alternating access’ claim that situations where it can be applied, seldom occur in practice. This is due to the statutory requirement to leave both parents with parental authority - a joint parents' request when presenting an agreement and the court's assessment as to whether the presumption that the parents will co-operate in matters relating to the child, can be held as legitimate. Nor may we ignore the opinions of psychologists which indicate that the fundamental need of the child is the sense of security and "rooting" usually associated with one place of residence and with one parent.


The amendment of June 25th, 2015 introduced several changes to Art. 58 of the Family and Guardianship Code. Firstly, the legisla-
ture decided to settle the problem of the situation where parents do not conclude an agreement regarding the exercise of parental authority and maintaining contacts with the child after divorce. According to the new wording of Art. 58 § 1, "In the absence of an agreement referred to in §1, taking into account the right of the child to be brought up by both parents, the court, decides on the method of the joint exercise of parental authority and the maintaining of contacts with the child after divorce. The court may entrust the exercise of parental authority to one parent, limiting the parental authority of the other parent to some specific duties and powers in relation to the child, in order to secure the child's welfare.” Secondly, the amendment also *expressis verbis* resolves the problem of the obligation to rule on contact with the child in a divorce decree which is, among other things, the subject of the resolution of the Supreme Court, dated June 12th, 2012, cited above. The legislator decided to introduce a new paragraph into the article (1b) discussed above, according to which, "at the joint request of the parties the court does not rule on maintaining contact with the child." In other words, contrary to the position of the Supreme Court, expressed in the aforementioned resolution, the legislator waived the obligation to rule on contact with the child in a divorce decree, provided that the parents submit a compliant application.

The above amendment also introduces changes to the regulations of the Code of Civil Procedure. The changes follow from the changes in the Family and Guardianship Code quoted above. The legislator introduced, *expressis verbis*, the possibility of ruling that the so-called ‘alternating access’ has, as an essential element, that the child will reside, alternately, with each parent. It is how to understand the addition of new paragraph § 4, to the existing Art. 5821 of the Code of Civil Procedure CCP, according to which, "The provi-
sion of §3 will apply, *mutatis mutandis*, to the ruling in which the court has determined that the child will live with each parent over repeat periods." Similar wording can be found in the new article, 598\textsuperscript{22} of the Code of Civil Procedure.

A detailed analysis of changes in the regulations of the Family and Guardianship Code and the Code of Civil Procedure introduced by the novella of June 25\textsuperscript{th}, 2015 is beyond the scope of this study. Certainly the changes introduced by the above-mentioned novella will be the subject of numerous studies and commentaries in the doctrine. However, it is impossible not to comment, at least generally, on some of the issues that have arisen from the provisions of the novella cited above.

Firstly, attention should be drawn to the legislator's departure from the current model of the statutory regulation of the issue under discussion. A pre-requisite for granting both parents unrestricted access after divorce depended, among other things, on the conclusion of the said agreement concerning the exercise of parental authority and on maintaining contact with the child. The whole effort of the court and its subsidiary organs, as well as the mediators should be aimed at this because, in the circumstances, this agreement was -and still is- the best guarantee of protecting the child's welfare in a divorce. The novella discussed here introduces far-reaching changes in this regard. Even though it is true that the legislator retains the institution of the parents' agreement and may even clarify it in terms of its form, as indicated in a written agreement, it is no longer a *sine qua non* for any settlement granting both parents parental authority without limitations after divorce. It is not difficult to predict that the parents' agreement referred to in Art. 58 §1 of the Family and Guardianship Code will become, in practice, a dead institution. In actual practice, the new wording of Art. 58 §1a of the Code of Civil Procedure negates the possibility of the further evolution of the institution of agreement which would make it a funda-
Miroslaw Kosek, The Agreement of Parents on the Exercise of Parental Authority and the Maintenance of Contact with the Child after Divorce in the Light of Art. 58 of the Family and Guardianship Code

mental instrument for protecting the child in a divorce as requested in the doctrine.20

In the above context, it is difficult to agree with the statement in the justification of the draft amendment, according to which the purpose of the amendment is to "improve protection of the said child's rights (including the right to be brought up by both parents) during parental conflicts occurring, both in the case of the parents' divorce (Art. 58 FGC) and also where parents do not divorce, but for various reasons live apart (Art. 107 FGC)."21

Firstly, it should be noted that the child's right to be brought up by both parents is not unconditional and cannot be an end in itself. Like any other right, it should also be subordinate to the child's welfare and cannot be executed at the child's expense. It is the child's welfare clause which constitutes the proverbial "Spirit of the Convention on the Rights of the Child" and is an instrument for the interpretation of the standards and a directive of its application.22

From this point of view, and contrary to the views of the authors of the justification of the proposal, the legal status of the novella of November 6th, 2008 protects the welfare of the child in cases of the parents' divorce better than the novella discussed. The legislator has

20 Cf. W. Stojanowska, „Porozumienie" rodziców..., [ "Parental' agreement" ...], op. cit., p. 305 et seq.


not excluded the possibility of allowing unrestricted access to both parents after divorce and has also not made this form of settlement into a model solution. Such a decision was conditional, that is dependent, among other things, on the preparation and submission to the court of an agreement concerning the exercise of parental responsibilities and contact with the child. This method of regulation should have been preserved and improved rather than rejected.

In the context of the opinion of the authors on the justification of the draft novella quoted, it is also worth noting that the legislator adopts the too optimistic assumption that implementation of the option to leave parental authority to both parents, which is in itself a premise for the ruling of ‘alternating access’, yet without the need for any agreement by the parents, would lead to the solution or at least mitigation, of the conflict between the parents. In the opinion of the present author, such an assumption is not only too optimistic but quite prejudicial and dangerous for the child and is rather an attempt to circumvent the problem than actually solve it. Life teaches that conflict arises very quickly. In that most sensitive of areas, child welfare, the effects of inconsistencies in the upbringing of a child, or worse, the total lack of any upbringing, obviously reflects on the child.

Another fragment of the justification of the draft novella discussed is even more questionable, if not alarming. According to the originators, the solutions contained in Art. 58 and 107 FGC in the version before the novella of 2015, mean that "in the case of the disagreement of the spouses as to the exercise of parental authority and the maintenance of contact with the child after divorce, the court is forced to limit parental authority to one parent." According to the originators, this regulation "assumes automatism for the settlement which, on the one hand, limits the scope of judicial autonomy and on the other hand, leads to an exacerbation of conflict between parents in many proceedings. Such a regulation may lead
to unfair judgements for the family and especially for the child, as it
does not permit the court to examine the conditions prevailing in
the family in order to adjust them based on a judicial decision ... "23.
It is impossible to agree with the view that Article. 58 §1a of FGC,
as amended by the novella of November 6th, 2008, should be seen
as "limiting the autonomy of judges". In principle, any provision
imposing a specific obligation on the court might be qualified in
such a way; of far greater importance is that fact that the authors of
the justification seem to perceive the decision on parental authority
and contact with the child in a divorce decree in isolation from
other necessary arrangements made in the course of the divorce
proceedings, particularly when examining the grounds for the
child's welfare. The primary purpose of evidence proceedings in
divorce cases is to verify the legal grounds for allowing the divorce
- both positive and negative grounds- including "the circumstances
surrounding the breakdown as well as the circumstances surround-
ing the children and their situation in the event of recognition pro-
ceedings" (art. 441 CCP) which - contrary to the opinion of the
authors of the justification - gives the court an insight into the rela-
tions within the family and allows predictions with regard to pro-
tecting the child's welfare. Indeed, when spouses do not have minor
children, evidentiary proceeding may be less detailed (art. 442
CCP), but that is not the situation in the case discussed here. Indi-
vidual decisions contained in the divorce decree, also in terms of
parental authority and contact with the child, are derived from these
basic findings. The fragment of the justification of the novella cited
is completely incomprehensible in this context.

23 The justification of the Senate draft regulation to amend the Law – the Family
and Guardianship Code and the Code of Civil Procedure, print No. 3104 dated
January 9th, 2015, op. cit., p. 2.
At this point, the position of the Supreme Court which, in its opinion on the draft amendment, stressed that the proposed change in the law is not only unnecessary but also premature and, above all, in the opinion of the Supreme Court "may - contrary to the expectations of its originators - create new risks for the welfare of the children of parents living in separation ".

24 The Supreme Court said even more on this subject in one of its earlier opinions, the object of which was also a proposal to introduce the so-called 'alternating access' as a model solution. In the above-mentioned opinion, the Supreme Court stated: “The real and primary purpose of such decisions and demands seems to be "the protection of the rights of a parent to access to the child" and in particular the rights of the father. The child's welfare is then seen through the parent's welfare. This does not seem to be an appropriate approach. Tomasz Sokołowski characterized the essence of this approach succinctly: "The child's welfare remains (...) an empty slogan abandoned in the battlefield between the parties." The above argument speaks for the rejection of ‘alternating access as a model solution.

25 One should fully agree with the position of the Supreme Court; however the legislator did not take this position into account when passing the novella discussed.

24 The opinion on the law on the change of law in the Family and Guardianship Code (print of the Senate of the Republic of Poland of the VIII term no. 757). It is worth mentioning that the authors of the justification of the novella described the position of the Supreme Court in the following way: "In the opinion of the Supreme Court, the proposed change in FGC is not necessary". Comp. justification of the draft novella, op. cit., p. 4.

25 Cf. The opinion of the members of Parliament on the Family and Guardianship Code and on the change to some other laws (print no. 2179) www.sejm.gov.pl.

26 Ibidem, p. 15 of the cited Opinion of the Supreme Court.
Cognitive Efficiency within the Context of Legal Expert Knowledge. The Eye-tracking Study on the Polish Legal Notaries*

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Abstract: The article presents the results of the pilot eye-tracking experimental study** of the group of notaries (N=10) and other lawyers (N=9) who were instructed to revise legal documents for sale of land. The main purpose of this research was to verify, borrowing on the analogy to the study of chess players and other specialists, whether the notaries have developed complex cognitive structures in comparison with other specialists, who did not practice the preparation of any notary documents. The study significantly differs from previous research on legal specialist in two respects. Firstly, the task has been narrowly determined. Secondly, two different groups of lawyers have been compared in terms of the output and the quality of inspection strategy, namely non-specialist with general legal background and practicing notaries with significant professional experience. The results indicate strong advantage of notaries in terms of correct answers. The explanation for the difference in the results of qualitative analysis of reading and inspection processes is partially unexpected in the light of psychological theory of expert knowledge and the preliminary hypotheses. However, the experiment reveals connection between notaries' expert knowledge and cognitive efficiency associated with the performance of cognitive tasks.

Keywords: eye-tracking, notaries, specialist knowledge, behavioral studies

* The paper has been translated to English by Mateusz Bukaty, Faculty of Law and Administration, University of Lodz.

** The survey has been conducted by the following research group: 1. Mariusz J. Golecki – preparation of the theoretical part of the experiment, organization of the experiment on the gorup of randomly selected notaries, participation in data analysis and interpretation 2. Marcin Romanowicz – experiment design: preparation of the procedure and operationalization, the theory on the eye-tracking parameters within the light of the expert knowledge, data analysis and preparation of results, the interpretation of data and the research findings. 3. Pawel Soluch – consultation on the experiment procedure and experiment design, technical aid concerning the application of the eye-tracker and participation in data analysis and interpretation.
Introduction

Nowadays the modern social structure is based on specialization of social roles, including professional roles. Societies contain many different professions, which basic functioning is based on the use of specialized knowledge. One of such professions in the field of legal transactions are latin notaries, who are the subject of research presented in this article.

As an example of this profession specific activities one can indicate the preparations of a notarial deed needed for selling a real estate in Poland. In accordance with the Art. 158 of Polish Civil Code\(^1\) a contract obliging to transfer real estate ownership must be concluded in a form of a notarial deed. The same applies to the final agreement which transfers the ownership of a real estate in order to execute the aforementioned obligation - it should also be concluded in a form of notarial deed in which details about both - the final transfer and the obligation that led to it - should be precisely described.

The mere preparation of a notarial deed requires the professional jurist who is involved in the described process - in this case a notary - to analyze a number of documents, among others, an excerpt from a national Land and Mortgage Register for the real estate that is the subject of the audited transaction (cf. Figure 1). Recently this action is being replaced by either viewing the Electronic Land and Mortgage Register, which is available on the Polish Ministry of Justice website, or checking an excerpt from local land register.

\(^1\) Art. 158 of the Act of 23 April 1964, Civil Code (Journal of Laws from 1964, No. 16, item 93, as amended).
From the cognitive psychology point of view the preparations of a real estate sale in a form of a notarial deed involves a process of cognitive visual processing of all the source documents. This fact leads to a question on the border of cognitive psychology, sociology of law and legal education, namely: *Does an average latin notary, as person who is specialized in the preparation of notarial deeds, developed specific reflexes (automatism) during the processing of visual data from the analyzed documents?*

According to the findings of cognitive economics of the human mind, in a process of training it is possible that a given human group develops a better and more efficient cognitive mechanism for
performing an analyzed task. Those processes are, to a large extent, subject to the rule of maximizing the cognitive efficiency - understood as an optimization of the amount of probable right choices combined with the reduction of the intensity of cognitive processes.

So far there were no studies about cognitive processes in this regard. No studies addressed the cognitive processes that occur due to the use of formalized norms, in particular, legal norms. Taking into account the findings of categorization strategy and assuming that the process of applying legal norms can be understood as a *sui generis* categorization process that evaluate facts based on the significance of the rules, which constitute certain legal categories (legal consequences), a research hypothesis can be formulated: 

*Legal notaries, as a highly specialized social group, developed a specific visual stimulus processing scheme, which is used during the analysis of all the necessary documents, that are needed in order to perform given notarial activities.* Aforementioned hypothesis can be verified by performing an empirical experiment. Moreover, data gathered in that process could be used to formulate a theorem on cognitive professionalism of analyzed group of jurists.

The purpose of current studies lies in presenting an outline, preliminary results and their interpretation of an eye tracking experiment. The experiment consisted of a simple, cognitive task in which the subjects had to perceive, correctly interpret and absorb information contained in an excerpt from a local land register (cf. Figure 2) - the same data that is critical during the process of a notarial real estate sale. Moreover, subjects had to handle all the mistakes that were purposefully included in the given excerpt - in order to validate the hypothesis about the expert knowledge and, related to it, specific, highly efficient cognitive processes of legal notaries.
The article will be divided into three parts. Part one contains a description of psychological theory regarding expert knowledge, which provides a theoretical background for the empirical part - the experiment. Second part of the article is focused on presenting the methodology of the experiment - it contains a description of both: the experimental group and the control group; it has information about test procedures and experimental manipulations that were used; it formulates hypotheses and their operationalization. At the end of this part one can find the results of the conducted experiment in regards to nine selected indicators and discussions over them.
Third part offers a preliminary interpretation of results and contains final conclusions.

1. Lawyers' expert knowledge in regards to psychological theory of expert knowledge: theoretical inspirations and research hypotheses

According to the theory of cognitive economics of human mind, in a process of training it is possible, for a given group, to develop more efficient cognitive mechanisms, through expending complex cognitive structures. Those structures are responsible for solving difficult tasks that requires the subject to make a number of different decisions and choices. The related processes are, to a large extend, subordinated to the principle of maximizing cognitive efficiency, which involves automation of certain tasks and achieving coordination among various stages and elements of these processes. That results in increased probability of making the right choices, while, at the same time, decreased intensity of the processes themselves.

Furthermore, according to the findings of Adriaan de Groot the development of permanent predispositions and cognitive structures is a generally accepted explanation of achieving mastery in any given field. Studies that focused on explaining the cognitive basis of any outstanding human achievement were continued with respect

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2 D. P. Ausubel 1963.
4 Adriaan de Groot was a famous Dutch psychologist and a master chess player, who studied perception and memory of outstanding chess players. He died in 2006.
to many different fields, such as: chess, mathematics, music, medicine.\textsuperscript{5}

Finally, as Ch. Chabris accurately points out, a comprehensive theory of expert knowledge should meet four criteria.\textsuperscript{6} First, such a theory should indicate the cognitive basis of processes and structures that are involved in performing specific tasks, both by total beginners and by experts in the given discipline. Moreover, the model of expert knowledge should resemble an algorithm or a computer program, which also takes into account all the constraints of one's cognitive structures that are involved in analyzed processes. Second, a comprehensive theory of expert knowledge should allow the identification of key differences related to the proficiency level of expert knowledge users. Third, the theory should show how one's expert knowledge changes over time depending on the growth of his proficiency in performing certain tasks and achieving specific goals that are related to the studied field. In this context, it is important to both, identify one's different degrees of proficiency in using the expert knowledge, and find the explanation for the level changes that happen over time due to the occurrence of processes such as learning or the automation of operations acquired through training. Therefore, the goal of finding a comprehensive theory of expert knowledge also lies in discovering the detailed mechanism of acquiring specific skills through the process of learning. Fourth, the theory should be consistent with the findings of previously taken empirical studies, thus enabling linking the partial explanations formulated within the framework of that research with the general theory - under the same paradigm. Simultaneously, a comprehensive theory of expert knowledge should rather be focused on

\textsuperscript{5} K. A. Ericsson, J. Smith 1991.  
\textsuperscript{6} Ch. Chabris 1999.
creating a complete explanation for the observed regularities, than on formulating detailed predictions about the outcome of the investigated processes. Hence, the theory should rather be explanatory than predictive.

So far there were only few studies regarding the cognitive processes that occur due to the use of formal procedures, in particular, legal norms.\textsuperscript{7} As some authors point out, the situation largely results from the difficulties in conducting research about the decision-making process pertaining to law.\textsuperscript{8} The representatives of legal professions are very reluctant to participate in experimental research and the mere level of complexity of real legal problems additionally hinders conducting such studies.

At the same time it is important to emphasize that all the research conducted so far were based, in principle, on the assumption that lawyers are a homogeneous group of experts that are specialized in solving any legal problems. Furthermore it was also assumed that senior students of legal studies could be treated as potential experts in solving legal problems, hence they were also included in those experiments.\textsuperscript{9} It seems that both of these assumptions may be subjected to serious criticism.

Firstly, the field of legal expert knowledge is a great example of a weakly structured discipline. In practice, this means that contrary to chess or music, law, similar to medicine, it is a complex scientific entity which consists of both: elements of declarative knowledge and elements of procedural knowledge. Furthermore, the relation between those two different types of knowledge, with regards to the competences of lawyer, has not been satisfactorily explained yet. That can be, at least partially, attributed to the fact that lawyers ful-

\textsuperscript{7} G. L. Blasi 1995; G. Marchant, J. Robinson 1999.
\textsuperscript{8} A. Gloeckner, E. Towfigh, Ch. Traxler 2013.
\textsuperscript{9} G. L. Blasi 1995; A. Gloeckner, E. Towfigh, Ch. Traxler 2013.
fill many different functions and the process of training and gaining procedural knowledge is closely related to various legal professions, specific branches of law or even individual norms that regulate actions of specific lawyer. The expert knowledge of an attorney that specializes in representing his clients in court is significantly different from expert knowledge of a public prosecutor, a judge or a legal notary. This means that while the idea of homogenous expert knowledge of jurists in countries with general model of legal education (for example: Germany, USA) may be justified, in countries where legal system is based on specialization (for example: UK, Poland) and where, in order to perform specific legal professions, one, in addition to general legal education, needs to undergo a long and specialized training (legal apprenticeship), it is necessary to differentiate the concept of expert knowledge for every of those different legal professions. Simultaneously one can argue that in countries with the general model of legal education, where specialization is not as important and where the change of the occupancy or even combining multiple legal professions is possible, it can be assumed that more advanced students can be considered intermediate lawyers. However, this assumption is not applicable in countries where legal system is based on specialization and where it is impossible to combine multiple legal professions. In particular, it does not apply in the case of Polish legal system, where students of legal sciences, who did not undergo their legal apprenticeship yet, certainly cannot be considered experts and should not be included in studies on the topic of expert knowledge.

Secondly, it seems that legal knowledge has such a complex nature, that the mere concept of treating it as a subdomain of expert knowledge, seems to be an excessive generalization. This results from a complicated relation between procedural and declarative knowledge, and therefore it is necessary to clarify this broadly accepted
According to Gilbert Ryle, skills that are allowing one to accomplish a certain goal (knowledge-how) can be relatively independent from the knowledge about the mechanism, which allows us to use a specific skill (knowledge-that). The ability to know how to act in a specified situation does not always correspond with the knowledge about certain phenomena which form the basis of that skill. In other words, to operate smoothly, using type-one knowledge, it is not necessary to possess a type two-knowledge.

As an example of abovementioned dependence Gilbert Ryle often used a chess game. General knowledge about chess, familiarity with rules of the game and knowledge of different strategies is not nearly enough for player to use them efficiently in practice and win a game against an experienced opponent. That allows one to generalize the relation between both types of knowledge and formulate the following hypothesis: The theoretical knowledge is not a prerequisite to have the practical skills. If any case of using a practical knowledge was necessarily preceded by having the theoretical knowledge, then the mere construction of such statements would also be considered as a theory based action. That leads to a vicious circle, as any action can be understood as a mere manifestation of will, and hence, it does not require any theoretical knowledge or even it is not a result of a cognition process.

Gilbert Ryle was the first researcher who observed this independence between both aforementioned types of knowledge (knowledge-how and know-that), but he was not the last one, who conducted studies on this phenomenon. This subject was continued and developed in the framework of cognitive psychology. Nowadays it is broadly accepted to distinguish expert knowledge between the declarative and procedural knowledge. First one relies on the knowledge of the terms and rules, while second one on a non ver-

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10 G. Ryle 1949.
balized set of skills, often performed unconsciously, which are improved or even becomes automated, as a result of their repeated use. At the same time, when it comes to the expert knowledge of lawyers, it was decided that it has a very complex nature and cannot be reduced to either declarative or procedural knowledge, but rather it contains a mix of both. Moreover, to understand its complex nature it is essential to explain the relation between those two types of knowledge. On the other hand, this approach makes an empirical verification of the nature of this knowledge much more difficult. According to the findings of M. N. Aaronson, this happens because legal knowledge, in principle, is used to solve specific real life problems, and therefore, is not very well structured. That claim can be extended to two probable causes. First, the way of defining given problem is not clear and also the issue itself changes depending on current circumstances. The task that is being solved by a trained lawyer usually has a very broad nature - unless it is a very simple task, but then it does not need expert knowledge to be solved in the first place. Second, it is not exactly clear how to evaluate individual variables that affect the outcome - to what extent the final solution depends on the interpretation of given legal norm and to what extent on the appropriate assignment of the facts.

Moreover, lawyers use to constantly change their way of solving a legal problem - taking into account additional information and new circumstances - which additionally introduces certain dynamism and makes it even harder to distinguish between the expert knowledge and a general human ability to process and analyze information. In other words, typical legal issues are so complex and depended on the situational context, that one could argue, that legal expert knowledge is the exact opposite of the expert knowledge of

chess player. While in fields such as chess, mathematics or other well researched areas that are considered expert knowledge, the task that the expert needs to solve is well specified and is not subjected to any changes while being performed, the task of solving a legal problem is very hard to isolate, is subjected to constant changes and it is very hard to precisely define. The same applies to assessing the quality of the task, which, in regards to the law, in most of the cases, is rather problematic.

Nevertheless, it seems that the previously mentioned difficulties are, at least to some extent, possible to overcome. Firstly, the studies on the topic of expert knowledge, can be narrowed to a smaller set of skills. That would limit the influence of external factors on the outcome and the way of solving given task. In this respect, the task should be very precisely specified and, at the same time, it should provide a good example of a repetitive and routine task, which should also consists of a series of linked and well-characterized activities. Terms such as legal issue or legal case, are, in this regard, too broad - as it is not exactly clear, which skills are being used in the analyzed process. In order to conduct contained herein research, it was assumed that a notarial deed of real estate sale is an adequate example of activities that are specific for legal experts. According to the Art. 158 of Polish Civil Code\(^\text{14}\) both: a contract obliging to transfer real estate ownership and the final agreement which transfers the ownership of a real estate in order to execute the aforementioned obligation, must be concluded in a form of a notarial deed, in which - the final transfer and the obligation that led to it - should be precisely described. A preparation of a notarial deed requires the legal notary to analyze a number of documents. Secondly, it was assumed that notaries have specific expert knowledge which is expressed in an ability to effectively analyze documents that contains various types of visual data - both text information

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\(^{14}\text{Art. 158 of the Act of 23 April 1964, Civil Code (Journal of Laws from 1964, No. 16, item 93, as amended).} \)
Mariusz Golecki, Marcin Romanowicz, *Cognitive Efficiency within the Context of Legal Expert Knowledge. The Eye-tracking study on the Polish Legal Notaries* (data about space, owner, etc.) and image information (various drafts, maps, pictures and sketches).

Assuming that the process of applying legal norms can be understood as a specific process, where facts need to be evaluated and compared with existing rules that are defining legal consequences for a certain action, the following hypothesis can be formulated: *Legal notaries, as a highly specialized group of experts, have a specific manner of processing visual stimuli, which lets them to immediately perceive important information and ignore relatively irrelevant information.* Experimental verification of this hypothesis would serve to formulate a claim about cognitive professionalism of analyzed lawyers' group.

Simultaneously, the hypothesis on the expert nature of notaries' knowledge and their specific manner of processing visual stimuli, to some extent, takes into account the previous findings about the method of processing visual information by chess players. According to H. Simon's proposal, chess is a model environment, which is ideal for conducting general research and to formulate hypotheses about the theory of information processing. ¹⁵ Studies on chess players' competences and their way of memorizing movements and positions of figures have long been the subject of interest of cognitive psychologists. That is due to the fact that, on the one hand, they allow the preservation of the environmental requirements relating to their nature and, on the other hand, they allow to maintaining full control over the experiment. Furthermore, a considerable factor is the fact that all the achievements and the overall skill level of chess players are subjected to a formal evaluation that reflects their position among other players. That means that it is possible to quite precisely select a group of expert players, using the generally accepted

ELO rating system. Moreover, it is worth mentioning that at least few of the chess grandmasters were trained psychologists (for example: Nikolai Krogius, Reuben Fine).

The development of studies on the competences of chess players allowed formulating the basic assumptions of the theory of expert knowledge. In a series of studies, where the participants were not only grandmasters, but also advanced players and even beginners, A. de Groot noticed that grandmasters, as opposed to the others, are capable of flawlessly memorizing a very large number of typical positions or formations of chess figures. At the same time, when the task consisted of memorizing in a specified amount of time (usually from 2 to 15 seconds) as many as possible randomly chosen figures (formations that shall never form during the actual game of chess), the differences between grandmasters, other players or even non-chess players were insignificant. De Groot also proposed an explanation of the aforementioned phenomenon, according to which, the advantage of grandmasters as experts in their field, was not based on neither their ability to more efficiently compute all the possible variations of moves, nor their superior ability to memorize large numbers of positions, but rather it originated from their ability to distinguish important formations of chess figures and their knowledge of all typical formations.

Then in the 70s Chase and Simon argued that the advantage of chess grandmasters over other chess players can be explained by their new theory about an extended field of vision of the former. They stated that expert players process the information about chess formations differently than intermediate players. While the average player focuses on each individual figure, an expert player automatically groups figures into bigger "chunks", and then, he is able to

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process such divided, "lighter" information much faster than other players. In other words, experts tend to concentrate on relations between the "chunks" instead of focusing on relations between all the individual figures. This approach was called the recognition-association theory.

Those kinds of studies were continued. It was observed that the better a player is, the easier it is for him to quickly memorize larger "chunks" and analyze all the relations between them. Moreover, experts are better at memorizing distribution of figures on a chessboard which is only exposed for a short period of time. This happens because they perceive it as a combination of a few typical and therefore familiar for them "chunks", while beginners see 32 or less separate figures. Weaker players concentrate on figures; grandmasters concentrate on typical "chunks". At the same time there are many differences between the experts - as each of them groups the individual chess pieces into "chunks" in its own way. Nevertheless the mechanism that they are using is the same. Theory is therefore compatible with the aforementioned theorem about cognitive efficiency. It is easier to remember less of larger elements than more of smaller elements - hence, the players are maximizing the probability of right choices while minimizing the required effort. In conclusion, the expert knowledge that is used by chess experts is based on their ability to efficiently and accurately group chess figures into "chunks", and to identify relationships and consequences of these relationships for the evaluation of their chess positions in any given game. Grandmaster player is better because he knows more types of those typical "chunks" than an average chess player. However, a few years later, this theory was revised and criticized.

Subsequent studies revealed that if in previously mentioned de Groot's experiment, exposure time is extended to around 30 seconds (from 2 - 15 seconds) experts are vastly superior than other players in memorizing chess formations even if they are randomly selected.\(^{21}\) Moreover, Ericsson and Harris showed that repetitive memory exercises that involve memorizing chess formations increases one's capability to remember them and allows even non-players to reach the same memory level as chess grandmasters have. Results of those studies caused the previous theories to be frequently questioned. Simultaneously some alternative approaches to the analyzed phenomenon of expert knowledge were proposed. One of those new proposals was Ch. F. Chabris's mental cartoon hypothesis, which assumed that experts are not only able to correctly recognize chess positions, but also are very proficient in using their imagination to recreate in their working memory given chess positions, and then compare it to other formations, which are stored in their long-term memory. They also posses the ability to creatively use very general principles, which enables them to move from set chess positions to memorized positions which are optimal for a given grandmaster.\(^{22}\)

However, later on E. Reinegold and N. Charness proved that grandmasters actually use a specific method for processing of visual stimuli, which had basically been aptly described by H. Simon and W. Chase as their recognition-association theory - based on the assumption that a given chess position is not remembered by grandmasters as a sum of individual figures but as a group of linked and combined figures - a "chunk".\(^{23}\) Within the framework of eye-tracking studies, Reinegold and Charness showed that the method of processing visual information by chess grandmasters indicates that they have a wider field of view, while, at the same time, they are

\(^{21}\) G. Lories 1987.
\(^{22}\) Ch. Chabris 1999; Ch. Chabris, E. S. Hearst 2003.
able to focus their attention only on figures that are relevant for evaluating their current position. Additionally they observed the existence of a parallel process of information processing and an occurrence of automated unconscious processes.

In the conducted eye-tracking studies the processing of visual stimuli in the form of a standard presentation of chess positions, regarding the group of experts, was characterized by the following qualities:

- A number of registered fixations\textsuperscript{24} was smaller in case of masters than in case of the non-experts (intermediate and beginner players).
- Fixations were more frequently situated between the figures than on the chess figures themselves.
- It was observed that the significance of individual figures for the given chess position, in the case of experts influences the choice of endpoint saccades\textsuperscript{25}, while in the case of other players no such phenomenon was observed.
- Experts were ending the perceptual decoding phase and were moving to the solution finding phase faster than other players.
- E. Reingold and N Charness studies have shown that only experts were able to identify relations between figure formations as a part of automated and parallel processes,

\textsuperscript{24} A visual fixation means the process of maintaining the visual gaze on a single location. Reading, for example, does not involve a smooth sweeping of the eyes along the text but a series of short stops - those stops are called "fixations".

\textsuperscript{25} A saccade is a quick, simultaneous movement of both eyes between two phases of fixation in the same direction.
which proves the possibility of automating even very complex procedures relating to cognitive processes.

Those studies lead to a question - to what extent the findings of E. Reinegold and N. Charness can be used in a broader theory of expert knowledge, not necessarily related to a game of chess. It seems that the recognition-association theory can potentially provide an explanation also for other types of expert knowledge. Moreover, this theory is supported by the hypothesis about cognitive efficiency. If in fact the expert knowledge is based on both: familiarity with procedures and the skill in using those procedures, it will certainly, in relation to the visual data analysis, manifest itself in a form of specific method of scanning and verifying the visual data. In particular, experts should have abilities allowing them to efficiently browse any given text and focus on potentially important elements, while, at the same time, omitting the elements that are usually irrelevant in a given type of task. One of those skills is their ability to efficiently analyze specific, standard document types that contain information in the form of pictures (for example a map), tables and text. This point of view was be verified in the experiment described below.

2. Eye-tracking experiment

2.1. Experiment description

2.1.1. The participants

In the conducted pilot experiment two groups were examined: experimental group of ten legal notaries and control group of nine lawyers performing different legal professions. In the first group there were seven males and three females. They were from 33 to 60 years old, with an average age of 44 years. Professional experience of notaries that were participating in the experiment, measured in
years of professional practices, was spread from half a year to 30 years and averaged at 10,5 years. Eight of the participants had classic notarial education, which is regulated by Art. 11 of Notary Public Law\textsuperscript{26} in the version prior to 23 August 2013\textsuperscript{27}. That means that after graduating from five-year long legal studies, they had a two-year long notarial apprenticeship, followed by a two-year long internship. One of the participants before taking a notary specialization finished legal studies, had a two-year long judicial apprenticeship and for two year worked in a court department of Land and Mortgage Register. Last participant also finished legal studies and a two-year long judicial apprenticeship, but then he worked for five and a half years in different court departments (including the department of Land and Mortgage Register) and finally, he moved to a notarial sector in accordance with Art. 12 §1 pt 2 of Notary Public Law.\textsuperscript{28} Demographics (sex and age) and expert traits (years of professional experience and) of the analyzed experts group are shown in Table 1.

Table 1.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Sex</th>
<th>Age</th>
<th>Professional Experience</th>
<th>Professional Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>N01</td>
<td>M</td>
<td>50</td>
<td>1</td>
<td>Classic</td>
</tr>
<tr>
<td>N02</td>
<td>M</td>
<td>60</td>
<td>30</td>
<td>Classic</td>
</tr>
<tr>
<td>N03</td>
<td>M</td>
<td>33</td>
<td>0,5</td>
<td>Classic</td>
</tr>
<tr>
<td>N04</td>
<td>F</td>
<td>38</td>
<td>7</td>
<td>Classic</td>
</tr>
</tbody>
</table>


\textsuperscript{27} According to Art. 6 of the Act of 13 June 2013, Changing laws regulating the performance of certain professions (Journal of Laws from 2013, item 829), which removed Art. 11 of Notary Public Law - the requirement of undergoing a two-year internship before being able to work as a notary.

In the control group six of the participants were male and three were female. They were from 27 to 56 years old, and the average age was 40 years. Their professional experience measured in years of legal practices was from half a year to 26 years, with an average of 13 years. Among the participants there were two legal advisers, an attorney, an official receiver, a civil servant, a judicial trainee, a trainee at a law firm and two academic lecturers (one of them with some civil service experience). The control group deliberately contained different lawyers whose work was not related to notarial services. Therefore their skills and knowledge were not specialized towards performing notarial tasks. In the control group, among others, there were two academic lecturers, who do not perform any tasks related to legal practice, hence, while performing cognitive tasks during the experiment, they could only use their theoretical knowledge. Demographics (sex and age) and expert traits (years of professional experience and) of the control group are shown in Table 2.

### Table 2.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>44</th>
<th>7</th>
<th>Judicial apprenticeship</th>
</tr>
</thead>
<tbody>
<tr>
<td>N06</td>
<td>M</td>
<td>56</td>
<td>30</td>
<td>Classic</td>
</tr>
<tr>
<td>N07</td>
<td>F</td>
<td>34</td>
<td>0.5</td>
<td>Classic</td>
</tr>
<tr>
<td>N08</td>
<td>M</td>
<td>39</td>
<td>6</td>
<td>Judicial apprenticeship and some work as a judge</td>
</tr>
<tr>
<td>N09</td>
<td>F</td>
<td>35</td>
<td>0.5</td>
<td>Classic</td>
</tr>
<tr>
<td>N10</td>
<td>M</td>
<td>54</td>
<td>23</td>
<td>Classic</td>
</tr>
<tr>
<td>Average</td>
<td>-</td>
<td>44.3</td>
<td>10.55</td>
<td>-</td>
</tr>
</tbody>
</table>

**Source:** own elaboration based on collected data
A comparison of both: the experimental group, where the controlled variable was the affiliation with notarial services, and the control group, shows their relative compatibility in terms of demographics and expert traits. In the control group there were some slightly younger people. The youngest member of that group was 27 years old, while in the experimental group the lowest age was 33 years. The average age in the control group was about 4 years lower than in the experimental group. However, it was at least partially compensated by the fact that the average professional experience was 2.5 years higher in the group of non-notaries. The median age was respectively 41.5 years for notaries and 36 years for non-notaries. The median professional experience of the experimental group was 6.5 years and for the control group - 12 years. The asymmetry of professional experience is in fact slightly reduced because in the case of the experimental group only notarial experience was taken...
into account, while in the control group all kinds of professional experience was included. It was an intentional operation, caused by the fact that only notarial experience influenced participants' expert knowledge and skills that were relevant for the cognitive task performed during the experiment.

2.1.2. The procedure and the experimental manipulation

The cognitive task that required the use of legal expert knowledge, in the conducted research was based on asking the participants to verify the accuracy of a draft of a notarial deed of sale of land property. In the experiment's instruction the participants were asked to imagine the following situation: a client of the law firm that they are working for is asking to prepare a notarial deed of real estate sale for him. However, the only document that is available is an excerpt from a local land register (cf. Figure 2). Then, a trainee prepares a project of aforementioned deed. The task of each individual participant is to verify that project.

After the calibration, on the eye-tracker screen the subject could see first two pages of a notarial deed project, to which - for the time efficiency - the verification task was narrowed. Participants were asked to compare those two pages with data from a land register excerpt - which was previously subjected to experimental manipulation. The real excerpt was modified in a following way:

- The internal data was contradicting.
- The data was inconsistent with the external, actual state.

Manipulation a) was based on modifying the area of the plot that was hypothetically sold through the notarial act. The area has been purposefully lowered, in order to check if the participants were able to notice that contradiction. Noticing that manipulation was possible due to several reasons. Firstly, the participants could analyze the table with plot area data. In that table a column with detailed information about area of several local plots had different values than another column titled "plot area in ha". Moreover, participants
could analyze the cadastral map. While in all the documents, the area of the studied plot was much lower than the area of other, nearby plots, on the map this relationship was reversed - the plot that was being hypothetically sold was much bigger than any other plot in the area. Furthermore, the presented excerpt indicated that the plot had no access to any public road. On contrary, in the notarial deed project it was clearly stated that the plot had access to a public road. In this way, it was controlled if the participants exceeded the minimum awareness threshold - which is needed to perform any cognitive tasks.

Manipulation b) was slightly different as it affected external factors. The excerpt from a local land register was outdated. Also the owner of the plot was wrong. Instead of the private owner that was supposedly selling the plot in the ownership field a "Chrzanów municipality" was listed. The inconsistency with the actual state was possible to notice by checking the date of the excerpt - 5th July 2010. The instructions clearly stated that the task takes place in the day of experiment so the aforementioned date should raise suspicions. Moreover, later during the test, the participants were able to access the Electronic Land and Mortgage Register, which is available on the Polish Ministry of Justice website. That was helping the subjects to determine the actual owner of the plot.

As it was mentioned earlier, in the later stage of the experiment, the participants were granted access to the Electronic Land and Mortgage Register, although it was optional - which helped to further confirm their expert knowledge's level. After the participants finished browsing the land register they were asked if they want to use the online system. If they responded affirmatively, they were able to view the excerpt once more in order to determine the land and mortgage register number of the studied plot. This number was divided and was located in different sections of the excerpt.
The Electronic Land and Mortgage Register was available for participants in an online mode, in internet browser that was displayed on eye-tracker screen. Subjects were able to reevaluate all the previously gathered data. After that the test was over and each participant was asked if the trainee's project of a notarial deed of real estate sale was prepared correctly. If the answer was negative, subjects were asked to specify what data needs to be corrected.

In conclusion, the plan of the test procedure was as follows:

- Handing out the instruction to the cognitive task.
- Presenting, on the eye-tracker screen, the first two pages of the notarial deed's project.
- Presenting, on the eye-tracker screen, the land register excerpt.
- Subject's decision whether to use the Electronic Land and Mortgage Register.
- Presenting the land register excerpt again in order to note down the register number need for browsing the Electronic Land and Mortgage Register (optional).
- Using the Electronic Land and Mortgage Register on the eye-tracker screen (optional).
- Answering the final question.

2.1.3. The experimental variables and research hypotheses

The subjects were randomly selected and ascribed to one of two groups of participants – the first one composed out of lawyers whose work was closely related to the cognitive task which they were solving during the experiment, and the other one, containing the lawyers performing different legal professions, whose skills and knowledge was not exactly related to the experimental task. The differences between both groups enabled the verification of
research hypothesis about expert knowledge of notaries. Therefore the null hypothesis was that there is no difference between both groups - they both should be able to perform the task equally well.

Alternatively the following directional hypothesis was formulated: Legal notaries, as a highly specialized group of experts, have a specific manner of processing visual stimuli, which lets them to immediately perceive important information and ignore relatively irrelevant information. This hypothesis may adopt a more synthetic form: Legal notaries, compared to other lawyers, posses both theoretical and practical knowledge, which increases their cognitive efficiency in performing notarial activities.

Cognitive efficiency in this experiment was understood mainly as a result of automated cognitive processes, which allowed faster solving of cognitive tasks (in comparison to subjects who does not develop such automatisms), while, at the same time, maximizing the probability for correct answers and minimizing the probability for wrong answers. Legal notaries, as a highly specialized profession, should have well-established cognitive automatisms, which, in case of time pressure (which is a standard situation for nowadays lawyers), greatly increase their efficiency. Proper performance of notarial activities is not only an objective requirement of customers and a condition for effective economic competition, but also the duty imposed by the legal norms that regulates the profession of notary.

Operationalization of aforementioned research hypotheses was performed taking into account the methodology of the eye-tracking studies. Conducting the experiment, the following indicators (dependent variable) of notaries' cognitive efficiency were selected:

- The number of correct answers for the final question.
The total time of performing the cognitive task (in particular the time of analyzing the excerpt).

Total number of fixations on the elements of the excerpt from the land register - taking into account, as a separate variable, the number of so called "long" fixations (more than 450 ms).

The ratio of "long" fixation to the total number of fixations.

Total number of fixations in so called "Area of Interest" or "AOIs" - the excerpt area that contained relevant data for the performed task and the number of "long" fixations in AOIs.

The ratio of "long" fixations to the total number of fixations in AOIs.

The ratio of fixations in AOIs to the total number of fixations.

The average fixations length and the average "long" fixations length in AOIs.

The total number of saccades completed during the studies of the excerpt and proportion between saccades and the total number of fixations.

The choice of indicators was inspired by the accepted theoretical basis. Based on the findings of psychological theory of expert knowledge the following eye-tracking "profile" of cognitive processes of expert knowledge can be proposed:

1. An expert (a notary) should fixate less on a given stimulus (an excerpt) than a non-expert. Familiarity with a given stimulus, according to the rule of cognitive efficiency, should lead to more automatic and hence - faster - processing mechanisms.
2. An expert should have fewer fixations in AOIs than a non-expert. Expert procedural knowledge should enable spontaneous identification and rapid perception of relevant information, causing the experts to act faster.

3. The ratio of fixations in AOIs to the total number of fixations should be higher for the expert group. Expert procedural knowledge should make both: focusing on important information and ignoring irrelevant areas easier.

4. The average fixation length in AOIs, the number of "long" fixations in AOIs and the average "long" fixation length in AOIs should be higher in the case of the control group - indicating the replacement of cognitively efficient automatic processing by the slower, conscious processing.

5. The ratio of "long" fixations to the total number of fixations should be lower for the expert group than for the non-expert group.

6. The ratio of "long" fixations to the total number of fixations in the AOIs should be lower for the expert group than for the non-expert group.

7. The total number of saccades completed during the studies of the excerpt and the proportion between saccades and the total number of fixations should be lower in the case of the expert group. Experts just after a short glance should be able to focus on the relevant information - located in the AOIs.
2.2. The discussion of the results

2.2.1. Correct answers

In the analysis of the eye-tracking experiment's results two regimes were adopted to assess the correct answer to the final question of the cognitive tasks. The correct answer was defined as follows:

- **Liberal approach** - the fact that the subject concluded that the trainee's project of a notarial deed was prepared incorrectly and noticed anomalies resulting from manipulation a) and minimum awareness threshold, was enough to pass. Therefore, the participants in order to answer correctly had to perceive both mistakes: first - related to the access to a public road and second - related to the different sizes of the plot and the contradiction between the map and the numerical data.

- **Strict approach** - only an answer that pointed out all of the shortcomings of the presented notarial deed project, was considered to be correct. Participant not only had to meet the requirements of the liberal approach, but also notice the additional external anomalies caused by the manipulation b) - data differences between documents and incorrect designation of the plot's owner.

In both regimes the group of notaries performed better than the group representing other legal professions. Using the liberal approach, 90% of notaries and 56% of non-notaries answered the final question correctly. In the strict regime 50% of notaries and only 11% of non-notaries (actually it was only one person) answered correctly. Those results are summarized in the table 3.

<table>
<thead>
<tr>
<th>Liberal approach</th>
<th>Notaries</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct answers</td>
<td>90%</td>
<td>56%</td>
</tr>
</tbody>
</table>
Two out of ten notaries did not know how to properly use the Electronic Land and Mortgage Register, which significantly influenced the number of correct answers in that group - in case of the strict regime. Those subjects were not able to properly identify the manipulation b) anomalies. That inability originated from the lack of procedural knowledge. While browsing the land register excerpt for the second time, they did not know which information was necessary to use the Electronic Land and Mortgage Register. In case of the control group, four participants did not use Electronic Land and Mortgage Register - for the same reason. That fact revealed a significant difference in the procedural knowledge between both groups - the notaries were, on average, more familiar with the use of Electronic Land and Mortgage Register.

2.2.2. Time scores

Between both groups there was no significant difference in the average total time needed for completing the task. The total time included the time of all of the subject's activities - from the moment of presenting the first page of the notarial deed up until the moment when they decided whether to use the Electronic Land and Mortgage Register system. The average total time of legal notaries was 3 minutes 8 seconds, while for the control group it was 2 minutes 52 seconds. The notaries spent more time reading the project of the notarial deed. On the other hand, they used less time on average for analyzing the excerpt - for non-notaries it was 69 seconds on aver-
age, for notaries it was 60 seconds on average. Taking into account the time scores and the correctness of participants' answers, one may conclude that the gathered data confirms the assumption about the cognitive efficiency of experts - notaries needed less time to process all the relevant information, while giving more correct answers than the other group. Times scores are summarized in the table 4.

Table 4.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Notaries</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average time of reading the notarial deed - p. 1 [ms]</td>
<td>44783</td>
<td>37019</td>
</tr>
<tr>
<td>Average time of reading the notarial deed - p. 2 [ms]</td>
<td>83410</td>
<td>65981</td>
</tr>
<tr>
<td>Average time of reading the entire notarial deed [ms]</td>
<td>128193</td>
<td>103000</td>
</tr>
<tr>
<td>Average time of reading the excerpt [ms]</td>
<td>59644</td>
<td>69165</td>
</tr>
<tr>
<td>Average total time [ms]</td>
<td>187837</td>
<td>172165</td>
</tr>
<tr>
<td>Average total time [m]</td>
<td>3 m 8 s</td>
<td>2 m 52 s</td>
</tr>
</tbody>
</table>

Source: own elaboration based on collected data

2.2.3. Fixation data

Fixation, as the most important eye-tracking indicator of the distribution of attention and intensity of processing information about where subject's sight lingered on, was analyzed in terms of quantity and quality. In the analysis the following factors were taken into account:
Fixation statistics on the entire excerpt, namely: the average number of fixations per subject (AFN), the average number of "long" fixations per subject (ALFN), the ratio of "long" fixations to total fixations (LFN/FN). Results are presented in Table 5.

**Table 5.**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Notaries</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFN</td>
<td>168,7</td>
<td>185,4</td>
</tr>
<tr>
<td>AFLN</td>
<td>22,9</td>
<td>20,3</td>
</tr>
<tr>
<td>LFN/FN [%]</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: own elaboration based on collected data

Fixation statistics on the relevant information contained in the excerpt, namely: the average number of fixations per subject in AOIs (AFN AOIs), the average number of "long" fixations per subject in AOIs (ALFN AOIs), the ratio of "long" fixations in AOIs to total fixations in AOIs (LFN AOIs/FN AOIs). Results are presented in Table 6.

**Table 6.**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Notaries</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFN AOIs</td>
<td>31,1</td>
<td>33</td>
</tr>
<tr>
<td>AFLN AOIs</td>
<td>6,1</td>
<td>5,1</td>
</tr>
<tr>
<td>LFN AOIs/FN AOIs [%]</td>
<td>19,6</td>
<td>15,5</td>
</tr>
</tbody>
</table>

Source: own elaboration based on collected data

Ratio of fixations in AOIs to the total number of fixations (FN AOIs/ FN). Results are presented in Table 7.
Table 7.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Notaries</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>FN AOIs/ FN [%]</td>
<td>18,4</td>
<td>17,8</td>
</tr>
</tbody>
</table>

Source: own elaboration based on collected data

Average length of fixations in AOIs (AFL AOIs) and average length of "long" fixations in AOIs (ALFL AOIs). Results are presented in Table 8.

Table 8.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Notaries</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFL AOIs [ms]</td>
<td>305</td>
<td>266</td>
</tr>
<tr>
<td>ALFL AOIs [ms]</td>
<td>705</td>
<td>754</td>
</tr>
</tbody>
</table>

Source: own elaboration based on collected data

Starting the discussion of the results, the following observations can be formulated:

- The notaries, confirming the assumption about the relationship between the specific eye movement and the expert knowledge, did, on average, less fixations on the excerpt than the control group (168.7 fixations to 185.4 fixations). However the average number of "long" fixations was slightly higher in the case of legal notaries (22.9 fixations to 20.3 fixations). That resulted in 12% ratio of "long" fixations to total fixations for notaries, and 11% for non-notaries. On the one hand, one might argue that notaries were more efficient in perceiving and processing the excerpt's information - because of the lower average number of fixations and the lower time scores. On the other hand, that processing was slightly more conscious that it was assumed (less automation) as evidenced by the average
number of "long" fixation - which was higher for the notaries. Therefore, that phenomenon will need further explanation.

- The notaries, as it was predicted, on average fixated less on the areas of interest (AOIs) than non-notaries (31.1 fixations to 33 fixations). This data confirms the hypothesis, that procedural knowledge of experts, on the level of automatic, unconscious processes, allowed the notaries to spend less time on the task of identifying all the relevant information. Moreover, the studies confirmed a little higher efficiency of the notary group in the process of selecting relevant information, by measuring the ratio between the fixations in AOIs and the total number of fixations (18.4% for notaries to 17.8% for the control group). However, this effect, as it was pointed above, was pretty insignificant. Such a low differences can be explained with the structure of the cognitive task. Participants could firstly examine the project of a notarial deed and then study the excerpt. Therefore the information contained in the project has created a framework that helped all the subjects and increased their perception while studying the excerpt.

Obtained results are incoherent if one takes into account the average length of fixations in the AOIs. In the case of the notary group the average fixation in AOIs lasted 305 ms. In the case of the control group it was 266 ms. The information processing of notaries compared to non-notaries is characterized by a lower automation than it was predicted. However, the average length of "long" fixations, the results are more consistent with the expectations - 705 ms for notaries to 754 ms for the control group. On the one hand, that proves the lower attention level of notaries. On the other hand this data is not confirmed by the number of "long" fixations in AOIs. In
order to confirm the higher automation of information processing, notaries should have on average less "long" fixations and lower ratio of "long fixations" AOIs to the total fixation number in AOIs. Meanwhile, in case of the notaries it was 6.1 "long" fixations on average and 19.6% ratio, compared to 5.1 "long" fixations on average and 15.5% ratio for non-notaries.

According to the accepted theory on the relationship between more efficient cognitive processing and the subject's observed eye movement, in case of the expert group, the automatic and more efficient information processing method should be characterized by both: a lower number of fixations in AOIs and a lower number of "long" fixations in AOIs. While the first dependency occurred, the second one has not been observed. An interpretation that could possibly explain the obtained results should take into account the fact that in the conducted experiment the participant were not only ask to simply verify the data between the notarial deed's project and the excerpt, but also had to expose the manipulations of the excerpt. Therefore the cognitive task assumed that the participants should identify the internal factor - contradictions in excerpt's data - manipulation a), and the external factor - excerpt's incompatibility with the facts - manipulation b). Becoming aware of these manipulations should be reflected in the eye movement pattern - more precisely - in the number of "long" fixations and their ratio to the total number of fixations in AOIs. Such a tendency was observed in case of the notaries.

Obtained results can be explained with an effect similar to the Stroop's effect, which was described under the studies about the expert knowledge of chess players. An expert, while acting on the cognitive level, automatically (subconsciously aiming to increase his efficiency), draws from ready-made and well-known procedures of handling the information, which are contained in his procedural

knowledge. However, an unreliable or an inconclusive piece of information, even if noticed still on the level of automatic processes, requires a response, which halts the automatic decision making process and transfer the identified problem to the conscious proceeding. A possible indicator of this process is the statistical data about "long" fixations.

This leads to a conclusion that in the conducted research the statistical data about the "long" fixations should be interpreted together with the scores data. Notaries, switching into a conscious process of analyzing the suspicious information were mostly able to expose the manipulation a) (90% of the subjects) or even, harder to notice, manipulation b) (50% of the subjects). However, this success required a cognitive cost of increased "long" fixations length and number - caused by switching from automatic to conscious data processing. This phenomenon is confirmed by the detailed statistics about processing of the AOI's important for exposing manipulation a). Those results are presented in table 9.

**Table 9.**

<table>
<thead>
<tr>
<th>AOIs important for exposing manipulation a)</th>
<th>AOIs 1a</th>
<th>AOIs 2a</th>
<th>AOIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOIs 1a</td>
<td>Average fixation length</td>
<td>215 ms</td>
<td>130 ms</td>
</tr>
<tr>
<td>Average fixations number</td>
<td>3,1</td>
<td>1,4</td>
<td></td>
</tr>
<tr>
<td>AOIs 2a</td>
<td>Average fixation length</td>
<td>256 ms</td>
<td>204 ms</td>
</tr>
<tr>
<td>Average fixations number</td>
<td>4,9</td>
<td>4,3</td>
<td></td>
</tr>
<tr>
<td>AOIs</td>
<td>Average fixation</td>
<td>87 ms</td>
<td>86,7 ms</td>
</tr>
</tbody>
</table>
It is worth noticing that in the case of AOIs relevant for exposing manipulation a) the differences in both average fixation length and average fixation number are significant and indicates deeper and more conscious way of information processing in case of notaries. This phenomenon finds confirmation in the experiment's scores under the liberal regime. In case of AOIs relevant for exposing manipulation b) the differences are minimal or even inverse - for the second interest area of manipulation b) - where non-notaries on average fixated more often and longer than notaries. However, those seemingly contradictory findings can be easily explained.

Manipulation a) involved experts' cognitive processes during the analysis of the excerpt because it was an internal error. Experts had to pay more attention to the excerpt itself in order to perceive the errors, hence their average fixation length and number were higher than for non-experts. In case of manipulation b) persistent analysis was pointless - the nature of the error required the subject to use a different, external source - in this case the Electronic Land and Mortgage Register. 60% of notaries did use the electronic system, while only 11% of non-notaries (1 out of 9 participants in the control group) used this option.

Therefore, the discussed results confirm the hypothesis about the occurrence of expert knowledge in case of legal notaries. Group of notaries faster and more efficiently choose a strategy that was nec-
necessary to deal with manipulation b), while the control group inefficiently "spent" their cognitive resources on processing AOIs related to manipulation b), whilst, after detecting the problem, they should have used an external tool for data verification.

2.2.4. Saccades
The total number of saccades should be lower in case of the experts than in case of the control group, similar to the ratio between saccades and fixations. An expert does not need to widely explore the stimulus, but after a preliminary overview he should be able to automatically focus on relevant information - the AOIs. This dependency was confirmed in the conducted studies. The average total number of saccades on the excerpt was 219,7 for the notaries and 298 for the non-notaries. The ratio of saccades to fixations was 1,3 for notaries and 1,6 for non-notaries.

Higher number of saccades on the stimulus indicates more spread perception and processing. In the conducted experiment, the quality analysis of fixations is consistent with the data about saccades. The notaries processed the excerpt while being more focused on the relevant information. That indicates a cognitive process that is subordinated to the principle of cognitive efficiency, which is attainable through the use of procedural expert knowledge. Non-notaries perceived the excerpts in a more chaotic manner, which can be explained by not having the procedural expert knowledge (need to completing this specific task) among their cognitive resources. That sums up the qualitative differences between both groups.

3. The conclusions
The discussion presented above over the pilot experiment's results and their rudimentary interpretations, leads to a conclusion that the
conducted experiment revealed a phenomenon of cognitive efficiency related to procedural expert knowledge in the analyzed group of notaries. Quantitative data that confirms this conclusion are:

a) Number of correct answers under both analyzed regimes.
b) Total analysis time of the excerpt from the land register.
c) Fixation statistics - average number of fixations, average number of fixations in areas of interest, ratio between the number of fixations in areas of interest and the total number of fixations.
d) Saccades' statistics.

The conclusion about higher cognitive efficiency of notaries that non-notaries is also confirmed by the qualitative analysis. The notaries’ perception and processing of the excerpt was more efficient because they focused on the relevant information, while ignoring data that was unnecessary for completing their task. On contrary, non-notaries acted in a more chaotic manner, focusing on much irrelevant information, such as a document's title or data about the area of other plots (cf. Figure 3 and 4).

Moreover, non-notaries were not able to correctly use infographic in the form of an extract from the cadastral map. Their fixations on this element were spread and had moderate length. Meanwhile, notaries were not only able to take the infographic into account, but also use it for locating all the relevant information. Infographic's example reflects the lack of procedural knowledge of the experiment's control group, which was necessary for using this source of information.

The observed phenomenon can be fully explained by taking into account the fact that land maps are a typical element of notaries' daily work, while in case of different legal professions they occur very sporadically or even not at all. The mere theoretical knowledge of non-notaries has not been sufficient to efficiently take advantage of the presented data source.
Mariusz Golecki, Marcin Romanowicz, *Cognitive Efficiency within the Context of Legal Expert Knowledge. The Eye-tracking study on the Polish Legal Notaries*

**Figure 3.**

*Source:* Heat map of land register used in experiment – experimental group - own elaboration based on collected data
Coherent results of both: the qualitative and the quantitative analyses confirm that the expert knowledge in case of cognitive tasks, manifests itself primarily as procedural knowledge, which, to a large extent, automated the method of information processing. Aforementioned differences between expected levels of eye-tracking indicators and the actual levels (mainly in regards to "long" fixations) are explainable by taking into account the specifics of the cognitive task that the participants had to complete. According to the expert knowledge theory the task should be narrowed and use
only a small set of skills. That limits the influence of external factors on the outcome and the process of solving given task. Moreover, the task should be very precisely specified and, at the same time, consists of a series of linked and well-characterized activities.

In the conducted experiment the participants had not only to validate the project of a notarial deed, but also expose both types of manipulations - internal and external errors. Therefore the cognitive task was not a typical, routine professional activity of notaries, but a complex and uncommon situation. That caused the notaries to subconsciously switch from automatic information processing mechanism to a slower, fully controlled, conscious process. This explanation was confirmed by the data about "long" fixations. A situation similar to Stroop's effect occurs - an unreliable or an inconclusive piece of information halted the automatic decision making process and caused the problem to be transferred to the conscious proceeding. By doing that, experts maximize their chances for answering correctly and even though the outcome is inconsistent with the aforementioned experiment's predictions it confirms the assumption of cognitive efficiency, which is related to expert knowledge. However, in order to confirm this interpretation, further experimental verification is advised.

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The standard caveat applies.

Bibliography


THE LAW OF CONTRACT IN THE CESL DRAFT: SOME REMARKS IN A HISTORICAL AND COMPARATIVE PERSPECTIVE

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Abstract: This paper consists of remarks about the content of the Common European Sales Law draft (CESL draft) included in the Proposal for a Regulation n. 2011/0284 of October 11th 2011 (COM(2011) 635 final). Notwithstanding that its destiny and future legal force are still doubtful, it nevertheless expresses some basic trends of a general European Contract Law, which could be analyzed in our actual conference.

Keywords: CESL, contract law, unification of law


1. CESL draft, its purposes and scope

In a comparative perspective of the Law of Obligations I believe that it could be interesting to make some remarks about the content of the Common European Sales Law draft (CESL draft) included in the Proposal for a Regulation n. 2011/0284 of October 11th 2011 (COM(2011) 635 final). Notwithstanding that its destiny and future legal force are still doubtful, it nevertheless expresses some basic trends of a general European Contract Law, which could be analyzed in our actual conference.

The road that led to the CESL draft was rather long. As we all know, the preliminary step was the writing and publication in the year 2009 of the Draft Common Frame of Reference of the European Private Law, which represents the most important effort made
up to now in order to approach and harmonize some parts of patrimonial private law of EU Member States\textsuperscript{1}.

Its functions should have been to increase constancy of the \textit{acquis communautaire} (that means existing common European legislation) in the field of contractual law and to support its uniform application to ease cross-border transactions, and to suggest to national lawmakers a set of model – rules that could help to establish an uniformed and general law of contract, if voluntarily adopted by the EU Member States.

The strong criticism addressed to the \textit{DCFR} by many scholars and professionals for its systematic and methodological choices\textsuperscript{2} did not stop the work of the European Commission, which decided to pass the Proposal for a Regulation including the draft of a Common European Sales Law. Let us give a look to its purposes, scope and content.

As refers to its purposes, the main one is to overcome contract-law-related transaction costs and barriers, that prevent traders from fully exploiting the internal market and also work to the detriment of consumers. A Common European Sales Law, irrespective of where


parties are established, would harmonise the contract laws of the Member States by creating in each national legal system a second contract law regime for contracts within its scope. This second regime should be identical throughout the Union, guarantee the same meaning and interpretation of its rules and exist alongside the specific rules of national contract law. The Common European Sales Law should apply on a voluntary basis, upon an express agreement of the parties, to a cross-border contract.

As refers to its scope, the CESL is intended to regulate three contract types: sales contracts of movable goods, contracts for the supply of digital content and contracts of services closely related to specific goods or digital content, when the seller of goods or the supplier of digital content and related services is a trader. The CESL therefore covers all business-to-consumer transactions, while, where all the parties to a contract are traders, it may be used if at least one is a small or medium-sized enterprise ('SME') according to the Commission Recommendation 2003/361 of May, 6th 2003.

The Common European Sales Law should also be available to facilitate trade between Member States and third countries and be extended, upon decision of each Member State, to contracts where the habitual residence of the traders or of a trader and consumer are located in that Member State; and/or contracts where all the parties are traders but none of them is an SME.

2. Content of CESL draft

It is divided into eight Parts, two of which (Part IV and Part V) are related to the involved contract-types concerning 'Obligations and remedies of the parties to a sales contract' or for the supply of digital content and 'Obligations and remedies of the parties to a
related services contract', while the other six Parts contain a general regulation of contract law.

Part I ("Introductory provisions") sets out the general principles of freedom of contract and good faith and fair dealing and defines some key notions like reasonableness, form of contract, not-individually negotiated contract terms and computation of time. Part II ("Making a binding contract") contains provisions about pre-contractual information, requirements for the conclusion of a contract, avoidance of contracts resulting from mistake, fraud, threat or unfair exploitation and consumers’ right to withdraw from distance and off-premises contracts. Part III ("Assessing what is in the contract") includes rules on the interpretation of contracts, their content and effects as well as unfair contract terms. Part VI ("Damages and interest") regulates damages for loss and interest for late payment, while Part VII ("Restitution") concerns what must be returned when a contract is avoided or terminated and Part VIII ("Prescription") is about the effects of the lapse of time on the exercise of rights under a contract.

But even Parts IV and V, with reference to sellers’ and buyers’ obligations, offer basic provisions on performance and not performance of contracts such as performance by a third party and methods of performance.

If we compare the CESL draft with DCFR, we can realize, as stressed in Recital n. 27 of the Proposal for a Regulation, that relevant matters of a contractual nature still remain outside. We may mention, for instance, the invalidity of a contract for lack of capacity, illegality or immorality, the determination of the language of the contract, matters of non-discrimination, representation, plurality of debtors and creditors, change of parties including assignment, set-off and merger.

Also the CESL draft was greatly disapproved by large groups of Academics and Professionals, who pointed out the contrast between
the choice of inserting the common European Sales Law in a Regulation immediately binding in each Member State and the voluntary basis of its application for the parties to a contract, the lack of comments about the content of the articles, the omission of important sectors of the contract law, an excessive speed in the drafting work and hard difficulties for consumers to understand the meaning of many rules about their rights\(^3\).

During the year 2013 the future of the CESL draft was deeply discussed by the EU Authorities: on one side, the Justice Commission and the Committee for Legal Affairs would have wished to submit it to the European Parliament without changes, on the other side, the Commission for the Internal Market and Consumers’ Protection would have preferred to limit it only to sales contracts between traders and consumers, suppressing all the Parts concerning the general law of the contract\(^4\).

The former position prevailed and on February 26\(^{th}\), 2014 the European Parliament at first reading adopted a Resolution (P7_ TA (2014) 0159) where the Proposal for a Regulation was accepted in all its Parts, but with many amendments, the most important of which was the limitation of its scope to “cross-border transactions for the sale of goods, for the supply of digital content and for related services which are conducted at a distance, in particular online, where the parties to a contract agree to do so” (Amendment 1 to Recital 8). Nevertheless in the same Resolution the European

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\(^3\) See, for example, Reinhard Zimmermann et al., *Der Vorschlag für eine Verordnung über ein Gemeinsames Europäisches Kaufrecht. Defizite der neuesten Textstufe des Europäischen Vertragsrechts*, 67 JZ 269 - 289 (2012).

Parliament called on the Commission to refer the matter to Parliament again, if it intended to amend its proposal substantially or replace it with another text and instructed its President to forward its position to the Council, the Commission and the National Parliaments.

In December 2014 the Commission in its Work Program 2015 (COM (2014) 910 final) decided to modify the proposal “in order to fully unleash the potential of e-commerce in the Digital Single Market” and since then everything is stationary. This is why I talked about the uncertain future of the CESL draft.

3. Two basic Principles of contract law in the CESL draft and the European Legal Tradition

My analyze needs a premise. Otherwise than for the DCFR, the CESL drafters did not write comments and notes both on the whole set of rules and on each one that might help us to understand the choices made and their explications in comparison with national legal systems and European legal tradition. Anyway, if we consider that the DCFR was the tools – box from which many rules of CESL were drown and some members of both the drafting Groups are the same, I think it extremely important to start from one explicit statements made by the editors in their Introduction of the DCFR.

They admit that the DCFR might promote the knowledge of European private law at the level of an overall legal order as well as develop legal education thereon. In particular it could ‘help to show how much national private laws resemble one another and have provided mutual stimulus for a development <directed to unification> and indeed how much those laws may be regarded as regional manifestations of an overall common European legacy”\(^5\). Just

because of this comments and notes to all *Model – rules* reveal only a small number of cases in which European legal systems had produced quite different answers to common problems.

So the editors themselves were conscious of the existence of a 'common European legacy', which made easier the task of writing uniform rules and principles in the matters of contracts and obligations. Even if it is not said which this common legacy was, there is no doubt that it must be identified with the complex of rules and principles inherited from Roman - German – canonical law, that have represented for centuries the *ius commune Europaeum*.

After such a premise, let’s now consider the two basic principles of contract law put at the beginning of Part I of the *CESL* draft: freedom of contract and good faith and fair dealing.

Article 1 defines freedom of contract in this way: «*Parties are free to conclude a contract and to determine its contents, subject to any applicable mandatory rules. 2. Parties may exclude the application of any of the provisions of the Common European Sales Law, or derogate from or vary their effects, unless otherwise stated in those provisions*». This is a common principle of contractual law, well known in all legal systems of contemporary Europe. It would be too long and perhaps not so interesting in our actual perspective summarizing its historical roots in Roman Law, its evolution in Middle Age Canonic and Merchant law, its complete achievement in the Natural law School of the 17th century and its total reception in European legal systems of the 19th century, although subject to any mandatory rules (respect of laws, public order and morality). The *CESL* draft just confirms it.

More useful could be a short historical analyze of good faith and fair dealing, expressly mentioned in article 2: «1. *Each party has a duty to act in accordance with good faith and fair dealing. 2.*
Breach of this duty may preclude the party in breach from exercising or relying on a right, remedy or defense which that party would otherwise have, or may make the party liable for any loss there by caused to the other party. 3. The parties may not exclude the application of this Article or derogate from or vary its effects» and implied in article 3 on Co-operation: «The parties are obliged to co-operate with each other to the extent that this can be expected for the performance of their contractual obligations».

Legal systems of European countries do not concretely apply yet the principle of good faith and fair dealing in the same way: in Swiss, German, Austrian, Dutch, Polish and even Italian ones we can see a wider and multidirectional use of such a principle, while in English, French or Spanish legal systems its role seems more limited⁶. The historical knowledge of how this principle was concretely employed could maybe help in understanding its potential implementation and the reasons why it is included in drafts of harmonization and unification of European contract law.

The texts of Roman jurisprudence reflect three main concrete functions of good faith and fair dealing (bona fides) in contract law: the first one is considering it as a standard to appreciate the parties’ behavior in the execution of their obligations; the second function is interpreting and implementing the parties’ agreement (id quod actum est) in the best way; the third function is the integration of the contractual terms determined by the parties⁷. A reflection on Roman law tradition is very important in my opinion, to avoid a simple and often wrong identification between the wider concept of good faith and fair dealing which CESL draft seems to refer to and a more specific concept of it commonly used in international trade.

⁶ For a analysis on good faith and fair dealing in European legal systems cf. von Bar - Clive, supra at 89-92, 676-680.
More exactly good faith and fair dealing in international trade is not to be applied according to the standards ordinarily adopted within the different national legal systems, but in the light of the special conditions of international trade. Standards of business practice may indeed vary considerably from one trade sector to another, and even within a given trade sector they may be more or less stringent depending on the socio-economic environment in which the enterprises operate, their size and technical skill, and so on.

In the frame of a wider concept of good faith and fair dealing we can also read the provision of article 3 of CESL draft on co-operation, which represents a consequence of its use in function of accomplishing the contracting parties’ agreement. The express provision of article 3 is important to promote the harmonization between European national legal systems which already have it (included or not in their Civil Codes) and those which have not yet.

4. The Contract Law in the CESL draft: the legacy of European legal tradition and new trends. Some examples from Parts II, III and IV

Part II of CESL draft is about Making a binding contract. In this Part we may highlight the great number of provisions in Chapter 2 on the traders’ liability for breach of pre-contractual information duties. We can count 17 articles thereon, concerning pre-contractual information to be given by a trader dealing with a consumer or dealing with another trader, contracts concluded by electronic means, duties to ensure that information supplied is correct and remedies for breach of information duty. This legal regime about

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8 Art. 1.7 UNIDROIT Principles 2010 and comment thereon at 20-21.
9 CESL draft, articles 13 to 29.
pre-contractual information duties is quite surprising, if we think of the historical evolution of pre-contractual liability category.

In Roman law it did not exist as such, although we can find some examples of fraudulent misrepresentation during contractual negotiations (*dolus in contrahendo*); in the 17<sup>th</sup> century Grotius considered this kind of liability as a form of extra-contractual liability and its position influenced French legal thought and in the 19<sup>th</sup> century Jhering’s legal theory on *culpa in contrahendo*, which includes it in a wider concept of contractual liability, penetrated in German legal science. The first express regulation of such matter can be found in two articles of Italian Civil Code of 1942 (articles 1337 and 1338), followed by one article of Portuguese Civil Code (article 227) and now it is also contained in the new text of § 311 BGB, subsections 2 and 3, introduced by the Modernisation of Obligation law in 2001 and in articles 72 and 72¹ of Polish Civil Code.<sup>10</sup>

In the perspective of a future unification of European contract law we can appreciate the growing importance of the pre-contractual liability, if we compare the two articles (2: 301 and 2: 302) of *PECL*-Project published in 2001 by the Commission Lando with the entire third chapter of the second book of *DCFR* composed of 15 articles and divided into five sections, three of which specifically dedicated to pre-contractual information duties concerning contracts between consumers and traders<sup>11</sup>.

In accordance with its above mentioned purposes, the *CESL* draft makes no reference to duties of good faith and fair dealing and confidentiality in pre-contractual negotiations, because standardized contracts between traders and consumers and traders and small or

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<sup>10</sup> Cf. thereon my remarks in Aldo Petrucci, *Responsabilità precontrattuale: trattative e doveri di riservatezza*, Luchetti & Petrucci, supra at 111 - 117.

medium-size enterprises are the only ones considered in the frame of a European common Sales law.

In the second part of CESL we can also find rules concerning the requirements for the conclusion of a contract and the defects in consent. Article 30 on requirements says in paragraph 1: «A contract is concluded if: (a) the parties reach an agreement; (b) they intend the agreement to have legal effect; and (c) the agreement, supplemented if necessary by rules of the Common European Sales Law, has sufficient content and certainty to be given legal effect».

This content is substantially the same of the corresponding articles in DCFR, PECL-Project and UNIDROIT Principles and aims to oversimplify the requirements for the conclusion of a contract, that are resumed as follows: 1) an agreement, 2) its legal effect, 3) its sufficient content and certainty to be given legal effect. Instead there is no mention on the contracting parties’ capacity because it is out of the CESL scope. Thus it is evident the drafters’ intention to exclude any other requirements, eventually necessary in domestic legal systems (as cause, consideration, form, delivery of something), confirming the trend expressed in the main Projects on unification or harmonization of European contract law.

If we give a look at Roman law, we do not have a general theory of contract and requirements for its conclusion, as they depended on each contractual type. The only common feature of all contracts was the parties’ agreement and its legal effects. The first significant attempt to list contract requirements is probably due to Baldus in the 14th century and a further development can be found in jurists of French Natural law school.

The choice made by CESL drafters shows us a preference for those European legal systems (as French, Spanish and Italian) where there is an article including a precise list of the contractual essential
requirements, instead of those legal systems (as Swiss, German, Polish and Dutch) in which they must be deduced from the general regime of *Rechtsgeschäft* or contract or juridical act\textsuperscript{12}.

Defects of consent are regulated in Chapter 5 and consist in mistake, fraud, threats and unfair exploitation. The roots of all date back to Roman law and, providing them, the *CESL* draft follows a long and strengthened tradition developed by Middle Age and modern legal science on the base of Roman law sources. The concepts of mistake, fraud, threats and unfair exploitation basically include traditional elements, but we can also observe something new.

For the purposes of my actual speech I only focus on mistake. Article 48 says that a party may sue for the avoidance of a contract for a mistake both of fact and of law, but only if the mistake: \textit{a)} existed when the contract was concluded; and \textit{b)} the party, but for the mistake, would not have concluded it or would have done so on fundamentally different contract terms and the other party knew or could be expected to have known this; and \textit{c)} the other party caused the mistake; or caused the contract to be concluded in mistake by failing to comply with any pre-contractual information duty; or information required by good faith and fair dealing; or made the same mistake\textsuperscript{13}.

\textsuperscript{12} Cf. thereon what I have observed in Aldo Petrucci, *Requisiti generali per la formazione del contratto*, Luchetti & Petrucci, supra at 133 - 141.

\textsuperscript{13} Article 48. Mistake. 1. A party may avoid a contract for mistake of fact or law existing when the contract was concluded if: \textit{(a)} the party, but for the mistake, would not have concluded the contract or would have done so only on fundamentally different contract terms and the other party knew or could be expected to have known this; and \textit{(b)} the other party: \textit{(i)} caused the mistake; \textit{(ii)} caused the contract to be concluded in mistake by failing to comply with any pre-contractual information duty under Chapter 2, Sections 1 to 4; \textit{(iii)} knew or could be expected to have known of the mistake and caused the contract to be concluded in mistake by not pointing out the relevant information, provided that good faith and fair dealing would have required a party aware of the mistake to point it out; or \textit{(iv)} made the same mistake. 2. A party may not avoid a
Thus, such a regulation of relevant mistake represents an appreciable effort to re-organize and complete that contained in European Civil Codes, which tried to resume the principles coming from the casuistic solutions given by Roman jurists in a shorter or longer way\textsuperscript{14}: for instance, we have one article in French Civil Code (art. 1110), two paragraphs in German BGB (§§ 119-120), two articles in Polish Civil Code (art. 84 – 85), five articles in Swiss Code of Obligations (art. 23-27) and six articles in Italian Civil Code (art. 1428 – 1433). Moreover CESL regulation might be a milestone to resolve the chaotic legal situation on contractual relevant mistakes we can find in European common law legal systems.

Even in Part III about ‘Assessing what is in the contract’, there are articles where we can see evident ties to European legal tradition dating back to Roman law and articles that correspond to new European contractual perspectives, like those on unfair contract terms. In the first group we can point out the rules of Chapter 6 about the interpretation of contracts and of Chapter 7 about contents and effects of contracts. Two examples may be enough.

Articles 64 and 65 concern the interpretation in favour of consumers and interpretation against supplier of a contract term. Their texts are the outcome of a long historical evolution starting from Roman law contractual interpretation rules against the creditor (\textit{interpretatio contra stipulantem}) or the supplier of a contract term (\textit{interpretatio contra proferentem}) in case of doubtful meaning. Through Middle Age and modern legal science of the 17\textsuperscript{th} and 18\textsuperscript{th}

\textit{contract for mistake if the risk of the mistake was assumed, or in the circumstances should be borne, by that party. 3. An inaccuracy in the expression or transmission of a statement is treated as a mistake of the person who made or sent the statement.}

centuries this interpretation rule penetrated into some Civil Codes of the 19th century, like French (article 1162) or Spanish (article 1288), while other European legal systems accepted it in the frame of a contractual interpretation according good faith and fair dealing (for instance, § 157 of German Civil Code).

It is probably a merit of Italian Civil Code of 1942 to have introduced a more specific rule (article 1370) providing an interpretation against the supplier of contract terms which have not been individually negotiated, if there is a doubt in their meaning. This rule under the name of contra proferentem-rule was inserted also in the DCFR (article II. – 8:103) and is now further developed and completed in the CESL draft, where a clear difference is made between contracts concluded by consumers and contracts where a contract term is supplied by one party. Article 64 says: «Where there is doubt about the meaning of a contract term in a contract between a trader and a consumer, the interpretation most favorable to the consumer shall prevail unless the term was supplied by the consumer»; and article 65 provides: «Where, in a contract which does not fall under Article 64, there is doubt about the meaning of a contract term which has not been individually negotiated ... an interpretation of the term against the party who supplied it shall prevail».

My second and last example refers to the determination of price, regulated by articles 73, 74 and 75 of the CESL draft. In article 73 the price payable under a contract when its amount cannot be otherwise determined is «in the absence of any indication to the contrary, the price normally charged in comparable circumstances at the time of the conclusion of the contract or, if no such price is available, a reasonable price». This text is almost copied from article 55 of U.N. Convention on Contracts for the International Sale of

15 By the Resolution of the European Parliament of February 26th, 2014 articles 64 and 65 were deleted and their contents were transferred respectively into Article 61 b and article 62 paragraph 1a.
Goods, article 5.1.7 of Unidroit Principles and article II.-9:104 of DCFR.

According article 74 the unilateral determination of the price by a party is admitted, but where «that party’s determination is grossly unreasonable», it will be applied «the price normally charged or term normally used in comparable circumstances at the time of the conclusion of the contract or, if no such price or term is available, a reasonable price or a reasonable term is substituted»; and article 75 governs the determination of the price or any other contract term by a third party, regulating two different cases: a) if she or he cannot or will not do so, a court may appoint another person to determine it, unless this is inconsistent with the contract terms; b) if the price or other contract term determined by a third party is grossly unreasonable, the price normally charged or term normally used in comparable circumstances at the time of the conclusion of the contract or, if no such price is available, a reasonable price, or a reasonable term is substituted.

Even the roots of this regulation may be found in some texts of Justinian’s Corpus iuris civilis, where the price is determined in the

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16 Article 74. Unilateral determination by a party. 1. Where the price or any other contract term is to be determined by one party and that party’s determination is grossly unreasonable then the price normally charged or term normally used in comparable circumstances at the time of the conclusion of the contract or, if no such price or term is available, a reasonable price or a reasonable term is substituted.

17 Article 75. Determination by a third party. 1. Where a third party is to determine the price or any other contract term and cannot or will not do so, a court may, unless this is inconsistent with the contract terms, appoint another person to determine it. 2. Where a price or other contract term determined by a third party is grossly unreasonable, the price normally charged or term normally used in comparable circumstances at the time of the conclusion of the contract or, if no such price is available, a reasonable price, or a reasonable term is substituted.»
frame of a sale contract with reference to a decision of a third party or to external circumstances. These Roman law sources influenced Middle Age and modern legal science, but with different outcomes. For instance, French Civil Code (articles 1592) just admitted the determination by a third party and it took a long time to admit the possibility to refer to external objective circumstances in order to determine the price in a sale contract. Instead on the base of the same Roman texts, German legal science of 19th century built a very complete theory about the determination of the object of a obligation both by external circumstances and by a party or a third party. This theory was included in German Civil Code, whose detailed regime (§§ 315-319) was simplified and used as the base for the further regulation of DCFR and CESL\(^\text{18}\).

5. Conclusion

In closing let me now spend few words on the systematic order of the rules about sales contracts and contracts for the supply of digital content contained in part IV of CESL, where the drafters exposed the seller’s obligations (Chapter 10, articles 91 - 105) immediately followed by the buyer’s remedies (Chapter 11, articles 106 - 122), and then the buyer’s obligations (Chapter 12, articles 123 - 130) immediately followed by the seller’s remedies (Chapter 13, articles 131 - 139) and completed the whole regulation with Chapter 14 (articles 140 – 146) on the passing of risk.

In my opinion, it is really interesting and at the same time surprising that it was decided to use a method of exposition in which the obligations of one party are correlated to remedies granted to the other party in case of non-performance and both are balanced by the distribution of the risk of loss of, or damages to, the goods or the digital content object of the contract. As we all know, the correla-

tion between the debtor’s obligations and the remedies for the creditor and the role played by the risk and its passing from a contracting party to the other are typical of Roman jurisprudence’s way of thinking and mark Roman classical law.

At the end of my analyse à vol d’oiseau on some contents of the CESL draft we can surely appreciate the importance of a European common legal tradition in many choices made by European lawmaker in his efforts to harmonize and unify the contract law of our continent. On the other side, new branches of a European contract law have been developed and seem now to have definitively entered our actual legal thinking and practise such as pre-contractual information duties and unfair contract terms.

Although much of the disapproval I have mentioned above (§ 2) is really founded, however the CESL draft represents a compromise on a European Contract Law that can be examined as a possible model for the future.
COMBATTING AGRICULTURAL SUBSIDY FRAUD: A LOOK BACK AT THE ORIGINS OF EUROPEAN CRIMINAL LAW*

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Abstract: In the European Community, a large number of subsidies are paid, in particular in the agricultural sector. These subsidies harm farmers in poor countries who are unable to compete with the artificially low prices which European farmers can ask due to the fact that the latter can rely on very generous farming subsidies. The result is a trade imbalance which hurts poorer countries. This paper comments on the legal instruments attempting to provide necessary balance.

Keywords: criminal law, fraud, agriculture

Introduction

Today, Criminal Law is well established as an integral part of European law. But for a long time this was not the case. Indeed, it took until the late 1980s for the then European Community (EC) to develop Criminal Law. In order to understand this move towards a European Criminal Law, now, a quarter of a century later, it seems to be a good moment to look back at the early years, in particular with regard to the years between 1998 and 2003. This text is written from the perspective of the year 2003.

In the European Community, a large number of subsidies are paid, in particular in the agricultural sector. These subsidies harm farmers in poor countries who are unable to compete with the artificially low prices which European farmers can ask due to the fact that the latter can rely on very generous farming subsidies. The result is a

* This text is based on research undertaken for the author’s forthcoming book “Verkaufte Souveränität — Die Ursprünge des Europäischen Strafrechts und die Bekämpfung des Subventionsbetruges im Agrarbereich 1989-2003”.

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trade imbalance which hurts poorer countries. At the same time farming subsidies are fiercely protected by many national governments in Europe so as to avoid alienating their voters. While farming subsidies which benefit the rich at the cost of the poor are morally problematic, they also provide an opening for crimes. Subsidy Fraud – in particular in the agricultural sector – poses a major threat to the finances of the European Community. It is therefore not only poor farmers in the third world who suffer from farming subsidies in Europe but European taxpayers also suffer from fraudulent subsidy claims. Given that the EC member states have de facto transferred legislative powers in the agricultural sector to the EC, agricultural law is EC law. It is therefore also necessary to provide a truly European answer to the problem of European Subsidy Fraud. To give the reader an idea of the relative importance of agricultural law as compared to other areas of EC law, it may suffice to say that in table of contents of the Official Journal L, in which the EC’s legislation is published, those rules which do not concern agricultural law are printed in bold letters. A very detailed legislative mechanism which is inspired by the French system and which is aimed at regulating to such an extend as to prevent national governments from exercising any discretion regarding the conditions under which subsidies are granted, has led to an explosion of legislative efforts on the part of the EC. The sheer amount of EC legislation on agricultural subsidies would be challenge alone.
for most domestic legislatures. In addition, the Commission can influence the market through subsidies. All this has led almost to a planned economy in the area of agriculture, which of course is not only contrary to the fundamental idea of European integration through a common market economy but which also leads to crimes which are typical for a planned economy. Given that a large part of the EC budget is a subsidy budget, the risk of fraud is increased. After all, every subsidy contains the risk of fraud, in particular in a


field as “generous” as agricultural subsidies. This has led to the emergence of a European Criminal Law. But as long as no European Criminal Code exists, the protection of the European Community’s finances happens both on the national and on the European level. This article deals with the latter level – the protection of the European budget through European Criminal Law.

**The Greek Maize Case**

European Law takes precedence over the domestic laws of the member states - and until the European Court of Justice’s (ECJ) decision in the Greek Maize Case this posed no problem when it came to criminal law. The 1989 Greek Maize Case led to a significant improvement in the protection of the EC’s financial interests. Maize, which had been grown in Yugoslavia (i.e., outside the European Economic Community (EEC)), had been declared as Greek Maize and then imported to Belgium. Yet, a payment due on the import of non-EEC maize into the EEC, was not paid. The Commission then ordered Greece to take legal action in the matter, in particular relating to measures of criminal law. Greece, though, did not comply with this demand by the Commission. In this case, the ECJ had to deal with the obligations of member states concerning violations of Community law if the reaction to a violation fell into the member state’s scope of competency, as is the case with criminal law. Legal basis back then was Art. 5 EEC-Treaty. Under Art. 5 EEC-Treaty, all member states are obliged to take the necessary measures to ensure that EC law is enforced. As far as community

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9 Deutscher, op. cit., p. 36.
10 Deutscher, op. cit., p. 36.
law does not provide for a (criminal law) enforcement mechanism of its own, so the ECJ in the Greek Maize Case, the member states carry the responsibility to make sure that compliance with EC law is ensured through effective, proportionate and deterring national legal rules. The member states are also obliged to deal with violations of EC law as if they were violations of domestic laws. This decision by the ECJ became the basis for the protection of the financial interests of the European Community through the criminal laws of the member states.\textsuperscript{13}

**Legislative developments**

The ECJ’s decision in the Greek Maize Case was later reflected in Art. 209a EC-Treaty, which was renumbered Art. 280 EC. Art. 280 EC is primarily declaratory in nature, with the exception of the newly constituted duty of member states to cooperate (Art. 280 (3) EC), and reads as follows:

1. The Community and the Member States shall counter fraud and any other illegal activities affecting the financial interests of the Community through measures to be taken in accordance with this Article, which shall act as a deterrent and be such as to afford effective protection in the Member States.

2. *Member States shall take the same measures to counter fraud affecting the financial interests of the Community as they take to counter fraud affecting their own financial interests.*

3. *Without prejudice to other provisions of this Treaty, the Member States shall coordinate their action aimed at protecting the financial interests of the Community against fraud. To this end they shall organise, together with the*

\textsuperscript{13} Zuleeg, JZ 1992, pp. 761 et seq., at p. 764.
Commission, close and regular cooperation between the competent authorities.

4. The Council, acting in accordance with the procedure referred to in Article 251, after consulting the Court of Auditors, shall adopt the necessary measures in the fields of the prevention of and fight against fraud affecting the financial interests of the Community with a view to affording effective and equivalent protection in the Member States. These measures shall not concern the application of national criminal law or the national administration of justice.

5. The Commission, in cooperation with Member States, shall each year submit to the European Parliament and to the Council a report on the measures taken for the implementation of this Article.

The relation between domestic and EC law after the Greek Maize judgment

After the Greek Maize Judgment the question which influence EC law has on criminal law received more attention. In a sense, this case marks the birth of European Criminal Law. So far, the member states have refrained from giving the EC full legislative powers in the field of criminal law,¹⁴ rather, criminal law remains within the domain of the member states. Nevertheless, like any other state, the member states of the European Community – as part of their

¹⁴ Deutscher, op. cit. pp. 309 et seq.
respective national sovereignty\textsuperscript{15} - are free to enter into obligations on the international level, the most well-known in the field of criminal law being the obligations under the Rome Statute which established the International Criminal Court in The Hague. One example on the European level is the Convention on the protection of the European Communities’ financial interests of 26 July 1995\textsuperscript{16} which back then was based on Art. K.3 EU-Treaty. The 1995 agreement was intended to both improve and level the protection the financial interests of the EC enjoy in the different member states. Initiated was the agreement by the United Kingdom\textsuperscript{17} and the Commission,\textsuperscript{18} the latter being in charge of supervising and ensuring compliance\textsuperscript{19} with EC law.\textsuperscript{20} The agreement is contained in an act of the Council within the framework of the third pillar of EU law\textsuperscript{21} and entered into force in October 2002. The agreement aims at creating an Europe-wide unified protection of the European budget against subsidy fraud based on criminal law. The minimum standard thus created has to be above the duty of member states under Art. 280 EC. Art. 1 (2) of the agreement takes up the call of Art. 280 EC to all member states to punish fraudulent actions which harm the EX budget. Art. 1 (1) of the agreement defines fraud as every intentional act omission concerning the use of wrong or incomplete declarations with the consequence that funds from the EC budget are trans-\textsuperscript{15} In the context of European integration, the member states do not abandon all claims to national sovereignty. Instead they transfer some of their sovereignty to Brussels. Therefore Barents / Brinkhorst refer to member states as “semi-sovereign”, Rene Barents / L. J. Brinkhorst – Grondlijnen van Europees Recht (2001), pp. 561 et seq..\textsuperscript{16} OJ 1995 C 316 of 27 November 1995.\textsuperscript{17} United Kingdom draft of 3 March 1994.\textsuperscript{18} Commission draft, COM (1994) 214, 15 June 1994.\textsuperscript{19} On compliance with EC law cf. Josephine Steiner – Enforcing EC Law, 1\textsuperscript{st} ed., Blackstone Press Limited, London (1995), pp. 14 et seq.\textsuperscript{20} cf. Art. 211 EC.\textsuperscript{21} Deutscher, op. cit., p. 55.
ferred – or that they are not transferred. The definition also includes withholding information to the same effect or the use of funds for purposes other than those for which they had been allocated originally.

But the agreement does by no means create a supranational norm which could provide a direct basis for punishing fraudsters. The task to create such a rule is left to the member states which have to modify their domestic criminal laws accordingly.

The agreement, which is supplemented by two protocols, does not create a new European crime which one could call “European Subsidy Fraud”, nor does it force member states to have absolutely identical rules on subsidy fraud. Nevertheless did the agreement constitute a major step forward on the way to a harmonisation of national rules.

The Corpus Juris Project

An earlier step which needs to be mentioned was the Corpus Juris-Project in the mid-1990s. The Corpus Juris (CJ) was a draft created by a nine-member working group, working in three committees, which operated under a mandate of the European Parliament. Starting points for the draft were the principle that nobody can be punished without there being a clear written rule to this effect at the time of the crime (*nullum crimen, nulla poena sine lege scripta, certa et praevia*), the principle that punishment requires guilt and the proportionality principle, which constitutes a general principle

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of European Community law.\textsuperscript{24} On this basis the CJ provides a number of definitions, including a definition of fraud against the EC budget,\textsuperscript{25} procurement fraud,\textsuperscript{26} corruption crimes,\textsuperscript{27} crimes related to holding public office,\textsuperscript{28} money laundering,\textsuperscript{29} handling of stolen goods\textsuperscript{30} and definitions related to organized crime.\textsuperscript{31} In addition, the Corpus Juris includes more general rules concerning i.a. punishment, guidelines as to which crime merits which punishment, intent and guilt, errors, the participation of others in a crime as well as the criminal responsibility of corporations.\textsuperscript{32}

A study which was undertaken after the Corpus Juris had been drafted showed a great need for action, in particular in the new member states. Yet, the question has to be asked on which legal basis the Corpus Juris, which is just a draft after all, can be implemented domestically. Art. 280 (4) sentence 2 EC presupposes the existence of domestic criminal law, with the consequence that the Community cannot claim original legislative powers. But the EU can take action towards a harmonization of the member states’


\textsuperscript{25} Art. 1 (1) CJ.

\textsuperscript{26} Art. 2 CJ.

\textsuperscript{27} Arts. 3 and 4 CJ.

\textsuperscript{28} Arts. 5 and 6 CJ.

\textsuperscript{29} Art. 7 CJ.

\textsuperscript{30} Ibid.

\textsuperscript{31} Art. 8 CJ.

criminal laws under Art. 29 (3) sentence 3 EU. Art. 31 lit. 3 EU can only offer a legal basis for minimum rules.\textsuperscript{33}

Also the Council has to give precedence to the member states according to Art. 280 EC. Therefore it is the member states who carry the burden of protecting the finances of the Community by implementing the Corpus Juris and by adapting domestic criminal laws accordingly. At the same time the creation of a European Prosecutor’s Office, for which the \textit{lex lata} (Art. 280 EC) does not yet provide a sufficient legal basis,\textsuperscript{34} could be accelerated.

\textbf{Conclusions}

Independent of all attempts of harmonization of national criminal laws with the aim of protecting the European budget will it continue to be the duty of member states to employ their legislative powers for the benefit of the European integration project, in this case, for the protection of the European budget. By doing so, the member states also protect their own financial interests because, after all, it is the member states which fund the Community. All the EC can do, de lege lata, is to provide the framework within which the member states have to make use of those powers which they have not (yet) transferred to Europe.

\textsuperscript{33} Martens, op. cit., p. 113.
\textsuperscript{34} Martens, op. cit. p. 114.
ECONOMIC IMPLICATIONS OF WIDENING THE SCOPE OF NOTARIAL ACTIVITIES

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Abstract: This paper aims at assessing the possible economic implications of widening the scope of notarial activities. First part is focused on the institutional approach, comparing the role of latin notaries to the central institutional role performed by judiciary. Second part describes the economic functions of notaries and all the conditions that are required to be met in order to mitigate the problem of market failures and protect the market certainty. Third part focuses on the comparison between notarial certificate of inheritance and judicial declaration of inheritance and, on this examples, shows that in some cases it might be beneficial for society to allow the involved parties to choose between judicial and notarial procedures.

Keywords: notaries, law and economics, economic implications of law reform

1. Introduction – institutional approach

From an economic perspective the profession of a latin notary is related to a number of interesting phenomena. On the one hand, it is being pointed out that its structure resembles a natural monopoly, drastically restricting free competition, and therefore it is harmful for the society. On the other hand it is emphasized how important latin notaries are in the process of lowering both transaction and administrative costs for many different legal actions, which are crucial for the proper functioning of free market economy.\(^1\) Moreover, limiting the supply for notarial activities positively affects their quality, through monitoring and control system, supervised by a self-government of notaries\(^2\) - in case of Poland - The National

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Council of Notaries. This is of particular importance in perspective of the current trend of deregulating notarial activities in countries like Netherlands. The analysis of the empirical data based on their experiences shows that deregulation and more specifically - price competition, is not always necessary or even beneficial for the society.

Strict regulation of notarial activities protects the certainty of market transactions - which, from the perspective of institutional economy, is an essential resource, affecting the quality of development, application and enforcement of law. This institutional approach focuses on the relationship between the quality of the law and the economic growth. Aforementioned relation may take various forms, starting from the direct impact of the legal system on the final allocation of goods, through indirect impact involving establishing and protecting well-defined property rights, and ending with an impact in a form of meta regulation, which is reducing transaction costs. However, there are authors who disagrees with this approach.

A. Dixit in his "Lawlessness of law hypothesis"\(^3\) argues that in countries that does not poses proper institutions designed for creation, application and enforcement of law, or when countries have those institutions, but they operate in a dysfunctional manner, the quality of law does not have a substantial effect on economic growth. Such a dysfunction can be caused by a low level of human capital, high level of corruption or low overall legal culture in a given society. In those situations, the institutional weakness, in a long term, is, at least to some extent, compensated by establishing informal institutions, which allows achieving the same goals, without incurring the costs associated with the reform of the legal system.

Dixit's hypothesis is inconsistent with the studies of K. Pistor about institutions in Russia and their impact on Russian economy. These research shows that the process of replacing formal institutions with informal alternatives in a long term leads to an erosion of the very foundations of free-market economy. Therefore, recently it is often proposed to return to the discussion about achieving institutional equilibrium point, which is defined as a state when the marginal social costs associated with the functioning of legal institutions, including widely understood judiciary and notaries, shall correspond with the marginal social benefits resulting from the initial distribution of property rights, the safety of market transactions and, at the same time, reduced associated transaction costs.

In conclusion, the positive impact of latin notary on numerous macroeconomic variables, is related not only to the mere existence of a specialized notarial profession, that performs tasks involving monitoring and controlling the quality and compliance with the law of various legal activities that are crucial for the society but also to the fact that notaries perform, next to the judiciary, a central institutional role, that is intended to ensure legal certainty for all the market transactions. This hypothesis is coherent with the results of studies on the functioning of latin notaries and will be the starting point for presenting an analysis about the economic functions that are being performed by the notaries. For this purpose a group of notarial activities under the Polish legal system will be selected. This will allow to analyze the potential economic impact of extending the scope of notarial activities, with particular emphasis on the impact of proposed changes on the welfare of the whole society, taking into account the factors that impact its level both directly and indirectly.


2. Economic functions of notaries

2.1. Market failures

The primary function, that notaries perform for the society, is supervising legal validity of different market transactions. The "product" of the services they provide is represented as legal guarantee and market certainty. However, to make it possible, a certain criteria, that essentially distinguishes this profession from other legal professions, must be met. On the one hand the notaries act as peculiar public officials, on the other hand, they operate on a market and are paid by their clients, therefore being subjected to some of the rules of a free market. The aforementioned criteria are associated with a high degree of regulation that applies to notaries in two ways. Firstly, in a form legal privileges that grant the notaries an exclusive right to conduct a certain type of legal activities - such as notarial deeds of real estate sale - but also legal restrictions that determine the level of notarial fees and impose an obligation to carry out a full range of notarial services. Secondly, the notaries are subjected to various self-imposed rules and practices, that are a form of a self-regulation. As will be shown below, both of those forms of regulation have a justification - they are preventing specific market failures.

In general market failures can be divided into two categories. First is connected to the information asymmetry. Second with the occurrence of positive and negative externalities. Both of those categories will be separately described later in this section. Market failures defines a situation when the market mechanism does not lead to an efficient allocation of resources. Regardless of the selected efficiency criterion\(^6\) it will always indicate a situation when

\(^6\) Pareto efficiency or Kaldor-Hicks efficiency. First one is achieved when it is impossible to make any individual better off without making at least one individual worse off. Second one is less restrictive and also allows situations when
a different distribution of resources would allow achieving a higher total level of utility of society members, and thus, would increase the total welfare. In that case a state intervention is necessary. A state, through legal mechanisms and institutions, is able to regulate given situation preventing the market failure and hence leading to a more efficient allocation of resources. However, it should be noted, that not every intervention will increase the total welfare. Phenomenon of so called government failure was described for the first time under the framework of public choice theory and represents an event when an intervention may result in a situation similar to market failure, this time caused by the state mechanisms and regulations. Consequently, the inefficient allocation causes a social loss that may even exceeds the losses caused by a market failure. Therefore, any regulation should be carefully examined and assessed in terms of its effect and impact on the total welfare of a society. Such an analysis, in regards to a few, selected notarial activities, will be carried out in the third section of this paper.

2.2. Information asymmetry

The aforementioned phenomenon of information asymmetry occurs in any situation where one party has more knowledge or is better informed on a given topic than the other party. Obviously, the difference in knowledge may be higher or lower, and therefore one can distinguish situations where information asymmetry is high and situations when it is insignificant. In particular, in the case of selling complex products or specialized services buyer's knowledge is often very limited and even during regular transactions with the same entity it is difficult to obtain information on the quality of purchased goods or services. This kind of a problem occurs for most of the legal services, including notarial activities. The customer purchasing a service is able to evaluate only the external form in which the first party acquires more than the other loses, as long as, at least potentially, second party can be compensated.
it is offered, but without specialized knowledge he is not able to verify the quality of legal assistance and the amount of effort a notary puts in handling a given transaction. This problem can be partially solved through a system based on reputation or regular transactions between the parties. However, for most of the consumers transactions that require notarial services are quite sporadic and often end up on a one-time visit to a particular notary. Therefore, the problem of information asymmetry must be solved in another way.

As a good example of the discussed phenomenon may serve the act of selling a real estate. For most of the society members it is an activity carried out very rarely, while, at the same time, will concern most of them at least once in their lives. This kind of transaction is subject to the problem of information asymmetry in two ways. Firstly, the buyer has much less knowledge about the factual and legal status of the real estate than the seller. For this reason, he may be afraid that in reality, those two states may differ from what is he able to determine based on the knowledge he possess. In solving this problem help legal institutions such as warranty or the requirement of using a notarial form for this kind of legal actions. Both mechanisms are designed to prevent the potential problem of information asymmetry, with the proviso that the notarial form requirement is essentially preventive in nature, and the warranty is compensatory in nature. Secondly, in the described transaction there is information asymmetry of a derivative nature. When parties go to the notary to finalize their transaction, they are not able to obtain all the necessary information about him. As it was stated earlier, based on the location and office decor, friendliness of office personnel, or even the quality of served coffee the customers are only able to determine the commercial qualities of a given notarial service, but not being experts in that field, they are not able to determine the quality of legal service provided or the motivations
and impartiality of the notary. Therefore, additional regulations are needed to improve the market mechanism and ensure the high quality of this type of activity.

From the perspective of economic theory, the result of high asymmetry of information is the presence of two negative phenomena, known as adverse selection and moral hazard. Both of these phenomena have already been partially mentioned in the preceding paragraphs, but they are so important that each of them should be described in detail. Adverse selection was described for the first time in ‘The Market for “Lemons”: Quality Uncertainty and the Market Mechanism’ by the Nobel Prize laureate George A. Akerlof and refers to a process of pushing out high quality goods and services from the market and replacing them with products of lower and lower quality. This process occurs due to the lack of the possibility of checking the quality of goods and services by their buyers. Consequently on the market also appear sellers who offer products with significantly lower quality, using the lack of knowledge of buyers and their good opinion about other goods that are being offered. In response to this the buyers are starting to treat the whole market very skeptically - since they do not know which products are the, so called, "lemons" and which products have normal quality. It is rational for them to offer a maximum price that is equivalent to a product of an average quality - assuming that they have equal chances of hitting a high quality product and the "lemon". As a result, all vendors offering goods and services with higher than average quality are driven out of the market - in perfect competition, the cost of manufacturing the goods is higher than the price they can get for them. Therefore, the average quality of products on the market falls further, as there are even more 'lemons' and fewer valuable products. Again, customers are willing to pay a maximum

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price that is an equivalent for the new average quality of goods on
the market. Then the producers of better than the new average prod-
ucts must leave the market. The whole process is repeated, until the
market is completely dominated by the "lemons" - products and ser-
dices of the lowest possible quality.

The second of the negative effects caused by high information
asymmetry between the parties is known as moral hazard. This
problem occurs when the client (principal) concludes a transaction
with a counterparty that is offering a specialized service (agent).
The agent acts on behalf and for the account of the principal. In the-
ory, he should represent him in the best possible way. However, in
reality it is rational for him to not put in that task too much effort.
Described behavior of the agent is caused by information asymme-
try. Knowing that his costs are based on the amount of effort that he
puts in representing the principal, he will try to minimize those
costs as long as it would not affect the remuneration received by
him. The agent can also overstate the value of the services that he is
offering and charge a premium, which in case of perfect informa-
tion - so a theoretical world, where there is no information asymme-
try whatsoever - would not be possible. Knowing the above, the
principal may try to monitor the activities of an agent, but due to
lack of specialized knowledge it can be very expensive for him -
sometimes even more expensive than the loss caused by the phe-
nomenon of moral hazard. A certain level of control can of course
be maintained, but it causes additional costs for the principal and
still allows manipulation on the part of the agent. As a result, a con-
tract under these circumstances will be non-optimal from the princi-
pal's point of view. Therefore, he may be less willing to enter this
type of a relationship. This leads to a lower demand for given ser-
dices than in a state of perfect information, and hence, a sub-opti-
mal allocation of resources. The problem of moral hazard can be
mitigated by appropriate regulations and legal institutions. Another
solution are the repetitive contracts, where, due to the long-term cooperation, information asymmetry between the parties can be limited. However, as it was mentioned earlier, many situations in which customers use the services of a notary relates to one-off transactions that do not occur more frequently than once every few years.

The information asymmetry and the related phenomena of adverse selection and moral hazard are well fit for the market of notarial services. The most important, from the customers perspective, aspect of notarial activity is the legal validity of the authenticated documents. Simultaneously this feature is very difficult to observe for people that are not very familiar with the law. For the clients it is difficult to verify if the has made all the necessary actions, and even if they can, it is almost impossible to determine if the notary acted with due diligence. Due to the aforementioned market failures, the control of such activities is very difficult or sometimes even impossible, only a sub-optimal allocation of resources would be possible. Therefore, some form of regulation is necessary. A regulation capable of fixing the market failures, and thus, restoring the efficiency. Mechanisms such as mentioned earlier: self-regulation of notaries, high standards of education and work experience, disciplinary sanctions, centrally determined notarial fee, and the legal monopoly on the certain types of legal actions, allow the reduction of information asymmetry and guarantee high quality of notarial services. As a result, the customers are protected from the phenomena of adverse selection and moral hazard, hence the notaries can perform a similar function to state officials while being paid by private clients.

2.3. Positive and negative externalities

The second type of market failures are positive and negative externalities. Externalities means a situation when an actions of one party affects other subjects by transferring on them some of the
costs or benefits caused by that actions. The transfer occurs regardless of the consent of that person or group and in principle is not subjected to compensation. Positive externalities benefit the third party and negative externalities cause a loss for third party. However, contrary to a popular belief, not only negative externalities can be a problem for a society. In fact, both types of externalities are considered market failures and needs to be dealt with. Problem caused by negative externalities is related to a situation when a party makes an socially undesirable decision, based on a fact that it is obtaining all the benefits but not bearing all the costs. Therefore even if the total profit is lower than the total cost, but higher than the cost that the decision-making party bears, it is rational for that party to do it. However, the society would be better-off if that action would not happen. Hence, there is a need for regulation which limits this kind of behavior. Positive externalities, on the other hand, are leading to a situation of undersupply of specific goods or services. When a party bears all the costs but is forced to share the benefits with other members of society, it will always tend to produce less than socially desirable. The goods and services that are both: non-excludable and non-rivalrous, are known as public goods and are strictly connected to the discussed market failure. In conclusion, negative externalities results in higher than optimal production, while positive externalities leads to a lower than optimal production.

In case of notarial services, negative externalities occur very sporadically and are usually related to a situation when poor quality of provided services is causing losses for third parties. That situation may be caused by the previously mentioned information asymmetry, as long as the regulations are not mitigating that problem. On the other hand, positive externalities have great significance on the notarial services market. Services provided by representatives of various freelance professions usually meet the criteria of being a
public good. This means that those services indirectly benefit people who are not paying for them. Therefore, without proper regulation, this market failure may lead to lower than optimal production. In fact, this is the case for all the legal services. This problem, however, is particularly pronounced in case of the notaries, due to the fact that in this particular market occurs much stronger positive externalities. This phenomenon is caused by the fact that the notaries, by guarding the legal validity of a transaction between their clients are also, indirectly, protecting the certainty of all business transactions on the entire market, which is beneficial for the entire society. Therefore they function not only as profit-orientated market participants, but are also serving as, the aforementioned, *sui generis* state officials. Thus, they must take into account not only the direct interest of the parties that are their clients, but also the rights of their clients business partners and the welfare of the entire society. By taking care of the quality and transparency of the transactions *ex ante*, notaries provide significant reduction in the amount of disputes *ex post* and hence reduce the potential costs associated with judicial procedures that the society would have to bear. In case of notarial services, lack of adequate regulation, according to the theory of public goods, will lead to a lower than socially optimal production. However, the problem would not be related to too low amount of services, but to too low quality of those services. The lack of regulation that would allow the externalization of costs related to positive externalities on the rest of society, would result in a situation, in which notaries would act solely in the name and on behalf of their clients, not caring about the rights and the welfare of the other, mentioned above groups. Such a situation would be inefficient as it would not maximize the total welfare of society.

The problem of externalities is solved by the regulations that externalize the costs of optimal level of care about the quality and transparency of notarial services and protection of the certainty of business transactions - on all the society members. In reality, this
condition can be satisfied by granting the notaries a monopoly on specific legal services and the requirement for making certain legal actions in a form of a notarial deed. Furthermore, the problem of externalities is also mitigated by the legal norms establishing a notary free and specifying its amount.

2.4. Transaction costs

The last of the economic functions of notaries that are addressed in this paper is the impact of the provided notarial services on the level of transaction costs. The concept of transaction cost was introduced by the Nobel Prize laureate R. Coase\(^8\) and represents all the costs that must be borne by the parties in order to conclude a transaction. There are three basic categories of transaction costs: the costs of acquiring information, negotiation costs and the costs of enforcement. According to the Coase theorem, in a situation where transaction costs are equal to zero, an efficient allocation of goods will be acquired through a process of private exchange. In such a situation no regulations are needed - as they are only unnecessarily interfering with the market. In reality, however, these costs always occur and affect the parties by discouraging them from entering into transaction. Therefore, according to the normative Coase theorem, the legislator, in order to maximize social welfare, is obliged to create legal norms that will minimize transaction costs.

In case of notaries, one may indicate a twofold impact of their services on the level of transaction costs. On the one hand the notaries increase transaction costs \textit{ex ante} - affecting the amount of expenditure incurred by the parties on the step of concluding the transaction. On the other hand, the notaries reduce transaction costs \textit{ex post} - making easier for parties to establish the facts and reduce the costs of enforcing their rights. Moreover, due to the high level of

positive externalities, notaries reduce practically all categories of transaction costs by supporting the certainty of the market and ensuring transparency of all the transactions concluded with their assistance. Therefore, if the total additional transaction cost generated by notarial activity is lower than the total transactions cost reduced by their services, such a state can be defined as efficient and increasing the total welfare of society.

2.5. Conclusions

In conclusion, the analysis contained in this section of paper, of essentially positive nature, provides information about the necessary conditions for the notary to function efficiently. A certain amount of regulation is necessary to ensure a smooth functioning of this profession - which, on the one hand, acts as *sui generis* public official, and on the other hand, is partially subjected to the rules of the free market. Those regulations are responsible for mitigation of market failures, such as information asymmetry, or negative and positive externalities. Simultaneously a system based on notaries seems to minimize transaction costs, making it easier for the parties to exchange goods and services. Therefore, it positively influences the welfare of society.

Further analysis will, to a large extent, have a normative character, and will be focused on the topic of specific regulations that affects the notaries. Since there are ways to overcome market failures and enable the efficient functioning of notarial services, the second negative phenomenon, known as the state failure, needs to be addressed. Therefore, the nature and the scope of a selected notarial procedure will be compared with the nature and the scope of a corresponding court procedure. Then the better of those two system will be chosen, by comparing the costs of both procedures. The one with the lower total social cost will be more efficient and therefore better for the welfare of society.
3. Comparison of judicial and notarial procedures

3.1. Notarial certificate of inheritance and judicial declaration of inheritance

The final part of this paper seeks to compare the institutions of notarial certificate of inheritance and judicial declaration of inheritance. This is an excellent example for demonstrating how notarial and judicial proceedings, that are related to the same category of cases and offer similar functions for the society, can simultaneously coexist and complement each other. At the beginning a short description of those two legal institutions will be presented and then, on its basis, functions of social costs in both analyzed cases, will be constructed. The results of this analysis will be used to compare to the overall nature of notarial acts and corresponding judicial activities.

For a long time the only way to formally and legitimately certify the rights and duties of the heirs was a judicial declaration of inheritance. On the 2nd of October 2008, an Act on amending the Law on Notaries and some other acts entered into force. It introduced an alternative procedure of notarial certificate of inheritance. This procedure is much faster than court proceedings, but it is slightly more expensive for potential customers. They have therefore two possible alternatives to choose from. Their decision should be based on their individual preferences. In general, if they value time more than money they should prefer notarial certificate of inheritance and if they value money more than time, they should stick to the judicial declaration of inheritance.

It should be noted, however, that the procedure of notarial certificate of inheritance has its limitations. There is a list of exceptions

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which make the procedure of notarial certificate of inheritance not applicable. The common feature of these exclusions is the need of conducting an evidentiary proceeding or arbitrary decide on the rights and obligations of the involved parties (similarly to a court ruling). This kind of competence rests exclusively on the courts and are associated with a number of features and privileges that distinguish courts from notaries, who operate partially under the rules of free market.

The key issue, from the point of view of this study, is to examine how alternative choice between a judicial and notarial procedures affects the total welfare of society. For this purpose, a model will be presented that roughly represents a variety of factors and variables that affect the total welfare of society, regarding the alternative institutions. Welfare will be expressed as total social utility function that aggregates individual utility functions of all members of society. In the case of notarial certificate of inheritance and judicial declaration of inheritance the individual utility results from a formal and final confirmation of rights to goods and resources left by the deceased. This kind of legal protection is, of course, beneficial to the heirs themselves, but also benefits other members of society. Clearly defined rights to the estates and responsibilities of heirs acts as the aforementioned positive externalities, which are desirable by the entire society. Simultaneously maintaining such a system is always somehow costly. Total utility is therefore reduced by the costs of the functioning of the legal institutions, both from the individual (costs incurred by the involved parties) and the group (the costs borne by society at large) perspective.

In the case of notarial certificate of inheritance and judicial declaration of inheritance the benefits from the existence of each of those solutions are very similar. Assuming that the criteria referred to in the second chapter are met, the notarial system is able to offer the
society a similar quality of professional legal services as judicial proceedings. The only difference will be the mentioned earlier cases of disputable nature, which by definition can only be resolved by the courts. If the benefits offered by both types of procedures are similar, then the costs associated with them will determine which solution is better for the society. Therefore, before constructing the utility function, these costs will be listed and briefly characterized.

3.2. Costs associated with both procedures

The first category contains initial organization costs - so the costs that must be incurred for establishing given institution and ensuring its smooth functioning. In the analyzed case, both the judicial system and notaries are already created and burdening them with an additional category of cases should not significantly affect their operating costs. Moreover, a potential impact of those costs would be the same in case of both procedures and therefore, from the point of view of comparative analysis, can be omitted.

The second category includes costs associated with barriers to entry for both professions. In case of both: the judges and the notaries, there are high entry barriers that makes it significantly more difficult for individuals to join those professions. They are related to the necessity of having adequate personal skills, acquire specialized education, undergo professional training and pass all the required exams. These costs occur for both: the individuals wishing to join those professions, and the entire society, for which is costly to require such a long training of some of its members. However, again, this type of costs occurs for both the notaries and the judges and does not seem to be significantly higher or lower in either case.

Another type of cost are the costs associated with the current functioning of both institutions. In case of the judicial declaration of inheritance those costs burden the state budget proportionally to
them amount of time which the courts devote to examining such cases. This can be determined by checking how much some unit of time of court work costs the state budget (taking into account the wages of judges and other personnel, fixed costs, material costs and alternative cost of not using those resources in other way) and then calculating how much of those times units is proportionally spent on judicial declaration of inheritance cases and how much on other types of cases. In the case of the notarial certificate of inheritance, the categories of functioning costs are very similar, but this time, they are borne by notaries. Society, in order to maximize the welfare, will prefer, *ceteris paribus*, an institution for which those costs are lower. However, as the further analysis will show, those are not the only costs that are different for the analyzed institutions.

A significant impact on the function of the total utility have the individual costs, which are incurred by the parties involved in a given transaction. In case of both procedures those costs are borne by heirs and other parties that have an interest in formally certifying the acquisition of estates. Their impact is so significant due to the fact that those subjects are incurring the majority of the costs, and, at the same time, receiving most of the benefits. The system should be constructed in a way that ties the individually efficient solutions with the solutions that are optimal from the society's perspective. These costs are typically higher in case of the notarial services than in case of judicial procedure. Higher costs are however related to a very important feature of the notarial certificate of inheritance - much shorter waiting time.

The last category are the costs of waiting for each of the procedures. The notarial procedure usually goes pretty quickly - time period from the first contact between the heirs and the notary, up to preparing the final act of notarial certificate of inheritance lasts a few days. Moreover, during that time, heirs are informed about all the required documents and their rights and obligations. The situa-
tion is different in case of a judicial declaration of inheritance. This procedure lasts much longer, often several months. Furthermore, the parties are often requested to complement their applications, which increase the waiting time even more. The cost of waiting has a different impact on an individual utility function of each person. For some, even several months of waiting might not be a problem, for others, even a few days of delay can result in huge expenses. It depends on the nature of a given subject, the type of assets that are part of the estate, as well as the situation in which the heirs are.

3.3. Utility functions

In order to summarize the previous part, one should construct two utility functions - which will reflect the benefits and costs of both analyzed procedures. It is important to mention that the utility is not a measure that can be directly measured or calculated. It is a derivative of the benefits and costs, but due to the fact that the utility function shows the individual preferences of members of society, it is difficult to determine how exactly a particular variable will affect the total value. Therefore, only its components will be analyzed - by comparing their level for both procedures.

In the event of a judicial declaration of inheritance, the utility function be as follows:

\[ U_s = f(Z_s, -K_0, -K_b, -K_f, -K_i, -K(c)) \]

where:

- \( U_s \) stands for the total utility of the judicial declaration of inheritance procedure;
- \( Z_s \) stands for the individual and social benefits of the judicial declaration of inheritance procedure and has a positive value;
-Ko stands for the organizational costs of the judicial declaration of inheritance procedure and has a negative value;
-Kb stands for the costs of barriers to entry of the judicial declaration of inheritance procedure and has a negative value;
-Kf stands for the operating costs of the judicial declaration of inheritance procedure and has a negative value;
-Ki stands for the individual costs of the judicial declaration of inheritance procedure and has a negative value;
-K(c) stands for the waiting costs of the judicial declaration of inheritance procedure and has a negative value.

Similarly, in the case of a notarial certificate of inheritance, the utility function will be as follows:

\[
U_n = f(Z_n, -Ko_n, -Kb_n, -Kf_n, -Ki_n, -K(c)_n)
\]

where:

\(U_n\); stands for the total utility of the notarial certificate of inheritance procedure;

\(Z_n\) stands for the individual and social benefits of the notarial certificate of inheritance procedure and has a positive value;

-\(Ko_n\) stands for the organizational costs of the notarial certificate of inheritance procedure and has a negative value;

-\(Kb_n\) stands for the costs of barriers to entry of the notarial certificate of inheritance procedure and has a negative value;
- $K_f$ stands for the operating costs of the notarial certificate of inheritance procedure and has a negative value;

- $K_i$ stands for the individual costs of the notarial certificate of inheritance procedure and has a negative value;

- $K(c)$ stands for the waiting costs of the notarial certificate of inheritance procedure and has a negative value.

Furthermore, while the judicial declaration of inheritance may be related to any category of cases, as has been noted above, the notarial certificate of inheritance cannot concern disputable cases in which it is necessary to carry out the evidentiary proceeding and decide on the rights and obligations of the parties. Therefore, one can distinguish three systems:

A. System in which the only way to certify the rights and obligations of the heirs is to conduct a judicial declaration of inheritance.

B. System in which disputable cases are conducted through a judicial declaration of inheritance and non-disputable cases are conducted through a notarial certificate of inheritance.

C. System in which disputable cases are conducted through a judicial declaration of inheritance and non-disputable cases can be conducted through both: judicial declaration of inheritance and notarial certificate of inheritance - depending on the choice of involved parties.

In all of the above system, the utility function for a judicial declaration of inheritance will stay the same. However, in case of systems B and C, the utility function of notarial certificate of inheritance needs to be complemented by the factor $p$, indicating the probability that the analyzed case has a disputable nature. Therefore, adjusted
utility function of notarial certificate of inheritance ($U_{np}$) with probability $1-p$ will be a function $U_n$ and with probability $p$ will be a function $U_s$.

$$
U_{np} = (1-p)*U_n + p*U_s
$$

In order to evaluate the three presented systems, it is necessary to compare each of the individual components of the utility functions. As it was stated above, some variables of both utility functions will have the same level. Therefore, they will have the same effect on social welfare and will not matter in comparative analysis.

Consequently, assuming that:

$$
Z_n = Z_s \\
-Ko_n = -Ko_s \\
-Kb_n = -Kb_s
$$

The following functions will be compared:

$$
U_{s2} = f(-Kf_s, -Ki_s, -K(c)_s) \\
U_{np2} = (1-p)*f(-Kf_n, -Ki_n, -K(c)_n) + p*f(-Kf_s, -Ki_s, -K(c)_s)
$$

In order to determine their impact on social welfare one should compare all of the remaining cost categories. $Kf_s$ and $Kf_n$ are the operating costs of both analyzed institutions. Those costs have a different nature than other of the aforementioned cost categories. That is due to the fact that they are incurred by, respectively: the state budget or the notaries. The institution that, in the absence of other differences and regardless of who bears those costs, is cheaper to maintain, will be more efficient and
Economic implications of widening the scope of notarial activities should be considered optimal from the perspective of society. However, it seems that the difference in the operations costs for both institutions should not be diametrical and simultaneously, other categories of costs have a greater impact on the utility function, because they are related to costs incurred by the parties themselves.

Variables $K_i$, $K_n$, $K(c)_i$ and $K(c)_n$ stand for the individual costs and waiting costs of both procedures. The first pair concerns direct and indirect expenses that the heirs or other involved parties have to incur in order to accomplish each of the procedures. In case of the judicial declaration of inheritance those costs will be lower and in case of the notarial certificate of inheritance they will be higher. Important for further analysis is the difference in these costs. In addition, due to the fact that these costs are borne individually, the analysis should rather focus on the utility loss than on the monetary losses. Even with the same monetary value of losses, the utility loss may be different - depending on the preferences of a given individual.

\[
K_i < K_n
\]
\[
R_{Ki} = K_n - K_i
\]
\[
U_{RKi} = f(R_{Ki})
\]

where:

- $R_{Ki}$ stands for the difference in individual costs between the institutions of judicial declaration of inheritance and notarial certificate of inheritance,
- $U_{RKi}$ stands for the function of this difference, indicating the utility that the subjects lose.

The second pair of variables concerns the waiting costs, which result from the passage of time since the moment when parties start
the procedure, until the completion of the entire process. Judicial declaration of inheritance lasts much longer than the notarial certificate of inheritance. The cost in this case is a function of time and depends on the individual preferences of each member of society. However, it can be assumed that in any case it is not a diminishing function - which would mean a situation in which a party prefers if the analyzed procedure lasts for as long as possible. Again, it is important to determine the cost differences and then convert it to the loss of utility of individual entities.

\[
\begin{align*}
K(c)_n &< K(c)_s \\
R_{K(c)} &= K(c)_s - K(c)_n \\
U_{RK(c)} &= f(R_{K(c)})
\end{align*}
\]

where:

\(R_{K(c)}\) stand for the difference in waiting costs for both procedures and \(U_{RK(c)}\) stands for the function of this difference, indicating the utility that the subjects lose.

Determining the difference in the waiting costs is difficult due to the fact that each individual have a different function of those costs. Depending on the preferences of an individual, waiting for different periods of time may be more or less expensive. This is illustrated in Figure 1, which shows the time cost functions of individuals named a, b and c.

For the person c waiting time between the points t1 and t2 is the least expensive, for the person b the same time period is medium expensive, while for the person a that time period is the most expensive. The preciousness of time in the case of those three people is illustrated by the segments: \(|a1,a2|, |b1,b2| i |c1,c2|\), wherein:

\(|a1,a2| > |b1,b2| > |c1,c2|\)
Assuming that the time period between the points $t_1$ and $t_2$ stands for the difference in time between the procedure of notarial certificate of inheritance and the procedure of judicial declaration of inheritance. Therefore the difference in cost for each person means the loss of its individual utility associated with longer waiting time for judicial proceeding. This can be compared to the utility function corresponding to the difference in the individual cost incurred by the parties in case of both procedures. If the notarial certificate of inheritance would be in case of all three individuals more costly than judicial declaration of inheritance by the exact same amount that is the time cost corresponding to segment $|b_1,b_2|$, then person a
would prefer the procedure of notarial certificate of inheritance, person b would be indifferent between both procedures and person c would prefer the procedure of judicial declaration of inheritance. The rule is that parties prefer solutions in which the sum of the utility loss associated with the individual costs and waiting costs is the smallest.

If $U_{RK(c)} > U_{RK_i}$ then the party prefers the procedure of judicial declaration of inheritance.

If $U_{RK(c)} < U_{RK_i}$ then the party prefers the procedure of notarial certificate of inheritance.

If $U_{RK(c)} = U_{RK_i}$ then the party is indifferent between both procedures.

The preferences are different for various people, but can also be different for the same person, depending on that person's situation. So far, all the functions of waiting costs were linear functions. This meant that the loss of the same amount of time always corresponded to the same cost in case of the same person. Figure 2 shows the functions of waiting cost for people d and e, where these functions are not linear.

Figure 2.
In this case two different people (d and e) or two different situations of the same person are analyzed. For the person d the waiting cost is initially growing very fast with each subsequent unit of time, then it slows down and changes only slightly. This may depict a person who initially is very interested in certifying his or someone else's succession rights and obligations, but later, with the passage of time, it is less and less important for him. In the latter case, the situation is reversed, at first the waiting cost is small, but with each subsequent unit of time it becomes bigger and bigger. Crucial in both of those cases is the marginal cost - the cost incurred in proportion to each additional unit of time. For person d it is a decreasing function, and in case of person e it is an increasing function.
The marginal waiting cost function is the first derivative of the total waiting cost function.

Referring to the analyzed institutions, one might observe that in case of both: person d and person e, the difference in waiting cost will differ for period t1 - t2 and for period t3 - t4, even if they represent the same amount of time. For example point t1 could represent waiting time of 30 days, t2 - 60 days, t3 - 90 days and t4- 120 days. The difference in time between t1 and t2 is 30 days and is the same as the difference in time between t3 and t4. However the waiting cost for both of those periods is significantly different.

Therefore, if the difference in the individual costs of both procedures will be between the differences of waiting cost for periods t1-t2 and t3-t4, the preferences of individuals d and e will vary depending on moment in time. Person d, choosing between waiting 30 and 60 days (t1 and t2) will prefer notarial certificate of inheritance and choosing between waiting 120 and 150 days (t3 and t4) will prefer judicial declaration of inheritance. Person e, quite the opposite, in the former case would prefer judicial procedure and in the latter case would prefer notarial services.

3.4. Conclusions from the comparison

The analysis of individual and waiting costs shows that it is impossible to clearly indicate which of the procedures would be always better. Depending on the individual preferences of society members (which are hidden and difficult to measure) and the situation in which they are, each of the procedures can possibly maximize their individual utility functions. Therefore, system C seems to be socially optimal - as it allowed the parties to choose between a judicial declaration of inheritance and notarial certificate of inheritance - based on their individual preferences.

Only in a case where the difference in the operating costs of both institutions is so large that it exceeds individual benefits from
allowing an alternative choice between both procedures, then it is socially optimal to choose only one of the analyzed institutions. This, however, does not seem to be a highly likely scenario.

The last, important issue of this chapter is associated with the aforementioned factor p, which defines the probability that a succession case has a disputable nature and may be carried out only through judicial procedure. The above analysis shows that this situation might limit the overall welfare of society, due to the fact that there can be a possible scenario where the involved parties would like to settle the matter as soon as possible, but because that particular case has a disputable nature, it is only possible through the judicial system. This is understandable as some cases are so complicated and controversial that they need to be processed by courts. However, in cases that are non-disputable, parties should always be allowed to choose between both procedures. Two conclusions can be drawn from this analysis. First that the alternative choice between both procedures seems to maximize the social welfare. Second that the lower is the value of parameter p, the better it is for the society to have a possible choice between notarial and judicial procedure. This rule is not limited to the inheritance process, but can also be applied to different legal procedures.

4. Conclusions

In conclusion the above analysis showed that widening the scope of notarial activities can be possibly beneficial for the welfare of the society. First part presented an institutional approach which showed that latin notaries might perform a similar central institutional role as the judicial system. Second part extended this approach, adding an analysis of economic function of notaries. It listed all the conditions that are required to be met in order for the notaries to function efficiently and protect the market certainty. Those regulations are
responsible for the mitigation of market failures, such as information asymmetry or negative and positive externalities. Moreover, it showed that notaries are also reducing transactions costs, making it easier for society members to exchange goods and services. Third part was focused on a comparison of judicial and notarial procedures on an example of the inheritance process. Notarial certificate of inheritance was carefully compared with a judicial declaration of inheritance, in terms of their costs and benefits. Those studies showed that the less likely it is that a given case has a disputable nature, the more beneficial for the society it is to allow the involved parties to choose between notarial and judicial procedure. Therefore, in order to maximize the total welfare of the society, the scope of notarial activities should be expanded on all the cases that are inherently non-disputable or are unlikely to be disputable.

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Bibliography


THE BRAZIL HAITI ECONOMIC AND SOCIAL COOPERATION AFTER THE 2010 EARTHQUAKE: CHALLENGES AND PROPOSALS TO IMPROVE DEVELOPMENT AND FINANCIAL INCLUSION

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Abstract: This Article aims to give an overview of the current picture of Brazil-Haiti cooperation model. It begins presenting how important International Remittances are in the Financing Development context and it illustrates how Brazil innovated in the reception of Haitian Workers. Then, the challenges faced by both individuals and policymakers will be presented. The first challenge is related to the absence of financial inclusion. The second is how the current monetary and financial system of Brazil is not prepared to coordinate with Haiti. The third is related to the lack of microcredit and other financial services to immigrants. The forth challenge is about the democratic inclusion of Haitians in the policymaking of the Financial Sector. Finally, it will be discussed whether an immigration-based Cooperation system in fact promotes development and how important it is to the South-South Cooperation.

Keywords: immigration; financial inclusion; Brazil; Haiti; South-South Cooperation.

Overview

Financing Development, Financial Inclusion and International Remittances

The international remittances play an extremely relevant role in the Financing Development. World Bank data suggests that workers’ remittances from abroad to their home countries have increased, steadily, from 255.2 billion USD in 2007 to 348 billion USD in

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2012\(^1\). These numbers are expressive especially if compared with other forms of capital net inflow to developing countries, such as public bonds, which amounted 178.7 billion USD, in 2009\(^2\).

However, it seems that in the academic literature on Financing Development, the international remittances issue has received little or almost no attention, even with those expressive numbers and some scholars indicating it as a key element in the study of Financing Development\(^3\).

As it will be demonstrated, the Haitian workers presence in Brazil represents a new relevant example of the South-South cooperation, which is substantially distinct from the traditional North-South models. Their presence also evidences the rise of new actors of development that have not been treated by the specific literature yet\(^4\).

And finally, the relevance of the study of the recent Haitian immigration to Brazil might represent the way Brazil, as a developing country and a key player in the Latin American political relations\(^5\).

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\(^2\) *Idem*.


implements the United Nations Resolution on Financing Development of 2013\(^6\). That is because as long as the Brazilian government implements the proper policies in the next years, it will be able to comply with several targets of that agenda, especially financial inclusion\(^7\), transparency promotion\(^8\) and the South-South Cooperation\(^9\).

**The Brazil Haiti Relationship: Origins and the Current Situation**

In order to understand how the relationship Brazil-Haiti began, it is necessary to make a summary of the most crucial facts and to necessarily refer to a very sad event of 2010. In January that year, an earthquake devastated Haiti, causing the death of hundreds of thousands of people and leaving so many more displaced and in extreme poverty conditions\(^10\).

Then, Haiti became the center of the world humanitarian focus. It received attention from the international media, humanitarian help, the UN and a wide range of NGOs. Also at that time the first roots or the dialogue Brazil-Haiti began, with Brazil sending its humanitarian groups, both military and civil, and eventually playing a key role in the reconstruction of the country.

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\(^7\) *Idem*. Target 12, page 5 of 10.

\(^8\) *Ibidem*. Target 17, page 5 of 10.


role in the United Nations Stabilization Mission in Haiti (MINUSTAH).\(^{11}\)

Thereupon, little by little, another dialogue has begun between Brazil and Haiti, especially because Brazil was politically pressured to withdraw its troops from Haiti. Then, in early 2012 Brazil and Haiti presidents established a dialogue which lead to two main results.

First, Brazil unilaterally issued the Resolution through which it compromised to issue a given number of “Humanitarian visas” for Haitians\(^{12}\). The focus was to employ Haitians in Brazil, so that these workers could come back home one day and help their country with their savings. Second, Brazil officially started the withdrawal of its forces in Haiti\(^{13}\).

As for the visa, the Brazilian Immigration Authority, as authorized by the central Government, issued the resolution that provides that the hardship suffered by Haiti after the 2010 earthquake makes its nationals entitled to refuge in Brazil, eventually creating the “Humanitarian Purposes Visa”, also referred to simply as “Humani-


humanitarian Visa”, which entitles for work permit and is conditional to employment of the National of Haiti\(^\text{14}\). However, the demand from Haitians for visas was so huge that the Brazilian Embassy in Port au Prince had to issue many more visas than its initial limit\(^\text{15}\).

The impact of the Brazilian government action was huge, because by conceiving Haitians as refugees, the government is prevented from making mass deportations even from those who illegally come into the National Territory. Then, the flow of Haitians has been directed to the Amazon boundary, more specifically the city of Brasileia. There, the frontier is practically open to Haitians and the central government has exercised almost no control, so it is estimated that rather than 1,200 Haitians to enter the national territory per year\(^\text{16}\), around 40,000 have made their way to Brazil\(^\text{17}\).

Once they arrive there, they have to wait for a long time, eventually weeks to have their ‘initial protocol’ issued and then have their ‘humanitarian visas’ later issued. Then, they move mainly to the South of Brazil, to regions that have historically suffered with the lack of work-force in the industry, due to the long-term emigration from the countryside to central areas\(^\text{18}\).

Currently, Haitians come from Port Au Prince and take a journey that might take months until they find employment in the South.

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\(^{14}\) Conselho Nacional de Imigração (Brasil). *Idem*, supra. Article 3º.

\(^{15}\) *Idem*, Article 2º.

\(^{16}\) *Idem*, Art. 1st.


They go from Haiti to Ecuador or in ships or in planes, cross Peru and reach Brasileia, Brazil. This process is sometimes dangerous and many Haitians report that they have invested all their savings in such entrepreneurship\textsuperscript{19}.

Once they finally arrive in the industrialized areas, they find difficulty to be financially included. They have difficulty to open their own banking accounts and that process can be almost impossible when the immigrant is in the informal market, waiting for the issuance of work permits and other documents which might take a lot of time and cause unnecessary suffering to immigrants\textsuperscript{20}.

Finally, from a political perspective, the terms of this Cooperation model seem to be dictated exclusively by the Brazilian side. There has been no single bilateral treaty signed. All the acts that permitted the entrance of Haitians were done on an administrative basis, through resolutions and the political will from the Brazilian central government. This could end up this cooperation process by a single discretionary act from Brazil. So, besides the several problems that Haitians face, the uncertainty of this model also poses a risk.

\textbf{The Challenges of the Present Model}

\textbf{The First Challenge: The Absence of Financial Inclusion}


Firstly, it is necessary to establish what Financial Inclusion is in order to try to verify whether Haitians have been able to have or not in Brazil. Traditionally, Financial Inclusion is the possibility of an individual to access Banking Services, such as making bank deposits, having their own funds and salary in deposit, make payment, etc.

However, this concept does not represent the reality of how Financial Inclusion is run worldwide. That is because, as the World Bank properly suggests, there are actually indicators of how financial inclusion happens, and not necessarily a specific standard. Thus, having the possibility to be paid your salary in a Bank Account and being able to withdraw it through the teller, is an indicator. Doing the same through ATM machine is another one. Being able to make deposit, by the teller or by ATM is another relevant way to determine whether there is financial inclusion or not.

The analysis of the ‘indicators’ of Financial Inclusion is extremely relevant for the Brazilian case, because the levels of Financial Inclusion incredibly vary there. There are cases reported of immigrants who were not able to set bank accounts even though they had the whole documentation necessary. Other ones, in similar situations, opened accounts in the Brazilian Government owned banks, CAIXA and Bank of Brazil, which tend to require more documents.

Other ones were able to open only the ‘salary-accounts’. These accounts are not, in fact, Bank accounts under the traditional concept. Banks allow the individual to open it only once it has been employed and then the account holder may only withdraw his salary at the teller. This account cannot be used as a deposit neither to make deposits or payments. Thus, it should not be seen as a

financial inclusion. Instead, it is more likely to be an ‘indirect way of salary payment’.

Other degrees of financial inclusion have also been observed. Other immigrants report that they were able to open a ‘deposit account’, which entitles them to receive make deposits, but not to receive transfers or to make payments. One possibility to have a bank account set at a public bank, which has the lowest fees, is to open an account at Private Bank and later, once one is formally employed and has good credit history, he can move to another Bank. This situation has become so serious that the City Major of Sao Paulo, one of the main places of destination of all the kinds of immigrants in Brazil, had to make an official agreement with Bank of Brazil, so that that Institution currently accepts opening checking accounts from immigrants. But for that, the local government had to demonstrate that there was a ‘relevant local interest’ in order to have competence to make such agreement under Constitutional Law.

Various cases of difficulties in opening Bank Accounts have been reported. An ironic case also happened during the Author’s work at Caritas Brazil. A given immigrant wanted to open a bank account before beginning his formal job. He reported he went alone to a Public Bank agency and he was denied any service. Then he went to the same bank with a Caritas volunteer and he was told he could open only the ‘salary-account’ once he was employed. Later, he went to the same bank, but another agency and with another Caritas staff and he was finally able to open a ‘deposit-account’ and deposit the rest of his savings.


Outside Sao Paulo, the situation is more critical, because immigrants have fewer options to be financially included. By the way, it is in the countryside of Brazil that Haitians have gone to. In those regions, the access to Banks is more restricted and the Central Bank of Brazil is already aware of that.

These difficulties are closely related to another aspect of the Brazilian Law making. Under Brazilian Case-Law, banks and other financial institutions are fully liable for any damage suffered by a victim of fraud or other illegal act committed by a third party as long as the bank was someway involved, even if it made no contribution to it. As a consequence, there is no uniform policy adopted by bank managers on the eligibility to open a bank account and Banks are entitled to act with over precaution in all its operations, including opening an account.

As it comes to the specific issue of the Cooperation Haiti-Brazil, the international remittances is closely connected to financial inclusion, because essentially, only if one has a full checking/services account he will be able to make international remittances through the SWIFT system.

The alternative to that is sending values through exchange agencies, but they are almost all concentrated in the big urban areas and

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27 For a list of all the authorized financial institution, see the following list. Many of the institutions listed are exclusively commercial or operate only in big cities. Banco Central do Brasil. [Instituições habilitadas a operar mercado de](http://www.planalto.gov.br/ccivil_03/constitucacao/constitucacaocompilado.htm).
because of their heavy regulation and the high cost of the transactions, they are not likely to expand to regions other than great urban centers.

Paradoxically, the world famous ‘Western Union’ institution operates in Brazil mainly through the Bank of Brazil. Thus, once an immigrant is not successful in opening a full bank account at that bank, he will be indirectly deprived to send remittances via this institution. In fact, Western Union also has arrangements with very few other banks and exchange institutions, but they are, again, heavily concentrated in urban areas\(^{28}\).

Overall, the first main challenge is how to adopt a uniform policy for financial inclusion and allowing Haitian workers to make remittances, as they desire. That could be simply done if there was political will from the Central Government, which is the ultimate controller of Bank of Brazil, main partner of Western Union. Even though the solution seems simple, the problem has persisted.

**The Second Challenge: A Niche for Tailor-Made Financial Services and Microcredit**

As exposed above, Haitians face substantial difficulties in being inserted in the current Banking system. As a result of that, other financial services, including loans, house financing and microcredit are affected. That leads to the formation of a huge number of câmbio. [Brazilian Central Bank. Institutions authorizes do operate exchange] Available at: [http://www.bcb.gov.br/?IAMCIFO](http://www.bcb.gov.br/?IAMCIFO) Accessed on December 19, 2014.

\(^{28}\) In a search done in the Western Union website, it has been found that, for instance, in the State of Rio Grande do Sul, which is one of the main destinations of Haitians in Brazil (see footnote 19), Western Union has only one autonomous agency, located in the capital, far from most immigrants find work. Source: [http://www.bancowesternunion.com.br/OndeEstamos](http://www.bancowesternunion.com.br/OndeEstamos) Accessed on December 19, 2014.
immigrants willing to have access to basic financial services and remittances. There is clearly an increasing market composed by all of those left by the traditional banking system.

However, there is not a hegemonic institution able to provide the services the immigrants need. Big names of microcredit such as Compartamos, have no presence in Brazil. And, much less, there is no big name in the microcredit world that has ever tried to provide, at the same time, credit and international remittances services.

Thus, from the private entrepreneurship perspective, there is a great market in Brazil. But how would such institution operate? One could suggest the creation of a system in which a household in Haiti receives the money from the microcredit provider, which gets paid by the Haitian worker in Brazil. This is a simple system, but there is no initiative in this field up to date. By the way, it has already been reported that new nonfinancial institutions are able play a key role in this process, without necessarily providing credit\textsuperscript{29}.

Another suggestion could be financing the travel of the Haitian worker to Brazil, who would then begin to pay the expenses once he was employed in Brazil. That, however, represents a serious problem. Under Brazilian labor protection laws, that situation could be interpreted as debt bondage, being a crime\textsuperscript{30}. The contract would be void and the debit unenforceable at least in Brazil, where the capital would be. And on the other hand, having a debit enforceable only in Haiti would not be attractive.


A final suggestion is the creation of international remittances and other financial services through electronic means. Paradoxically, according the World Bank, 9.1% of Haitians already use some sort of financial service through Mobile Service, against almost zero in Brazil. That indicates a possible openness from the Haitians in Brazil to send value home through those means.

Currently, there is no initiative such as Safaricom/M-Pesa in Brazil. Considering the difficulties of Haitians in some cities in Brazil to access bank agencies, this scenario is substantially the same as the one faced by Kenyans (the creators of Safaricom/M-Pesa) in Africa. So, there could be a huge market for similar M Pesa services, that is, remittances of values through mobile phone.

Overall, the challenge of lack of microcredit and tailored financial services could be easily overcome. That is essentially because the immigrant population in Brazil is already a relevant market. And because there is a clear demand for non-bureaucratic and easy financial services, it seems to be just a matter of time until a start-up in this area is created in Brazil and becomes as successful as other microcredit institutions.

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The Third Challenge: The dangers of opposite financial/exchange law and policy

Another challenge to be considered has a regulatory nature. It is clear that Haitian monetary policy goes on the completely opposite direction of the Brazilian monetary policy. The first does not even have the state apparatus to exercise control over its exchange operations, due to its ineffective governance. The second, instead, has a heavily regulated and controlled exchange market.

These opposite approaches lead to very distinct remittances markets. In Haiti, it has been reported that after the 2010 earthquake there has been a dissemination of exchange and wire transfer services all over the country, especially focused on the Haitian emigrants who leave the country prepared to send money back home.

On the other hand, as already mentioned, the remittances services in Brazil are substantially restricted, at least for immigrants. The prob-

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34 A good illustration on how the Brazilian Banking system is more regulated than the one of many other countries was the series of experts opinions in 2009, during the so called Madoff scandal, stating that such event would never have happened in Brazil. See: BBC BRASIL. Fraudes de Madoff jamais teriam prosperado no Brasil, diz FT. [Madoff’s frauds would have never been successful in Brazil] Available at: http://www.bbc.co.uk/portuguese/noticias/2009/06/090617_pressft_ba.shtml Accessed on December 18, 2014.
35 Stochero, Tahiane. Imigração ilegal ao Brasil movimenta economia haitiana após terremoto. [Illegal Immigration to Brazil moves the Haitian Economy after Earthquake] Available at: http://g1.globo.com/mundo/noticia/2013/10/imigracao-ilegal-ao-brasil-movimenta-economia-haitiana-pos-terremoto.html Accessed on December 19, 2014. An observation has to be made to the reader before accessing the report above. Unfortunately, many right-wing oriented journalists refer to the mass of Haitian immigrants as being ‘illegal’. In fact, they might cross the border without the proper visa, but once they present themselves to the local Federal Police office, their situation is regularized by virtue of specific resolutions on the Humanitarian Refuge. Thus, calling them ‘illegal’ immigrants, even though it is very common in the Brazilian Media, represents defamatory mistake.
Problem of that is that having an extremely bureaucratic country at one side and a liberal at the other one could lead the more bureaucratic one, in this case, Brazil, to demand more information and ‘technical communications’ from the ‘liberal’ one, that is, Haiti.

Even though it has not happened with Haiti, Brazil has to be aware that as the remittances reach more substantial numbers, it might be difficult to establish a good communication platform with Haiti. Thus, Brazil will have to find its way to re-define its anti money-laundering policy without affecting the Haitian households that rely on international remittances to survive.

The Fourth Challenge: Financial and Democratic Inclusions of Immigrants

Finally, one of the most important challenges faced in the Brazil-Haiti cooperation is related to a holistic approach on financial inclusion. It is possible to suggest that financial inclusion is not effective if it comes alone in a given context. Instead, it must be connected to other policies for empowerment of groups in a bigger context\(^36\).

This is clear in this case. As Brazil has attracted more and more immigrants and not exclusively Haitians, there has been the need to re-think the old-fashioned and dictator-era-made Brazilian Foreigner Statute\(^37\).

This, however, is a problematic process. Nowhere in the world immigrants have political and voting rights. It is a principle of Con-

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institutional Law and it has been like this for decades that each national votes on his own country elections. Immigrants would need to be naturalized in order to have voting rights. That is not the situation in Brazil, where Haitians receive the renewable humanitarian visa.

However, very important steps have been taken from the Brazilian side. Early this year, Brazil has launched the Permanent Conference on Immigration, COMIGRAR, which aims to change the current Foreigner Statute. In a one of its kind project, the COMIGRAR has promoted community based conferences, which were run altogether by NGOs public entities and municipalities\(^{38}\).

Later, the central conference is organized. In that event, immigrants have active voice and have their demands presented directly to the National Council on Immigration. In its edition of 2014, many themes relating to financial inclusion were presented, such as the difficulties in the financial inclusion and Brazilian overall Bureaucracy\(^{39}\).

Once the demands of the Haitian and Immigrant community start to be heard, Brazil will reformulate its law and policy in a democratic way. As a consequence of the changes in the basic federal laws dealing with foreigner status, other areas of law will have or to change (federal and state law or resolutions) or to be interpreted altogether with the new Statute.


Thus, the COMIGRAR process is one of the most efficient ways to promote financial inclusion from a government perspective, since it will be done not necessarily in a way the government thinks financial inclusions is relevant, but in a way that represents the real demands of immigrants in Brazil.

**Rethinking the South-South Cooperation from the Brazilian-Haiti perspective**

As it has been suggested, there are many challenges in this cooperation process between the two developing nations. They are, among other reasons, due to the absence of know-how, the fact that both countries already have their own deficiencies and the lack of coordination.

However, it is unfair to suggest that because of the challenges presented, the cooperation itself has no future. The challenges have their solutions, as presented, and some of them are very simple, such as the Financial Inclusion in the Public Owned Banks system, the first challenge. Others require the establishment of permanent dialogue bodies, such as the conciliation of opposite governmental monetary approaches. However, none of the situations seems to compromise the overall cooperation process.

Moreover, it is possible to suggest that Brazil is doing exactly what Haitians need, that is, offering job opportunities in order to support that country. It is possible to argue that because Brazil is not simply making donations to projects that are outside the priorities of
Haitian government through NGOs, as some have suggested\textsuperscript{40}, which caused a mismanagement of resources\textsuperscript{41}.

In fact, Brazil has made substantial investments, because the overall apparatus to welcome in the Brasileia border, located in the middle of the Amazon region, has been very costly\textsuperscript{42}. If the direct humanitarian aid within Haiti is included, Brazil has exceeded the donations of many developed countries, like Italy, Finland and Germany\textsuperscript{43}. But more important than that, Brazil has literally opened itself to Haiti, which represents a clear willingness to help, and not a ‘distant’ or superficial way to promote development.

Moreover, international remittances from abroad workers assist households in their specific needs including promotion of local microcredit and education support\textsuperscript{44}. So, indirectly, once again,

\textsuperscript{40} Ramachandran, Vijaya and Walz, Julie. \textit{Haiti: Where Has All the Money Gone?} Available at: \url{http://www.cgdev.org/files/1426185_file_Ramachandran_Walz_haiti_FINAL.pdf} Accessed on December 12, 2014. Page 08 (printed version) 10 (electronic version).

\textsuperscript{41} Idem.

\textsuperscript{42} Currently, there is not official research on the overall investment done by State and Federal Government, but it has been reported that, excluding operational costs, at least 6 Million R$, or 2,4 Million USD have already been spent by April 2014. Source: Tavares, Luciano. \textit{Sebastião [governador] gasta 1,6 Milhão para mandar Haitianos para SP}. [Sebastião (state governor) spends 1.6 Mi (Brl) to send Haitians to Sao Paulo] Available at: \url{http://www.ac24horas.com/2014/04/29/sebastiao-gasta-r-16-milhao-com-frete-para-mandar-haitianos-para-sp/} Accessed on December 10\textsuperscript{th}, 2014.


Brazil is assisting Haiti with its real needs, and not only humanitarian aid.

At this point, however, it is necessary to consider the (few) criticisms on the international remittances positive impact in the recipient country. For some, there is an overestimation on the benefits of immigration and remittances, because they ultimately cause the loss of work-force in the local economy, the non-generation of local wealth and, eventually, facilitation of imports.\(^\text{45}\)

However, even considering the above scenario, Haiti is still one of the few cases in the world where immigration and subsequent remittances is proven to be beneficial from an economic perspective.\(^\text{46}\)

It is also interesting to point out that there is room for an increase of Haiti’s GDP considering this model of cooperation. Historically, remittances have played a key role in its economy, being currently 21.1 per cent of its economy.\(^\text{47}\) Also, it is estimated that 25.25% of its households receive some sort of outside contribution.\(^\text{48}\)

Even though these numbers are much higher than the world’s average, there is still possibility to increase. Other developing countries are estimated to have greater numbers of households receiving

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\(^{46}\) *Idem*.


\(^{48}\) Fajnzylber, Pablo et López, J. Humberto. *Idem (Remittances and Development: Lessons from Latin America)*. Table 6.4 Page 190 (hard version), 215 (PDF version).
international remittances, such as Nicaragua and Jamaica, with 41.95 and 30.85 per cent, respectively⁴⁹.

One interesting aspect of this model of cooperation is that it completely avoids having Haiti becoming the “Republic of NGOs”, because it forces the Haitian nation not to rely on external help⁵⁰. Instead, it promotes the inclusion in work activity, and ultimately, financial education, because of the savings that immigrants have to make.

So, overall, the Brazil-Haiti case is a good example of South-South cooperation. It demonstrates how cooperation can be done through innovative means. It also demonstrates that even the poorest countries are not necessarily unable to promote its own development. It is impossible to refuse that there are several difficulties in this process, but the overall benefits of this model are undeniable.

**Conclusions**

In conclusion, it is possible to suggest that there is great future for the Brazil-Haiti Cooperation model. The difficulties exist and they are related to absence of financial inclusion, private-run initiatives,

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⁴⁹ *Idem.*

⁵⁰ It is necessary to report that it is this Author’s opinion that Haiti is not the Republic of NGOs, because the data suggesting that does not demonstrate that NGOs have any kind political authority or governmental role in Haiti’s decision making. However, since this idea is hugely disseminated in Academia, it has to be treated as it was a real concern. For some example on (inconclusive) approaches on the Republic of NGOs idea, see the following: 1. For an absurd suggestion that Haitians should look for help from government rather than NGOs, see Kristoff, Madeline and Panarellu, Liz. *Haiti: A Republic of NGOs?* Available at: [http://www.usip.org/sites/default/files/PB%2023%20Haiti%20%20Republic%20of%20NGOs.pdf](http://www.usip.org/sites/default/files/PB%2023%20Haiti%20%20Republic%20of%20NGOs.pdf) Accessed on December 18, 2014. Page 1. 2. For a fallacy on the effectiveness of governance itself to fight hunger and misery, see National Academy of Public Administration. *Why Foreign Aid to Haiti Failed.* Available at: [http://www.napawash.org/wp-content/uploads/2006/06-04.pdf](http://www.napawash.org/wp-content/uploads/2006/06-04.pdf) Accessed on December 18, 2014. Page 12.
institutional coordination and democratic inclusion. However, for each of these challenges, short-term or long-term solutions do exist. Overall, the benefits for Haiti can be observed in economic terms and represent an important initiative for Haiti’s development.
**Bitcoin as a Mirror of Regulatory Policies in South America: How the Methods of Regulation of Innovation Work with Bitcoin and Follow Previous Trends**

**Eduardo R. P. Veronese**

**Abstract:** This article stresses how it is possible to connect the regulation of bitcoin in South America with the common regulatory approaches that its countries already have. When governments initiate their legal drafting on bitcoin, they do not necessarily depart from zero. Instead, it seems to be clear that governments treat bitcoins just like they treat other innovations of the financial market or the technological industry. This process will be illustrated by an analysis of the bitcoin regulation in the following countries: Ecuador, Colombia and Brazil. A comparison between their regulatory approaches and their overall political trends and monetary policies will also be provided. Then, shortly, it will be pointed why the recent speculation on White-Black Bitcoin division is not relevant for the regulation of Bitcoin at least in South America. As for the conclusions, it will be suggested how the analysis of a given South American country may predict its further tendencies on regulation.

**Keywords:** bitcoin; regulatory policy; South America

**Introduction**

The idea that bitcoin regulation might represent the way governments overall deals with innovation requires a few steps. Firstly, it will be provided a general overview of Bitcoin in South America and why that market is relevant. Then, the regulatory approaches from Ecuador, Colombia and Brazil will be presented, one by one, together with a political perspective of their monetary policies. Only then critics on the division of bitcoins into black and white will be provided. Suggestions and observations on what to expect from the regulation of bitcoin in South America are part of the conclusion of this paper.

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Eduardo R P Veronese, *Bitcoin as a mirror of regulatory policies in South America: How the methods of regulation of innovation work with bitcoin and follow previous trends*

**Overview of bitcoin in South America**

South America is considered to be a great potential of bitcoin users, especially in Argentina, Brazil and Chile\(^1\). Currently, it is appointed that there are already more than 8,000 bitcoin users only in Argentina\(^2\), where there is already a Bitcoin foundation\(^3\), which indicates a demand for predictability of the transactions made with bitcoins.

However, just like the Politics in South America continent itself, there is a great diversity in the way governments deal with bitcoins. It might be a very liberal way, with almost no intervention, or the complete ban, or other possibilities. These other possibilities might include a substantial restriction on the use of bitcoin for payment of expenses\(^4\), or taxation.

The demand of bitcoins in Latin America may have different reasons. But one of them that makes the cryptocurrency especially attractive is its capability to be used for international remittances

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2. *Idem*.


4. As further explained, this represents the approach from the Government of Colombia. There, bitcoin is considered to have restricted uses, as opposed to unlimited of the legal tender. *See* ‘El Nuevo Herold. Moneda ‘bitcoin’ encuentra [...] *Supra*. 
purposes. That is the situation in Venezuela, for instance, where exchange controls make it very difficult to send value abroad.\(^5\) The same attractiveness of bitcoin has been reported in Argentina\(^6\).\(^7\)

However, the uncertainty about the cryptocurrency and its regulation still represents a huge concern for the South-American bitcoin community\(^8\). As it will be presented, from a global perspective, bitcoin is not necessarily deregulated in South America. Instead, its level of regulation is considerable, or even overbearing for a project that initially sought to have no governmental interference.


\(^6\) At this point it is necessary to give reasons on why some other key players, were not covered, more specifically, Argentina. Even though the bitcoin activity in that country is very substantial, (see foot note 3) the available resources on its regulation were extremely confusing. Some view the bitcoin in Argentina as subject to all the laws of the country, assuming it was the same as any other property; (see Chomczyk, Andrés. *Situación Legal de Bitcoin en Argentina* [Legal situation of Bitcoin in Argentina], Available at [http://elbitcoin.org/situacion-legal-de-bitcoin-en-argentina/](http://elbitcoin.org/situacion-legal-de-bitcoin-en-argentina/) Accessed on December 4, 2014). Others, instead, suggested that bitcoins in Argentina are exclusively subject to the resolution 300 of the ‘Unidad de Información Financiera’ of that country, which in turn, established guidelines for Terrorism prevention (see Marty, Belen. *Argentina expande el control monetario al bitcoin* [Argentina expands control over bitcoin], Available at: [http://www.bitcoin noticias.com/marco-legal/642-argentina-expande-el-control-monetario-al-bitcoin](http://www.bitcoin noticias.com/marco-legal/642-argentina-expande-el-control-monetario-al-bitcoin) Accessed on December 4, 2014). So, in conclusion, due to the absence of a reliable starting point for a serious research on the bitcoin status in Argentina, this country has not been treated in detail in this article.

\(^7\) Herrera. *Supra.*

Finally, as presented below, given a few countries, it is possible to have a big picture of the diversity of regulation of bitcoin in South America and infer on how connected it is with each country general approaches to innovation.

2.1 Bitcoin in Ecuador

In Ecuador, there has been the recent ban on bitcoin in general. This occurred in July. One of the main reasons was because the country had the project to create its own virtual currency, which actually begun on August 30th 2014. One interesting aspect of that digital currency is that it is issued and controlled by the Central Government, having its value indexed with the national currency, which is the U.S. Dollar.

Thus, by definition, the digital currency presented by the government of Ecuador is more likely to be defined as *fiat money*, and not a cryptocurrency as bitcoin is. So, technically, there could be space, still, for a cryptocurrency and the digital fiat money at issue. But because of the highly interventionist aspect of the government of Ecuador, they decided to ban bitcoin.

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10 *Idem.*


12 *Idem.*
Rafael Correa\textsuperscript{13}, there has been the elimination of any possible competitor to the government initiative.

At this point, it is necessary to point out how governments are likely to try to ban all the methods of payment that could affect their newly implemented currencies, especially when they are in a difficult financial moment, which is right the case of Ecuador.

Another relevant aspect for the prohibition of bitcoin in Ecuador is related to the fact that bitcoin might be used to more easily transfer funds without identifying the transferor and the beneficiary, which is the case of the ‘Dark Wallet’ project\textsuperscript{14}. This specific project has been criticized by Ecuatorian Media in support of President Rafael Correa ban on bitcoin\textsuperscript{15}.

So, in a nutshell, the concerns with the use of bitcoin in Ecuador seem to be coherent with its overall political and economic situations. Ecuador has had serious problems with the loss of its federal reserves in late 1998, in around 30 per cent\textsuperscript{16}. So it is not surprising that this country might impose serious measures to try to avoid any


sort of loss of its reserves through the remittances of its reserves abroad via bitcoin.

Besides that, it has been reported that since 1999 the country has suffered with political instability cause, among other factors for social inequality\(^{17}\), which culminated in the strengthening of populist groups\(^{18}\). It caused the ascension of a government that had substantial difficulties on its own governability, which is now in crisis\(^{19}\).

So, as a consequence in this appointed ‘crisis in governability’, it is possible to suggest that the Government is not necessarily banning bitcoin simply because it is arbitrary trends. Actually, the Government is not in conditions to invest time and resources in something that does not represent a clear benefit for the government.

Finally, considering its historic problems with the loss of reserves and its recent tentative to implement its own virtual currency, the ban of bitcoin seems to be a very logical decision from the government perspective.

### 2.2 Bitcoin in Colombia

The approach of the bitcoin regulation in Colombia is very different from its neighbor Ecuador. Colombia did not clearly ban bitcoin as Ecuador did. However, its Central Financial Authority, the **Superintendencia Financiera de Colombia**, issued a Circular Letter, **Carta Circular**, condemning the Bitcoin initiative and distinguishing it from the legal tender, which is the *only legal method of payment in the country*\(^{20}\).

\(^{17}\) *Idem*, p. 194.

\(^{18}\) *Ibidem*. P.199.

\(^{19}\) *Ibidem*, pages 199 to 202.
In the same statement, the Colombian authority completely criticized the cryptocurrency, citing the Mt.Gox bankruptcy and mentioning other risks\(^{21}\). Shortly after the issuance of this statement, the local media reported the ‘dangers’ of the use of bitcoin specifically in Colombia\(^{22}\).

As it comes to the financial policy of Colombia, it has been reported that the financial sector is substantially regulated especially in order to protect international investments in that country\(^{23}\). In turn, they were effective in promoting the flow of foreign direct investments, FDIs. So, theoretically, the overall preference for specific sorts of financial could be appointed as being a relevant factor in the reluctance of the Colombian authority to accept the use of Bitcoin.

However, an insight can be raised regarding the regulation of bitcoin in Colombia. It is common sense that unfortunately Colombia

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\(^{21}\) *Idem*, page 2.


has had serious difficulties in dealing with organized crime, paramilitary forces and drugs trafficking.\textsuperscript{24}

On the other hand, bitcoin has also been unfortunately associated with illegal activities worldwide\textsuperscript{25}, more specifically, with the former SilkRoad website\textsuperscript{26}. So, considering both elements, it is possible to raise the idea that the Central Financial Authority of Colombia was much more concerned with the possibility to have bitcoin being used as a mean to support drug trafficking and paramilitary activities, rather than a discussion on the metaphysical distinctions between fiat money, legal tender and virtual currency.

In fact, the Superintendence mentioned the illicit activities that could be supported by bitcoin in its statement\textsuperscript{27}. But the Colombian authority only cited this specific aspect of bitcoin as one more element to avoid it, amongst so many others. However, considering the relevance of the drug trafficking in the political context\textsuperscript{28}, it is pos-


\textsuperscript{26} Bryans, Danton. Bitcoin and Money Laundering: Mining for an Effective Solution. Available at: http://ilj.law.indiana.edu/articles/19-Bryans.pdf Accessed on December 1\textsuperscript{st}, 2014. See pages 448, 449.

\textsuperscript{27} Financial Superintendence [...], Supra. Second paragraph, on page 2.

\textsuperscript{28} AMERIPOL – Comunidad de Policias de América. Análisis Situacional del Narcotráfico: Una perspectiva Policial. Bolivia, Brasil, Colombia, Ecuador, Panamá y Perú. [AMERIPOL – The Police Community of the Americas: Drug dealing situation’s analysis: A police perspective. Bolivia, Brazil Colombia, Ecuador, Panama and Peru] Available at: http://www.fjiapp.org/pdf/publica-
sible to infer that this was the relevant factor in the strong restriction of bitcoin in Colombia.

Another interesting aspect in the Colombian approach is that under the statement, the payments are not supposed to occur with bitcoins, so that their use in guns purchase and drugs would be prevented, but the use of bitcoin for investment and speculation purposes would still be possible.

Overall, the regulation of bitcoin in Colombia seems to be very coherent with its financial policies, that is, trying to avoid any instrument that could be used to finance paramilitary groups, but at the same time, leave the possibility for private investment initiatives and, also start-ups.

2.3 Bitcoin in Brazil

A special focus has to be given to the regulation of Bitcoin in Brazil. That is because Brazil is the leading financial market in South America\(^ {29}\), it is the home for the biggest banking institutions in South America\(^ {30}\) and it also plays a central role in the leadership of the South American continent\(^ {31}\).

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As it comes to bitcoin regulation, it seems that the main debate is around the concept of bitcoin as an ‘electronic currency’ and which are the entitlements of bitcoin holders under domestic law. This debate deals with two main issues under domestic regulatory policy, which are the regulatory inflation and the confusion that it creates and also the conflicts of regulatory powers of different regulatory bodies.

As it is going to be suggested, it is completely impossible to define which law is applicable to bitcoin, due to constant conflicts of regulatory authorities. Moreover, even though it is technically impossible to define what is the status of bitcoin in Brazil, it is absolutely clear that it is subject to taxes, as any other asset in Brazil.

### 2.3.1 The regulatory overview: Early legislative history and how the uncertainty began

The situation of the regulation of cryptocurrencies and virtual money begins much time before the creation of bitcoin in 2008. More specifically, the debate non-hard versions of money or assets began in the late 90s, especially in the realm of money laundering prevention.

Just like many other nations, Brazil was not legally prepared to deal with a series of new financial instruments that came typically in the 90s, like credit card or other electronic means. In order to better deal with that scenario, the Legislator promulgated the Law 10,214

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of March 27, 2001, which created the *Brazilian System of Payments*\(^{33}\).

One of the main contributions of the referred law was the distinction between methods of payment that primarily encompass ‘regular’ payments, including credit and debit cards, from the ones with investment purposes. The last are subject to securities and exchange regulations\(^{34}\).

At this point, nothing necessarily relates to the cryptocurrencies themselves and the referred regulation was enacted much before their creation. However, as more payment methods became common in the 2000s, with the rise of the internet tools to make payment and e-commerce, the referred regulation was becoming obsolete. Many regulations were being issued by the Brazilian Central Bank but the subject was not uniform\(^{35}\).

Then, specifically considering the “virtual storage” of money and in order to give regulatory power to the Brazilian Central Bank, the Legislator approved the Law 12,865 of October 09, 2013\(^{36}\). This law gave regulatory powers to the Brazilian Central Bank system


\(^{34}\) *Idem*, Articles 2 and 9.

\(^{35}\) Historically, the Central Bank has been hugely criticized for its inconsistency in very fields. For instance, its inconsistency also touches the exchange policy, swaps, etc. See: Hegedus Neto, Julio. *Respostas contraditórias do Banco Central*. Available at: [http://imil.org.br/artigos/respostas-contraditrias-banco-central/](http://imil.org.br/artigos/respostas-contraditrias-banco-central/) Accessed on December 05, 2014.

by simply including the concept of ‘electronic currency’ into the aforementioned National System of Payment\textsuperscript{37,38}.

The mentioned law also came up with its own concept of ‘electronic currency’:

Article 6. For the purposes of the applicable law on the [...] Brazilian System of Payment, it will be considered that: [...] 

VI – electronic currency – [is] any resource stored in device or electronic system that enables the user to make a final payment transaction. [Author’s Translation]

After the promulgation of the mentioned law, the bitcoin community both in Brazil\textsuperscript{39} and in the rest in the world\textsuperscript{40} went euphoric about the status of cryptocurrencies in Brazil. Also, in a special

\textsuperscript{37} Idem, Article 6, Head.

\textsuperscript{38} As for the object of regulation of the mentioned law, it is necessary to make an important observation. The law enacted is in the category of ‘multiple matter’ law, meaning that its articles cover very different issues and not necessarily only one matter. So, for curiosity, the law that disciplines ‘electronic currencies’ in Brazil also regulates Sugar Cane Production, Credit for the production of Ethanol, Ethanol production tax interests, the inheritance of licenses of beach vendors, calculation of imports tax and other 13 completely allocatory issues, described at the head of the legal text. So, for an unfamiliar reader, the legal text might be misleading.

\textsuperscript{39} At that time there were no well structured website with news and documentaries on bitcoin. So the main Bitcoin website in Brazil, “bitcoin.ta.lk” had a specific forum for this subject, entitled Nova lei legaliza bitcoin no Brasil. The forum, had many optimistic views on the new Law. See: \url{https://bitcointa.lk/threads/nova-lei-legaliza-o-bitcoin-no-brasil.252378/} Accessed on December 04, 2014. See the comments in the first page.

report on the legality of bitcoin worldwide, the Library of Congress stated that Brazil had a specific regulation on bitcoin\(^41\), referring to the Law 12,865\(^42\).

Just as the news on the Brazilian Law spread all over in late January\(^43\), a new big challenge arose to play a role in the regulatory picture of bitcoin in Brazil. It was the Public Statement 25.306 of February 19, 2014, issued by altogether by the President of the Monetary Policy and the Director of Regulation\(^44\).

The Public Statement is very broad. It states that bitcoins are not covered by the Law 12.854\(^45\), that they are not ‘money’\(^46\), that bitcoins present many risks\(^47\) and that the Brazilian Central Bank is monitoring the use of bitcoins in Brazil\(^48\).

However, the debate has not ended, because the statement above has absolutely no legal effects. In order to exercise its regulatory powers over any financial issue, including the National System of Payments and consequently, ‘electronic currency’, the Central Bank

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\(^42\) *Idem*, p. 4.

\(^43\) Note that the Forbes news, the Library of Congress Report and the forum discussions mentioned in the footnotes above are all dated of January 2014, so before the issuance of the Brazilian Central Bank Circular.


\(^45\) *Idem*, paragraph 1.

\(^46\) *Ibidem*.

\(^47\) *Idem*, paragraphs 2 to 8.

\(^48\) *Idem*, paragraph 9.
has to issue a Resolution. Public Statements issued by directors of any department have no legal effect.

The Resolutions, which are able to regulate national law, have in turn to be approved by a specific organism within the hierarchical structure of the Central Banks, that is, the National Monetary Council.49

Besides that, another relevant legal document, which the Central Bank enacted, was the Circular Letter n 3,683.50 It states that the Law 12,865 covers only virtual currency in legal tender.51 However, this Circular Letter was issued disrespecting the rules on the organic structure of the Central Bank, since the National Monetary Council took no participation in the issuance of that Circular Letter.52

So overall, in Brazil, there are a Law, a Public Statement and a Circular Letter that might represent the regulation of bitcoin, but in practice, it is impossible to know what is the applicable law.

This is just a micro-cosmos of the regulatory policy in Brazil. This is characterized by an inflation of legislation, an excess of different regulatory authorities and, ultimately, conflicts of regulatory

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51 Idem, Article 2, Paragraph 1.

52 This also disregards the Law 12,865 itself on its Article 9, which requires the participation of the National Monetary Council in the regulation of ‘electronic currencies’.
powers. That creates uncertainty, it makes the regulatory framework in Brazil very complicated and ultimately contributes to the make the Judiciary in Brazil very slow due to the wide range of legal solutions available.

Currently, there is no single litigation on bitcoin in Brazil to decide which is the applicable law. Moreover, even with all the uncertainty surrounding the legality of bitcoin in Brazil, the bitcoins are, according to the Tax Authority, subject to Income Taxes. This is


Research done in December 05, 2014, at 22:45 p.m. with the keywords ‘bitcoin’, ‘altcoin’, ‘litecoin’, ‘cryptocurrency (criptomoeda)’ and ‘virtual currency’ (moeda virtual) in the platforms of the Federal Justice, State Courts and all the ‘National’ and States Court of Appeals. The results using the expression ‘electronic money’ (dinheiro eletrônico) referred to Credit and Debit Card, as opposed to any sort of cryptocurrency, so that they were not relevant.

The tax authority decision, has not been made publicly available, but it has already been reported by the media. See: Cucolo, Eduardo. *Brasileiro tem que declarar bitcoin; IR pode ser cobrado*. [Brazilian must declare bitcoin; Federal Revenue Tax might be charged] Available at: http://www1.folha.uol.com.br/
very consistent with the greater trend in Brazil of having excessive taxes\textsuperscript{58}.

3. Regulatory overview and their trends

As it has already been showed, the regulatory approaches to bitcoin in Latin America vary substantially. Thus, it is clearly impossible to suggest that there is one main approach on bitcoin regulation in South America. However, governments seem to have a main aspect in common, which is the relevance of their Central Monetary Authorities, as follows.

3.1 Central authority

One interesting aspect of the monetary policy in South American countries is that it tends to be much more centralized on their Central Bank Authorities than in the US, for instance, where bitcoin regulation touches SEC enforcement, Consumer Rights, etc. Most discussions on whether bitcoin is legal or not in South America cover almost exclusively the regulations of each Central Bank. Even in countries that are averse to innovation tend to be properly well structured in their policies and give a clear position on prohibition or authorization of Bitcoins.

That is, for instance, the case of Ecuador, which, as mentioned, is launching its own ‘digital currency’. In their ‘Organic Financial and Monetary Act’ (\textit{Código Orgánico Monetario y Financiero}), there is the express duty on the specific work group (\textit{junta}) to regulate that


digital currency in an exclusive way\textsuperscript{59}. Thus, it is the only policy-maker on that matter.

This position is the same on the jurisdiction of the Central Bank of Brazil, which is the ultimate authority on financial matters, with both regulatory and controlling powers\textsuperscript{60}, even though this institution eventually conflicts with other regulatory bodies, as already suggested. Similarly, in Colombia, any matter that touches the financial system falls within the jurisdiction of their Central Authority\textsuperscript{61}.

\textbf{3.2 An observation: Difficulties in law enforcement}

At this point it is extremely important to make an observation. Even though South American governments might have an organized legislative apparatus and be in conditions to make their position clear on the legality of bitcoin, there is another challenge.

It is the law enforcement as a whole. This issue has already been reported in South America\textsuperscript{62} and deals with the fact that even though a country might be willing to protect or promote a given


\textsuperscript{60} Law 4,595, Idem, Article 9\textsuperscript{e} and following.


entity or person, the government might not be in conditions to enforce its position. This is one more aspect to be taken into account especially for entrepreneurs in South America who might suffer from the lack of remedies or an efficient authority to resort to.

4. Approaches to Regulation: White and Black Bitcoin

4.1 What it is

It is a recent debate within the bitcoin community that bitcoins should split into two categories, white and black bitcoin. The discussion began in a post of the social website Reddit and then other bitcoin holders supported it\textsuperscript{63}.

In essence, the proposal is to divide the bitcoins into the ‘regulated’ and the ‘not regulated’ bitcoins, meaning that the white ones would be traditionally registered in an address and the black ones would not\textsuperscript{64}.

The idea behind it is to distinguish two main groups of users of bitcoins. One group, to become the users of the “white” bitcoins is mainly composed by those who have an entrepreneurial perspective with bitcoins.

This group includes start-ups and individuals who expect a compliance with regulation, especially the ‘Know your Customer Laws’ and, eventually Sate Proposals like the one from New York\textsuperscript{65}.


\textsuperscript{64} Idem.

\textsuperscript{65} Hertig, Alyssa. *Why Bitcoin Mat One Day Split Into Black and White Coins*. Available at: http://motherboard.vice.com/read/why-bitcoin-may-one-day-
The second group is composed by those who see bitcoins as part of a greater ideological cause, that is, the libertarian movement and has ‘cyberpunk’ roots\(^{66}\).

Both White and Black coins would still move in the same space, the P2P Network, but they would not be interchangeable\(^{67}\). Then there would be an indication in the block chain nature of the bitcoin, whether it is black or white\(^{68}\).

### 4.2 Why it is not feasible

The idea of trying to divide all the bitcoins that exist in the block chain seems to be very challenging. Doing that and keeping them in the same system making them not interchangeable seems to be almost impossible. One of the main reasons is because in the very basic notions of how bitcoins work as conceived by Satoshi Nakamoto is that in the Network the transference of bitcoin from one address to another has to be free\(^{69}\), otherwise the verification process, by any member, would be ineffective and bitcoins would be, ultimately, centralized.

Moreover, in order to have the description of all the bitcoins in black and white, an unanimous consensus, from all the bitcoin users would be necessary. That would have to occur all at once, or otherwise there would be three categories of bitcoins, black, white and not specified.

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\(^{67}\) Barnes, *Idem*.

\(^{68}\) *Idem*.

4.3 Why it does not make any sense in South America

In South America there are, as already discussed, trends that turn the regulatory process much more imposing than in the US. That is, amongst other reasons, due to historical, political and cultural factors, but in Brazil, for instance, they are due to dysfunctions in the integration of the participation of the State in the regulation of the economic order.

Also in Brazil, the regulation of securities and other assets has a clear Constitutional Status. More specifically, the constitutional text imposes the legislation on any and all issues related foreign direct investments, foreign securities and remittances. The legal text brings two relevant consequences for the regulatory process in Brazil.

Firstly, in that country there is a duty for the policymaker to legislate on innovative financial tools. Secondly, historically there is not participation of civil society in the policies enacted by the government agencies. A similar pattern, considering the lack of civil society participation in the policy-making within government agencies seems to be present also in Argentina.

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72 Peruzzotti, Enrique. Rendicion de cuentas, participación ciudadana y agencias de control en America Latina. [Accountability, citizen’s participation and control agency’s control in Latin America] Available at: http://cont
As a consequence of both factors, there is absolute no chance for the Brazilian government to agree to legislate over a group of bitcoin holders, that is, the white ones, and waive its regulatory powers over a second group, that is, the black ones.

Moreover, the idea that in the bitcoin world the bitcoin holders would themselves be entitled to decide what would be the object of regulation, v.g., white coins as opposed to black coins, is unrealistic. This seems to be contrary to a wide range of principles of State Powers and Duties of Government for many policymakers, whether, innovative or conservative, left or right oriented.

**Conclusions and Suggestions**

Finally, it seems possible to suggest that there is not a real innovation on the regulation of bitcoin or any other creation with monetary implications. Governments will simply take bitcoin as any other matter to be regulated, consider their overall goals and take into account their main concerns.

This could be illustrated by considering the highly interventionist policy from Ecuador, which banned bitcoin; the substantial concerns on illegal activities from Colombia and their restrictions on bitcoin; and finally, the uncertainty in the Brazilian Law, which also affects the bitcoin regulation, as well as their readiness in taxing.

Considering the scenarios presented, it is possible to find connections with the overall monetary policy, political approaches of Governments and the outcomes of regulation of cryptocurrency.

It has been found that there is no uniformity in South America, instead, the regulatory approaches substantially vary. But it is possible to suggest that, whatever regulatory outcome a government

[no.com/node/126 Accessed on November 28, 2014.]
takes, it will be likely to come from a Central Bank Authority regulation, and not many different policymakers.

Also, it is possible to suggest that considering the current scenario in South America, policymakers are not likely to establish a dialogue with the bitcoin community and accept the split of bitcoin into black and white. This seems to be a very unrealistic solution for the bitcoin regulation in South America.

Finally, it is possible to suggest that, where there is not a bitcoin regulation yet in South America, a given government will adopt its main goals in order to regulate (or not) cryptocurrencies. That makes the regulation of bitcoin considerably predictable, or at least, not a surprise. In conclusion, cryptocurrencies might be a highly innovative creation, but governments’ regulations are not.
BITCOIN AS SEEN BY THE PRIVATE LAW

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Abstract: Bitcoin, the most widely known digital currency is problematic for modern legal systems. Problems vary from its use to pay for illegal merchandise to the problems related to taxation of transactions and investments with use of bitcoin. Bitcoin gained worldwide fame through scandals such as the theft of bitcoins worth one billion US dollars US (Mt. Gox) and exchange activities of illegal goods and services, known as the Silk Road. On the other hand, the story of its relation to the private law is a quiet one. It is a proposition of this paper, that private law – especially Polish civil law – does not require substantial change as it provides an almost complete framework for the commercial with use of Bitcoin.

Keywords: bitcoin, contract law, civil law, private international law

Introduction

Emergence of bitcoin on the international legal scene is seen by many as a challenge to courts and legislatures. The proposition of this paper is that private law does not require substantial change because of the invention of cryptocurrencies. This paper relates to Polish civil law; however, it is certain these observations will remain to a large extent applicable to other civil law systems. Also, the ability of private law to deal with social phenomena such as cryptocurrencies does not transpose to other fields of law; especially tax and criminal law.

Bitcoin, in contrary to money emitted by the state is not a legal tender, nor is it created by any legally regulated organization. Bitcoin is created in a process called “bitcoin mining”, which is conducted by persons and organizations disposing of huge amounts of computing power. This computing power is used to provide functioning to the bitcoin system for which bitcoin miners receive bitcoins as an incentive. The process of mining is probabilistic; the miners get a certain probability of payment, the size of which is dependent on
involved computing power. The details of the working of the Bitcoin system have been described in the article by the anonymous creators of the system, appearing under a pseudonym Satoshi Nakamoto.¹

From perspective of a Bitcoin user the system uses two pieces of information: (1) wallet address (e.g. 1JArS6jzE3AJ9sZ3aFi-j1BmTcpFGgN86hA), (2) private key (e.g. E9 87 3D 79 C6 D8 7D C0 FB 6A 57 78 63 33 89 F4 45 32 13 30 3D A6 1F 20 BD 67 FC 23 3A A3 32 62). Private key allows signing of transactions, while wallet address allows anyone to check if the transaction was signed with the private key pertaining to this particular wallet address. In cryptography wallet address would be called a public key. Bitcoin transaction therefore consists of two wallet addresses and is electronically signed with a private key bound with the outgoing wallet. Receiving bitcoin requires no action on behalf of the person disposing of private key of the receiving wallet.

The above mechanism shows, that the knowledge of private key gives complete factual power over a certain bitcoin wallet. Private keys are thus subject to great protection on part of bitcoin users. Unauthorized access to the private key allows one to gain control over Bitcoin units. The control over a given wallet is purely factual, but may serve as a powerful evidence of entitlement in a civil trial.

**Bitcoin as an object of absolute rights**

Bitcoin unit is certainly not subject to the protection of property law. Property law refers only to things understood as a separate part of nature. This is due to the factual nature of the Bitcoin system, which makes it clear that a Bitcoin unit is not a thing – as under-

stood by the rules of property law\(^2\). None its features allow it to be considered as a separate material part of nature. Still it is quite common to talk about possession of Bitcoins, while it would be more precise to talk about the ability to control certain Bitcoin wallets.

Exclusion of Bitcoins from the category of things requires to answer more questions about their possible inclusion in other categories of object of absolute rights (absolute rights are defined as the rights which enable their subject to require everyone to refrain from infringing the right; as opposed to relative rights which are effective only against specific people, e.g. contractual rights). Bitcoin also cannot be considered to be the object of protection of intellectual property rights. First of all, it is not a direct product of man, on the contrary, it arises as a result of the operation of a programmed computer system; it cannot therefore be considered “a work” within the meaning of copyright law. This conclusion makes it doubtful whether Bitcoin is in general protected by law as an object of absolute rights, as there is no such positive right as a right to units of cryptocurrency. It seems that the issue of recognizing Bitcoin units as the object of absolute rights requires more extensive research as there is a commonly accepted principle of a closed catalogue of absolute rights. There are good reasons to interpret the law in such a way as to allow the existence of absolute rights to units of cryptocurrency. Mainly, the natural right to include the results of one’s work in one’s patrimony.

**Bitcoin as a protected interest**

Bitcoin was invented to be a currency: “a purely peer-to-peer version of electronic cash.”\(^3\) Nevertheless it is commonly viewed as a

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\(^3\) Nakamoto, “Bitcoin,” 1.
type of commodity and not a kind of cash. Money should possess a few characteristics which Bitcoin does not possess. Firstly, money should be a means of exchange. Secondly, money should be able to store value. Thirdly, money should be able to function as a unit of account. Bitcoin does not do any of those very well. Bitcoin has a relatively small volume of exchange in relation to currencies like USD of EUR (by a factor of approx. 70.000).4

Also, it is viewed by its user mostly as an investment and speculation instrument, not as a means of exchange. Interestingly, some Bitcoin users view it as such a great investment they hold it in spite of a thousand-fold increase in its price; it is estimated 47 individuals own 30% of all Bitcoins.5 Bitcoin is also believed by some to be susceptible to theft, thus not a good store of value.

One caveat is that the ECJ considered Bitcoin to be similar to money for the purposes of interpretation of tax law. Because of this interpretation transactions of exchange from cryptocurrencies to currencies were exempt from VAT.6 Also, for purposes of taxation Bitcoins are considered as property in some legal systems.7

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Bitcoin does not exist in the same sense as a tomato exists. It exists as a series of transactions saved in cryptographically protected memory of multiple computers. Humans are not so much interested in owning those transactions, but are interested in having access to them by means of private keys. Still, a private key is not a thing in civil law but a person is allowed to possess secret information and to protect it. It is just the mere opinion of market actors about Bitcoin – that is possesses value – which allows us to consider control over a private key to be an economically beneficial state of affairs. Such economically beneficial state of affairs can be considered legally protected interests – but one would have to seek norms at the constitutional level. Positivist interpretation of the Constitution does not allow to derive legal protection of Bitcoins directly. It does, however, allow to deduce (see Article 64) a request to the lawmaker to regulate new elements of economic reality as long as they are not contrary with other principles of economy.

**Bitcoin transfer as a performance of an obligation**

Despite the above-mentioned doubts, transferring a Bitcoin unit from one wallet to another could be considered a performance of an obligation (as defined by Article 353 § 2 of the Polish Civil Code). The transfer of a Bitcoin unit is, in fact, a human behavior and, as lawful, it may constitute an object of an obligation. Although Bitcoin units do not constitute relative rights their transfer is an object of a relative right.

The principle of freedom of contract makes it much easier to talk about Bitcoins in terms of an object of relative rights as opposed to discussing its nature as an object of absolute rights. According to the principle of freedom of contract parties may assume any obligations as long as they are not contrary to the law or rules of social conduct. It is still the transfer of cryptocurrency units which consti-

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tute the object of relative rights and not the units themselves. On the margin, it is worth to mention Bitcoin transfer would lose the function to serve as a way to perform an obligation if any provision prohibited Bitcoin trade.

Bitcoin transaction, viewed as one of the performances in a contract follow the rules of Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I). As a general rule Rome I allows the parties of any contract to choose law governing it. In absence of choice of law by the parties the Article 4 to 8 express the rules which apply varying based on the type of nominate contract. The application of those rules requires further research, however, it is possible to formulate introductory postulates on how to apply them. Firstly, in cases where the relation resembles a nominate contract, the only difference being that cryptocurrency is used instead of money, the same rules of private international law should be applied as if the contract used “traditional” money. Secondly, in cases where the cryptocurrency is being used in a manner similar to a financial instruments, the rules should treat cryptocurrency transfer as the specific object of an obligation and thus apply the rules accordingly.

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