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An overview on enterprise networks and company performance

James Onuche Ayegba, Zhou Lu Lin

ABSTRACT

Objective: This study elucidates the empirical review of enterprise networks on company performance.

Research Design & Methods: Enterprise networks are also referred to as corporate network which is among the major pillars of any business. The importance of enterprise networks cannot be far-fetched from or beyond its evolving supports through encapsulation of software applications, databases, for the purpose of achieving fully business goals.

Findings: The empirical covers the essence of enterprise networks, reasons for enterprise networking in company performance, formation of enterprise network, the management of enterprise network, and the interplay between enterprise network and company performance. It was concluded in the previous studies that performance of enterprise networks could entail enterprise network survival, profit maximization, sales maximization, return on investment, sales growth and a number of employees.

Contribution & Value Added: Hence, it is affirmed in this study that enterprise network performance is a set of financial and nonfinancial indices which offer information on the extent of achieving aim, objectives and better outputs of the enterprise network.

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INTRODUCTION

An enterprise network is an enterprise's communications backbone that creates connection between computer and devices among enterprise's workgroup and department's networks; helps facilitate accessibility data and give knowledge to its use. This networking help reduces communication protocols, device interoperability and facilitate system, es-

pecially important in view of the decentralization trends in today's organizations where the network must play a unifying and integrating role, as well as improved external and internal firm data management. (Wynkeoop *et al.*, 2001)

An enterprise network can also be called corporate network. It is one of the pillars of a business: it helps support evolving and existing applications, databases, while helping to fully business goals reliably, and be adaptable and accessible. Organizations' applications development problems are not as great as the infrastructure problems (Kern *et al.*, 2000). An enterprise network is an enterprise's relay system that helps related devices and connect computers across departments and workgroup networks, to facilitate easy access to data and give a good insight.

Enterprise networking facilitate system that eases communication protocols and systems interoperability, as well as increase external and internal enterprise data flow management (Techopedia.com) The various companies which implement the enterprise network system are Apple, Amazon, Arista, and Citrix (Networkworld.com). The system of an enterprise network support thousands of users all across the company's at the diverse location geographically. It may involve various switches, routers, and server. Each location system looks simply, but the complexity of the increasing network even as the systems are linked together in the topology. Enterprise network system increases the data transmission rate across the globe. The key requirement of the enterprise network system is performance (bandwidth, delay and jitter) and security (access and transmission).

Over the years, business enterprises have been witnessing unparalleled and exceptional degree of transformation, conversion, intense and forceful competition, and tumultuous environment globally. These transformations emanate as a result of market fragmentation, changing technology, dynamic management, the convergence of different business enterprises, supplier attitudes, changing customer demands, changing customer expectations, reduced life cycle of product, etc. which have direct and indirect implication on business performance. According to Ahmad *et al.* (2014), business enterprises are encountering significant challenges because of the dynamic attributes of business enterprise itself, the market, and environmental circumstances.

In fact, in the current and widespread competition and challenging economic circumstances, a practicable, feasible, dynamic, and forceful enterprise networks is vital to the economic improvement of a particular country (Zahra *et al.*, 2006). In the same vein, Ahmad and Pirzada (2014) noted that enterprise networks are known to be the mechanism of growth and development which has significant roles in the establishment of laudable economic development.

It is believed that this approach is capable of giving a plausible result and the result will be added to the body of literature. performance of enterprise networks for the growth and fortification of the economy. Zhu *et al.* (2013) noted that however, enterprise networks are faced with many challenges and uncertainties in the competitive business environment and inauspicious circumstances in recent years. These have resulted into the challenges of superior and improved business performance.

According to Kayode (1989) enterprise networks are the heart of any economy. Its importance to the growth and survival of the economy cannot be overemphasized. Enterprise networks play a crucial role in the economy of most countries. In the study, it was stated that the proceeds are oftentimes products offered to customers that result into

profit making when pooled together by the owners of enterprises networks. Obisi (2013) in his study, it was added that the enterprise networks all over the world would continue to be the engine of development and industrialization.

Recently, much attention has been paid to the lack of knowledge about how information systems are actually developed and how system development methodologies are adapted or used (Adeniran & Olorunfemi, 2020; Wynekoop *et al.*, 2001) little focus has been given to networking using wide area networks (WANs) are actually designed (or redesigned) or to the methods used to do so. The aim of the study is to elucidate the empirical review of enterprise networks on company performance as it is among the major pillars of any business.

LITERATURE REVIEW

The Essence of Enterprise Network

Enterprise network can be referred to the virtual, physical and logical design of a network, and how the various software, hardware and protocols work together to transmit data. When it comes to enterprise networking, every organization has several and divers' needs, and in the digital era of which has led to several changes, modern enterprises are investing and depending more on software-based solutions to enable effective network architecture, automation and design. Firms of different sizes are starting to avoid exuberant fee network management tools cost. No doubt the tools have essential functionality, but are it justifiable to spend so much on them?

In our hyper-connected world, a stable, reliable network is regarded as a necessity, and the consequences of an unreliable network are only getting more severe. According to Gartner, the estimated cost of a downtime in network is 5,600 USD per minutes, which can get much higher for technology-dependent organizations. As the firms networking architectures grow more complex, many organizations then find it difficult to keep up. But with several networking solutions the process can be simplify, with solutions like automated campus, unified wired/wireless infrastructures, and agile data centre networking solutions.

Company Performance

The concept of performance of a business enterprise network is based on the premise that an organization is the voluntary association of dynamic assets, as well as physical, human, and capital resources, for the aim of realizing a shared purpose (Carton, 2004). Performance is one of the most applicable variables in strategic management; a construct commonly used as the final dependent variable in various fields. It is believed that the quintessence of performance is the value creation; therefore, value creation is defined by the resource provider as the indispensable tool for general performance measures for any organization (Monday *et al.*, 2015).

Performance measurement is indispensable to enable managers evaluate the unambiguous actions of their enterprise networks, and how the enterprise networks perform over time (Sabina, 2009). The concept of performance has been widely examined by different authors from different perspectives, and consequently there is no consensus on a particular definition. According to Gavrea *et al.* (2011), organization will be able to survive

if and only if performance is assessed. Performance measurement is the heart of any organization. A business organization could measure or determine its performance by adopting the financial and non-financial measures.

Moullin (2003) defines performance in terms of how well an organization is managed and the value the organization delivers to customers and other stakeholders. In the view of Laitinen (2002), performance is the ability of an object to produce results in a dimension determined a priori, in relation to a target". Jamil & Mohamed (2011) also define performance as the measure of how managers utilize resources of the organization in an effective and efficient manner to accomplish goals and satisfy stakeholders while Richard *et al.* (2009) also noted performance as real output against expected output which they categorized into financial performance, product market performance and shareholders return. Adeniran & Olorunfemi (2020) identifies performance as the reflection of how the organization uses its resources in such a way that will make certain the accomplishment of its set objectives.

Reasons for Enterprise Networking in Company Performance

The Enterprise Network System would function efficiently throughout its span of service without any compromises such as lags, delays and jitters. It follows protocols which reduces the downtime which is very essential for any enterprise to function profitably. Enterprise Network also help facilitates communication between two clients and is also responsible for an exponential growth of the business of the firm.

The use of VLAN (Virtual Local Area Network) provides the network an idea of confinement of network reduction of broadcast traffic. And the transfer of messages is done at a faster rate using EIGRP (Enhanced Interior Gateway Routing Protocol) routing protocol. SSH (Secure Shell) is also use by companies to provide a secure remote access to a network and also an ease for administration throughout the system.

For the Networking to work well it needs an efficient handler for the enterprise network system since it is complex in structure. Majorly large business embraces this for their performance because its cost of implementing the networking across the different zone can be high. This can still lack robustness if the core file server of a network fails, it might lead to failure of the whole network.

Enterprise Network Formation

According to Pittaway *et al.* (2004), there are two explanations for the formation of business networks. The first explanation focuses on a resource view according to which firms form network relationships to obtain access to technical or commercial resources (Ahuja, 2000). The second explanation is on a theory in which prior relationships facilitate linkage formation (Ahuja, 2000). In addition to these two primary explanations, prior studies have found several other positive implications of networking (Pittaway *et al.*, 2004).

For instance, network relationships can provide emotional support for entrepreneurs who assume risks and thus increase the desires of entrepreneurs to continue conducting business (Hoang & Antoncic, 2003). They further noted that entrepreneurs can also use networks to gather information, ideas, or advice. More importantly, small business owners can gain access to research and development (R&D) outsourced by major firms; establish joint R&D ventures; and establish other relationships, such as marketing or manufacturing relationships. In conclusion, networks are formed to gain access to resources and support.

Management of Enterprise Network

Enterprise network management is a key aspect of networking, and the types of network management affect the types of network ties. When there is a relationship between actors evolves from a weak tie to a strong tie over time, the actors within this relationship eventually trust one another, and the relationship provides an effective channel for information flow (Larson, 1992).

Uzzi (1997) finds that trust is especially likely to develop when both sides devote additional effort (typically voluntary effort) to a relationship. This additional effort is typically described as 'favours', as official reciprocity (e.g., contracts) cannot be observed. In addition, Uzzi (1997) alleges that a trust-managed relationship offers access to otherwise unavailable resources that can increase competitiveness. Information flow that is based on trust has been shown to be an integral aspect of a strong, long-term inter-firm relationship (Siwangaza *et al.*, 2014). Reliance on strict contracts rather than trust between actors has been shown to depend on the culture and the institutional context in which firms operate.

In the study of Larson (1992), a typology of three distinct governance mechanisms for relationships between organisations was proposed: shared governance, a lead organisation-governed mechanism, and a system that is controlled by NAO (Network Administrative Organisation). The shared governance method assumes that the organisations in a network manage the operation of the network by making both strategic and operational decisions together; therefore, no formalised governance body exists. Lead organisation-governed networks typically have one larger or more powerful firm that operates as the lead or hub firm. All of the firms in such a network share a common purpose, but only the lead firm may have the resources or legitimacy that is required to serve in the lead role in the network. NAO-governed networks are comparable to lead organisation-governed networks, as both types of networks are managed by one central organisation. In contrast with lead organisation governance, the controlling organisation in NAO-governed networks has only a pure governance role.

Additionally, Provan *et al.* (2004) observe that the NAO model is common in some European countries (e.g., Germany) because this type of network is believed to simulate interactions between the public sector and the private sector in clusters or networks. The study of Prashantham & Dhanaraj (2010) review innovation and networks, and concluded that enterprises have the competence to manage their networks, but the level of competence varies widely across enterprises. Additionally, the extent to which firms have access to new opportunities is connected to their existing networks and participation in those networks.

MATERIAL AND METHODS

This method adopted in this study was solely on empirical review. This enhances the consolidation of research facts from earlier studies on the subject matter.

Empirical Review of Enterprise Network and Company Performance

There has been no systematic study of how enterprise networks correlate to company performance (and little coverage in the trade covers). Although telecommunications as evolve and naturally outgrowth this function in businesses, it is not necessarily sound in

today's decentralized and changing business environment (Segars *et al.*, 2007). Activities observed by Matias & Andrade (2012), enterprise networking connection can be felt on a company's performance and the internalization of the enterprise. Matias explained that the question of whether the concept of network activity should be divided into two separate factors: consistently high network activity; and increasingly high network activity.

Consistently high network activity describes long-term embedded relationships, and increasingly high network activity describes the importance of the creation of new relationships and ties. The first factor describes a situation in which network activity does not substantially evolve. By contrast, the second factor describes a process in which the network size increases as the needs of the focal actor evolve, and the increase counteracts decreases in social capital.

Prashantham & Dhanaraj (2010) specifically emphasise is the importance of networking when a firm internationalises its activities. Moreover, Wright *et al.* (2007) imply that entrepreneurs must establish network connections to secure access to appropriate resources, knowledge, and learning to form 'a positive platform for internationalisation'. In addition, Andersson & Wictor (2003) suggest that entrepreneurial networks are essential assets for ventures that are attempting to internationalise their operations. Furthermore, Ojala (2009) proposes that knowledge-intensive SMEs form new network relationships or utilize existing relationships when extending their market presence to new distant markets. In conclusion, the above discussion suggests a positive connection between activity in entrepreneurial networks and internationalisation. Hence, there is expected positive connection between network activity and enterprise's internationalisation.

The design and management of enterprise networks is technologically complex, and it observed that only a few people can understand even a single networked information system. Because of the complexity and enormity of the task, even fewer people would be able to study more than one such system, resulting in a poor understanding of what practices will reduce or eliminate design and implementation errors or allow networked systems to be designed to offset these errors (Macey & Schneider, 2008).

The planning and control of many enterprise networks are entangled with the challenge to perk up their performance and pact with the changing dynamics of competitive arena (Waithaka, 2016). Enterprise networks have a crucial role in the daily living, and successful enterprise networks are germane ingredients for developing nations like Nigeria. Practitioners and academics endeavour to be aware of and explain the differences in enterprise network performance in the face of the complexity of the market, competitive pressures and uncertainties. Enterprise networks must be able to adapt with the increasingly challenges from the business environment, in order to boost their capacity to adapt (Gavrea *et al.*, 2011). The concept of performance of a business enterprise network is based on the premise that an organization is the voluntary association of dynamic assets, as well as physical, human, and capital resources, for the aim of realizing a shared purpose (Barney, 1995; Carton, 2004).

According to Cho & Pucik (2005) Richard *et al.* (2009), enterprise network performance is one of the most applicable variables in strategic management; a construct commonly used as the final dependent variable in various fields. It is believed that the quintessence of performance is the value creation, therefore, value creation is defined by the resource provider as the indispensable tool for general performance measures for any organization

(Monday *et al.*, 2015). The concept of enterprise network performance has been widely examined by different authors from different perspectives, and consequently there is no consensus on a particular definition. According to Gavrea *et al.* (2011), continuous performance is the heart of any organization which is established only through performance, and the organizations are able to survive. A business organization could measure or determine its performance by adopting the financial and non-financial measures.

According to Olabisi, Olagbemi & Atere (2013) enterprise network's performance is complex, and is characterized by the enterprise network's ability to create acceptable outcomes and actions. According to Adeleke, Ogundele & Oyenuga, (2008), an enterprise network is said to achieve an effective performance if it makes use of its resources to attain high level of performance. They also noted that enterprise network is that a business enterprise network that is effective if it attains its sales or market share goals which depend on efficiency. Moullin (2003) defines enterprise network performance in terms of how well an organization is managed and the value the organization delivers to customers and other stakeholders. In the view of Laitinen (2002), enterprise network performance is "the ability of an object to produce results in a dimension determined a priori, in relation to a target". Jones and Goerge (2006) also define performance as the measure of how managers utilize resources of the organization in an effective and efficient manner to accomplish goals and satisfy stakeholders while Richard *et al.* (2009) also noted performance as real output against expected output which they categorized into financial performance, product market performance and shareholders return.

CONCLUSIONS

This study elucidates the empirical review of enterprise networks on company performance. Enterprise networks are also referred to as corporate network which is among the major pillars of any business. Performance is an approach that is used in assessing the progress made towards achieving goals, identifying and adjusting factors that will reduce the progress of the organization in the environment. Enterprise network's performance is complex and is characterized by the enterprise network's ability to create acceptable outcomes and actions. Organization achieves its goals by transforming inputs into output at the lowest possible costs. An organization that has the tendency or strength of doing this can be linked to be performing. From the empirical review, it was found that the significance of enterprise networks cannot be far-fetched from or beyond its evolving supports through encapsulation of software applications, databases, for the purpose of achieving fully business goals.

It was concluded that enterprise performance could enhance enterprise network survival, profit maximization, sales maximization, return on investment, sales growth and a number of employees. This study perceives enterprise network performance as a set of financial and nonfinancial indices which offer information on the extent of achievement of aim, objectives and results of the enterprise network. This study is limited to the whole of enterprise network and company performance. Future studies may breakdown the indicators of enterprise networks and the indicators of company performance for simplicity.

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Income statement as an assessment tool of an airport operator: A case study of Polish airports

Wojciech Augustyniak

ABSTRACT

Objective: This article aims to show the characteristics of airport finances and its implications for operational management. It presents comparative case study analysis and tools to evaluate income statement data as a basis for assessment of the financial condition of an airport operator.

Research Design & Methods: The paper is divided into three parts. The first one focuses on the characteristics of airports' typical revenue structure and its operational consequences to the managerial board. It is discussed how to resolve infrastructure bottleneck problems with financial techniques. The second part is devoted to the operational cost analysis with an attempt to check whether popular hypotheses concerning airports' finance specifics apply to Polish regional airports. The analysis examines the elasticity of fixed costs regarding the number of passengers served. The last part of this paper contains a break-even point analysis of Polish regional airport as a benchmarking tool of comparative analysis.

Findings: An analysis of costs at Polish airports was carried out confirming the thesis about a very high share of fixed costs in the total operating costs of aviation activities and its small elasticity regarding number of passengers served. Profitability thresholds at Polish airports were examined, confirming the thesis that profitability is usually achieved after exceeding the 1 mln number of passengers served annually. This number corresponds to annual revenues of about PLN 50 million.

Contribution & Value Added: Investigation of the measures and determinants of airports finance characteristics gives insight into the relationship between infrastructure throughput and break-even point.

Article type: research paper

Keywords: airports; finance; break-even point; operational management; infrastructure bottleneck

JEL codes: G00, G30

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INTRODUCTION

The airport is created to meet the needs of customers, using human and capital resources in such a way to provide income to owners, on one hand, prosperity and development to the region on the other. Each of these elements requires separate analysis and is subject to management. The needs of recipients are examined employing a quantitative and qualitative analysis of demand and its results support making decisions about what services and at what price to offer. The economics of the company provide knowledge about the effective management of airport resources. Research on the impact of an airport on social well-being and creating both positive (e.g. income, jobs) and negative effects (air noise, air pollution) are carried out mainly using quantitative methods (econometric models, macroeconomic models including general equilibrium models). The assessment of the airport's development phase requires a diagnosis of the actual state of the enterprise. Machaczka (1998) notes that the main reason for the lack of development of the organization is poor management, which results mainly from the lack of sufficient information about the current state of the enterprise and opportunities and threats from the environment.

The functioning of airports in a competitive environment, in which pressure to increase efficiency comes from both airlines and competing airports, as well as changing the strategic position of airports to market-oriented, requires constant investment in development and devoting more and more money to the ongoing operation of the airport. Therefore, it seems that for both owners and managers of airports, the ability to assess the company's operations should become an increasingly important area of interest. It is a starting point in the decision-making process regarding both the current functioning of the airport (operational management) and its future development (strategic management). The purpose of this article is to present and evaluate the usefulness of data from the profit and loss account for the comparative assessment of airports' operations. A break-even point analysis of Polish regional airports is presented as a case study supporting the objectives of the paper.

THEORETICAL BACKGROUND AND EMPIRICAL FINDINGS

Information on the costs and revenues of an airport are the basis for the management of an enterprise, regardless of the formulated function of its business purpose. Cost analysis makes it possible to assess the quality of the process of creating services at an airport. The price level for services has an impact on the market exchange process. The main source of airport financing should be its funds derived from revenues generated by the airport (Tłoczyński, 2011).

The source of the airport's revenues are revenues for air and non-aviation services. According to the Aviation Law Act (Ustawa prawo lotnicze, 2002) and the Regulation of the Minister of Infrastructure and Development on airport charges (Rozporządzenie Ministra Infrastruktury i Rozwoju, 2014), Polish airports may or may not charge airline fees for standard services, i.e.

- take-off or landing fee;
- parking fee;
- passenger charge;
- freight fee;

- noise fee;
- security charges.

The above-mentioned set of charges to some extent reflects the way costs are generated at the airport. Part of the cost (e.g. maintaining the terminal in the long run) depends on the number of passengers served. Other (e.g. maintenance of the runway, taxiways, and parking stands) depends on the number of aircraft served and based.

It is worth noting that the dynamics of airport charges may reflect the degree of use of various airport infrastructure elements. Decreasing MTOW (Maximum Take-off Weight) fee dynamics (regressive rate) may indicate low runway capacity inventory, and terminal capacity high capacity inventory. In turn, the progressive MTOW rate may suggest the opposite situation, i.e. free runway slots while using almost 100% capacity of the terminals. Similar tendencies may show other types of fees, e.g. parking fees depending on the use of apron space. It may be characterized by increasing rates dynamics when there are few free places/slots, and decreasing ones when there are many free places/slots.

An extreme example of an airport with heavily limited runway capacity is London-Heathrow (LHR), which serves over 70 million passengers annually through 5 terminals, and has only 2 runways. For comparison, Amsterdam-Schiphol Airport (AMS) with around 60 million passengers has as many as 6 runways. Based on the data contained in Figure 1, it can be concluded that LHR runways (located in parallel at a distance of 1.4 km from each other) can handle a maximum of 119 air operations per hour. For AMS, this value is at least 2 times higher (not all runways can operate independently of each other). For this reason, the capacity of runways in LHR is so-called “Bottleneck”, and as a result, its free runway time slot is much more valuable than that of competitors.

LHR management, guided by maximization of profits, prefers landing of aircraft that can take as many passengers as possible, because the passenger service infrastructure at these five terminals has a relatively high maximum capacity. Following international regulations, management may not prohibit landing with small light aircraft, but it may effectively discourage their owners by using the price list. It was decided to set a fixed landing fee, which is dependent on the maximum take-off weight of the aircraft. In 2014, this fee was EUR 9196, as shown in Figure 2 and Table 1. This design of the price list means that the owners of small aircraft choose other airports, e.g. London-City, so that terminals in LHR can handle a relatively large number of travellers despite a limited number of runways.

The opposite situation could be seen in the price list of Warsaw Chopin Airport (WAW) from 2013. Apart from the fixed fee for aircraft MTOW not exceeding 5t, the rate from the take-off mass for aircraft up to 40t was slightly lower than for ones over 40t. This could indicate a shortage of runway slots and depleted terminal capacity. In the case of the WAW price list from 2020, you can see a correction in the opposite direction. The fee for each ton of MTOW for aircrafts not exceeding 100t is PLN 40, while for every ton above 100 tonnes it is only PLN 10. This may indicate a dynamic response of the board to the exhausting capacity of runways, the number and layout of which has been unchanged for several decades (according to data from Figure 1, their capacity is up to 60 operations per hour), while the capacity of the remaining elements of the airport infrastructure was recently improved several times, including by expanding the terminal area.

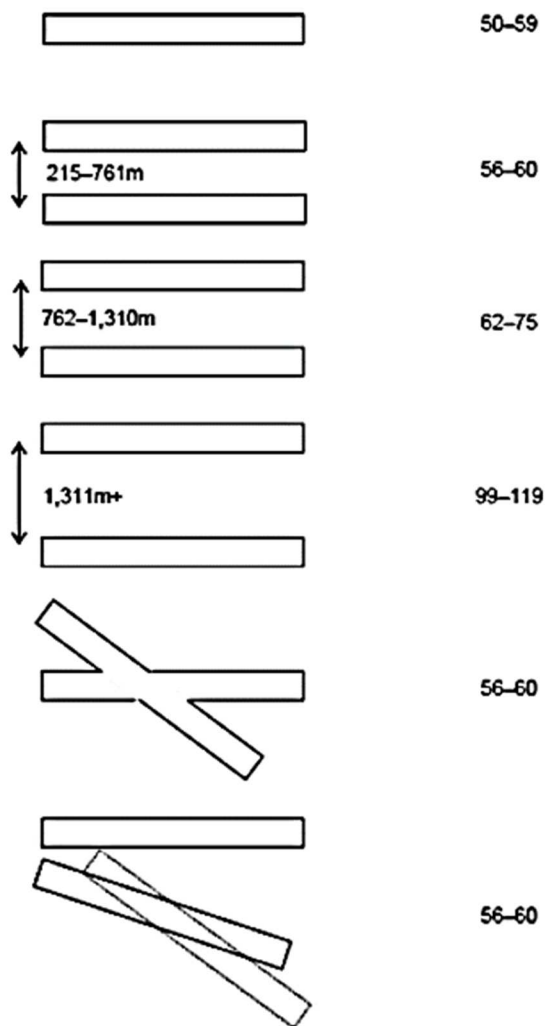


Figure 1. Maximum number of flight operations per hour depending on the runway configuration

Source: (Competition Commission, 2009).

Table 1 presents the calculation of airport charges per passenger and the maximum take-off mass at LHR and WAW airports in 2013. Also, the last two columns include the charge for the maximum take-off mass only. The middle WAW columns EUR and LHR EUR only include landing and passenger charges (PAX) without night and noise fees nor discounts. The table shows, among others, that the Cirrus SR 22 aircraft landing at LHR was up to 100 times more expensive than landing at WAW (9296 vs. 91). For larger aircraft, this difference becomes relatively smaller. For Boeing 737, which is the basis of the fleet of the largest European low-cost Ryanair carrier, the difference is five times. For the Boeing 787 Dreamliner, which become the basis of the LOT fleet, the difference is three times, and for the largest passenger aircraft in the world Airbus A380, the difference is two and a half times.

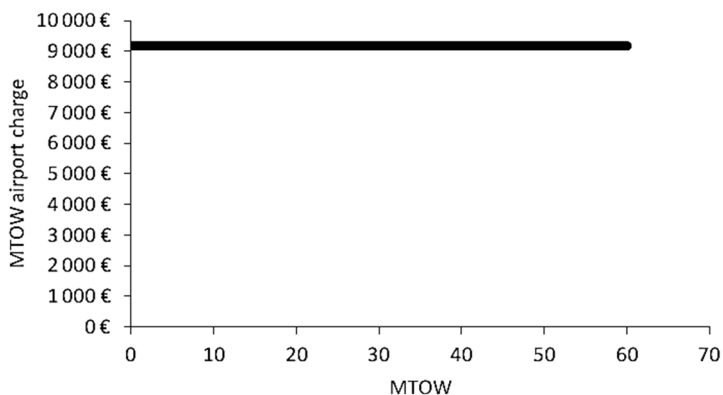


Figure 2. Airport charges calculated on the maximum take-off mass (MTOW) in tonnes at London Heathrow Airport (LHR) in 2014

Source: own elaboration based on the LHR airport charges list (Heathrow, 2014).

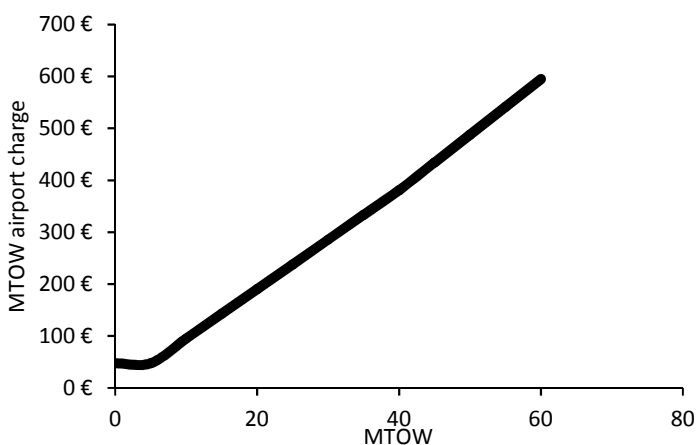


Figure 3. Airport charges calculated on the maximum take-off mass (MTOW) in tonnes at Warsaw Chopin Airport (WAW) in 2013

Source: own elaboration based on WAW airport charges list (Announcement, 2012).

In addition to revenues from aviation activities, revenues from the so-called commercial, non-aviation activities. These are incomes from operations that are not directly related to the operation of aircraft but take place within the terminal or the area managed by the airport. These include (Doganis, 1992; Tłoczyński, 2011):

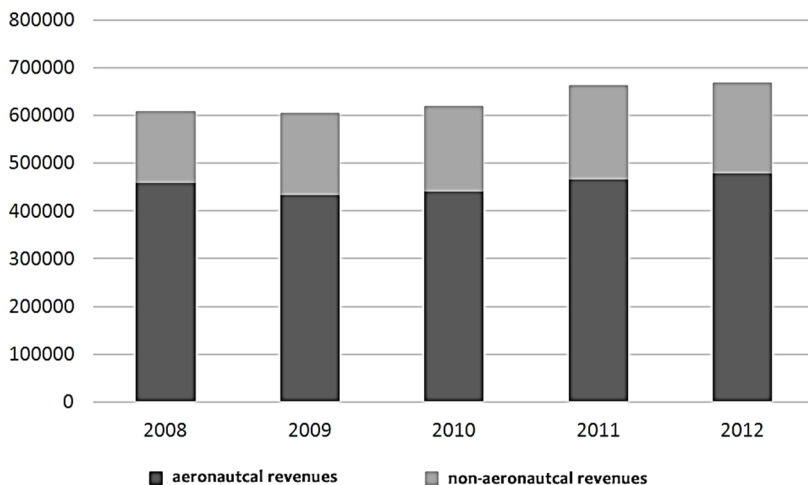
- rents from the leased terminal space for commercial and service activities,
- revenues from car parks,
- rental of advertising space,
- lease of land, offices, hangars and warehouses,
- other activities located in the port area (hotels, conference centres, vending machines, etc.).

Table 1. Comparison of airport charges at Warsaw Chopin Airport (WAW) and London Heathrow Airport (LHR) in 2013.

Aircraft type	MTOW (t)	PAX	WAW EUR	LHR EUR	MTOW WAW EUR	MTOW LHR EUR
Cirrus SR 22	2	3	90,95	9 296,3	47,62	9 196,4
Piper PA34 Seneca	3	4	105,48	9 329,6	47,62	9 196,4
Cessna Citation	7	8	182,38	9 462,8	66,67	9 196,4
Saab 340	14	33	611,43	10 295,1	133,33	9 196,4
ATR ATR72-500 (LH)	23	68	1 204,52	11 460,4	219,05	9 196,4
Bombardier DH8-400 (LH)	29	70	1 290,48	11 527,0	276,19	9 196,4
Bombardier CRJ-900 (LH)	37	86	1 598,57	12 059,7	352,38	9 196,4
Embraer 190 (LH)	48	100	1 915,95	12 525,8	466,67	9 196,4
Embraer 195 (LH)	53	116	2 201,19	13 058,5	520,24	9 196,4
Boeing 737-500 (LH)	63	120	2 366,43	13 191,7	627,38	9 196,4
Boeing 737-300 (LH)	57	140	2 591,90	13 857,6	563,10	9 196,4
Airbus A320-200 (LH)	78	168	3 222,86	14 789,8	788,10	9 196,4
Airbus A320-200 (WIZZAIR)	78	180	3 396,67	15 189,4	788,10	9 196,4
Boeing 737-8AS (RYANAIR)	85	189	3 602,14	15 489,0	863,10	9 196,4
Airbus A321-200 (LH)	94	200	3 858,10	15 855,2	959,52	9 196,4
Airbus A330-300 (LH)	240	221	4 976,67	16 554,4	2 523,8	9 196,4
Boeing 787 Dreamliner (LOT)	250	252	5 479,52	17 586,5	2 630,9	9 196,4
Airbus A340-600 (LH)	368	306	6 894,29	19 384,4	3 895,2	9 196,4
Boeing 747-400 (LH)	397	344	7 600,24	20 649,6	4 205,9	9 196,4
Boeing 747-8I (LH)	443	356	8 020,71	21 049,1	4 698,8	9 196,4
Airbus A380-800 (LH)	560	526	11 111,2	26 709,1	5 952,3	9 196,4

* charges include landing and passenger charges (PAX) only, without night, noise and discounts.

Source: own elaboration based on WAW and LHR price lists (Announcement, 2012; Heathrow, 2014).

**Figure 4. The structure of revenues of the Warsaw Chopin Airport (WAW) in 2008-2012**

Source: Own elaboration based on (Przedsiębiorstwo Państwowe Porty Lotnicze [PPL], 2009; PPL, 2010; PPL, 2012).

Doganis (1992) indicates that in Western Europe and the USA, the emphasis on obtaining revenues from the sale of non-aviation services has been visible since the late 1970s, when competition between large airports began to intensify. In Poland, commercial orientation is noticeable after 2004, when Poland joined the EU, and thanks to the "Open Skies" agreement, the so-called low-cost airlines have started to penetrate the market of Polish regional airports. The entry of new carriers on the one hand has enabled many Polish regional ports to significantly increase passenger traffic and reach the break-even point. On the other hand, "low-cost airlines", due to their high flexibility as to destination choices, benefited from their great bargaining power and often through negotiations led to a strong reduction in unit margins on aviation activities at regional airports. As a result, Polish airports are currently under pressure to increasingly use revenue opportunities from non-aviation activities.

The structure of revenues of the Warsaw Airport in the period 2008-2012 is illustrated in Figure 4. Although the volume and value of services sold increases, the share of non-aviation revenues is stable and amounts to 28-29%. In 2009, there was a 0.7% decrease in sales revenues compared to 2008, which was caused by the effects of the global economic crisis (Table 2). The decrease in the number of passengers had an impact on the decrease in the number of passengers (by 12.2% less passengers in 2009 compared to 2008), and a decrease in the number of airport charges being a response to the expectations of air carriers, who due to the economic slowdown were forced to reduce costs. Aircraft take-off and landing fees have been reduced. A 15% rebate on passenger charges was introduced in domestic traffic. The noise fee was diversified by increasing the rate for flights carried out at night and at the same time reducing it for day hours; the aircraft parking fee was abolished and the exempted aircraft parking time was shortened. Revenues from air services decreased by 5.4%, while revenues from non-air services increased by 14.1% (Table 2). Thus, the decrease in the level of aviation revenues at the Warsaw Airport caused by the decrease in aviation traffic was compensated by increased revenues obtained from non-aviation activities. The increase in the value of sales of non-aviation services in 2009 concerned the increase in revenues from the rental of commercial space and the sale of advertising space (an increase of 62%). The sales of parking services also decreased, which was caused by a decrease in the number of passengers in 2009 (PPL, 2009).

According to Doganis (1992, pp. 54-58), commercial revenues are easier to generate for large airports, in particular those that handle large international transfer traffic, because such passengers spend more time inside the terminal waiting for a change. Other factors that seem to facilitate the increase of commercial revenues are the large area of land owned by the airport, proximity to the city, or other intermodal transport infrastructure (Graham, 2009b). An example is the Poznań Airport company, which owns land located near downtown, but at the same time near the expressway. These lands are leased to carry out activities whose recipients are not only persons using airport services. An example of commercial ventures located near Poznań Ławica Airport is a gas station, a chain restaurant, and a car dealership. It is hard to compare commercial incomes of airports as not every company has possibilities to monetize such valuable assets as above mentioned.

Table 2. Detailed structure of revenues of the Warsaw Airport in 2008 and 2009

	2008		2009		Change 2009/2008
	Value	Share	Value	Share	
Aviation services	460 069	75,7%	435 285	72,1%	-5,4%
take-off/landing fees	142 425	23,5%	124 152	20,6%	-12,8%
passenger fees	248 897	41,0%	243 559	40,4%	-2,1%
aircraft parking	4 813	0,8%	4 930	0,8%	2,4%
noise emissions	21 827	3,6%	15 122	2,5%	-30,7%
providing airport infrastructure	26 236	4,3%	33 539	5,6%	27,8%
access to airport facilities and equipment	13 988	2,3%	12 055	2,0%	-13,8%
others	1 882	0,3%	1 929	0,3%	2,5%
Non-aviation services	147 287	24,3%	168 038	27,9%	14,1%
space rental	85 535	14,1%	101 514	16,8%	18,7%
car parking	21 913	3,6%	18 442	3,1%	-15,8%
VIP lounges, transit hotel	9 991	1,6%	10 863	1,8%	8,7%
advertising and promotion	7 297	1,2%	11 784	2,0%	61,5%
sharing media	8 318	1,4%	10 307	1,7%	23,9%
others	14 232	2,3%	15 128	2,5%	6,3%
Together	607 356	100,0%	603 323	100,0%	-0,7%

Source: own study based on (PPL, 2009, p. 63).

The share of non-aviation revenues at Polish airports is very diverse. In 2011 it ranged from 9% in Rzeszów to 75% in Bydgoszcz. The second-highest share of 60% was recorded at Szczecin-Goleniów Airport. At most regional airports, the value of commercial revenues was approximately 1/3 of the total revenues. A relatively low share was achieved by the main Polish hub in Warsaw, which was only 28%. Companies are reluctant to publish the above data, indicating their high sensitivity and lowering negotiating position with carriers, however, it can be learned from industry sources that in subsequent years non-aviation income increased significantly not only in nominal terms, but also as a percentage as a share in total revenues.

Compared to foreign airports, the average value of non-aviation revenues at Polish airports was significantly lower in 2011 and amounted to 28%. For comparison, airports in the British BAA group recorded a share of revenues from commercial operations on average of 33%. In this mature market, these values are not as diverse as airports, because deviations from the average are only a few percentage points. The high development potential of the Polish non-aviation sector may also be indicated by relatively higher average results recorded in other parts of the world. The lowest average results of 34% and 36% are achieved respectively in South America and the African continent. North American companies are leaders in achieving high results in this field, where the average results are 53%, while the values very close to the world average of 46% are achieved in both Europe (44%) and Asia (47%).

To achieve growing revenues from non-aviation sources, airports are increasingly using activities borrowed from large-scale commercial facilities. One of these techniques is commissions charged on sales, which replace completely or partially fixed rents, which until now were the most commonly used method of settling rents. Thanks to such measures, airports

can automatically increase revenues from non-aviation sources along with the increase in air traffic without the need to periodically renegotiate fixed rates (Baca, 2011a).

Table 3. Share of non-aviation revenues at selected British and Polish airports in 2008 and 2011

Average share of non-aviation revenues for continents (2008)							
Africa	Asia	Europe	N. America	S. America	World		
36%	47%	44%	34%	53%	46%		
British airports BAA group (2008)							
LHR	LGW	STN	GLA	EDI	ABZ	SOU	average
33%	42%	38%	33%	31%	22%	38%	33%
Chosen Polish airports (2011)							
WAW	BZG	SZZ	KTW	WRO	POZ	RZE	average
28%	75%	60%	33%	32%	32%	9%	28%

Source: own study based on: (ACI, 2009; Competition Commission, 2009; PPL, 2009; Stefańska, 2012).

Another popular way to increase commercial revenues is to rearrange the space inside the terminal. According to industry sources, the propensity of passengers to make shopping decisions increases significantly after checking-in and passing personal control. For this reason, every square meter of the airside departures area generates up to several times higher unit revenue compared to the public area of the landside part of the terminal. However, most airports in Poland were not built to maximize commercial revenues. An example would be two-story terminal No. 1 in Poznan airport (POZ), which was designed as a cargo sorting facility and later redesigned into public passenger spaces without the use of explicit commercialization measures. For this reason, it can be expected that shortly management boards will try to expand the area of departure halls or completely rearrange the interior of buildings. The simplification of procedures (e.g. self-check-in) could also be an ad hoc action to reduce the time spent by the passenger in the public area and the check-in process.

Currently designed departure areas make airside interiors more and more look alike the interiors of shopping centres. Techniques borrowed from this sector include mobile shopping outlets, better product display, and arrangement, which means that passengers, striving for their exit gate or walking around the terminal, pass as many products and services purchased on impulse as possible. An extreme example of such space are walk-through stores, which occupy the entire width of the aisle and force travellers to squeeze with hand luggage between store shelves (Baca, 2011b).

There are consulting companies that specialize in arranging departure halls and optimizing commercial revenues. An example of the arrangement of the commercial zone of the passenger terminal is the diagram shown in Figure 5. In addition to the duty-free store type “walk-through” located just behind the personal control, the entire departure hall is a commercial space, where individual boutiques alternately represent various types of activities such as services, shops and gastronomy.

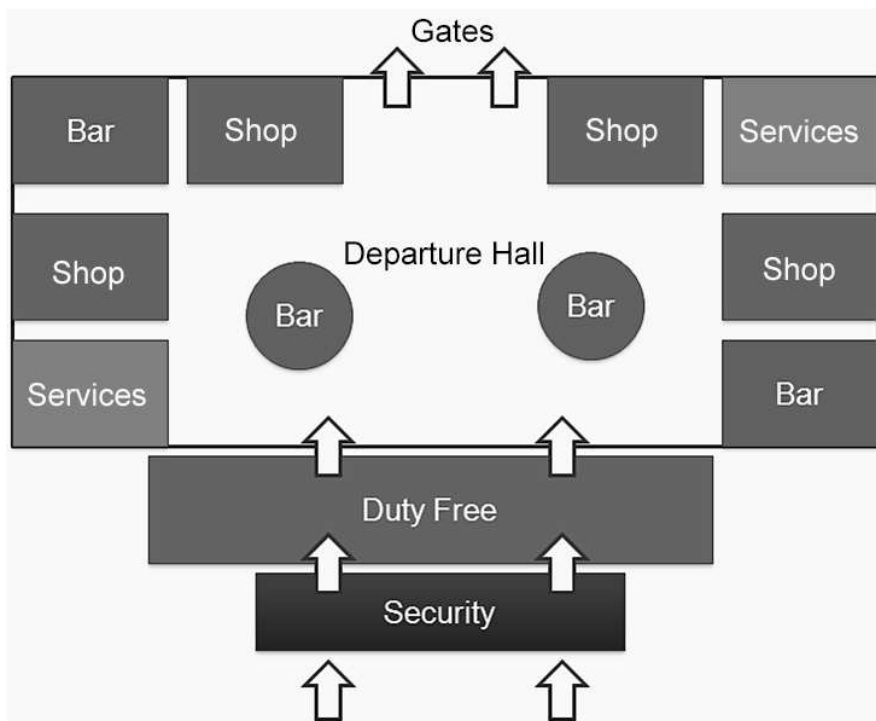


Figure 5. Arranging the departure area to maximize commercial revenues

Source: Own elaboration based on (Gray, 2010).

Additional food outlets should be located in the middle of the hall, thanks to which every diagonal walk is associated with exposure to impulsive shopping-related stimuli. Seats and boards informing passengers about departure gate numbers and departure times should also be located in this zone, so travellers spend more time in the commercial area and are subjected to shopping stimuli for longer (Gray, 2010).

Not only the size and arrangement affect commercial revenues. One of the factors is also the type of connection network and the prevailing type of carriers. For example, at London Heathrow airport, which is dominated by traditional carriers providing largely intercontinental long-haul services, the largest share (35%) have revenues from duty-free stores, as illustrated in Figure 6. This is possible because a large part of the destinations served are provided to countries that do not belong to the customs union, and therefore duty-free stores can be relatively competitive in price. For London Stansted airport, which mainly offers low-cost flights to other EU countries, prices in duty-free stores are less competitive. The relatively large share of revenues from stores with food products and beverages also seems significant at this airport. This phenomenon can be explained by, among others lack of free meals on board of aircraft based there which are mainly low-cost carriers. (Graham, 2009a).

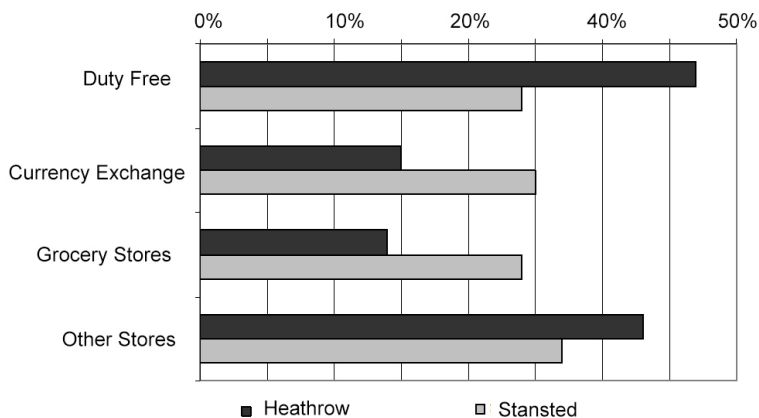


Figure 6. Retail structure in the port of London Heathrow and London Stansted

Source: (Graham, 2009a).

OPERATING COSTS OF AIRPORTS

Ruciński (1998, p. 87) noted that in the case of maintaining constant 24-hour airport operation time, almost all costs by type and in the calculation system are permanent. When the volume of air traffic changes, even by 30-40%, the total costs will stay in the range of 3-5%.

It should be remembered that the above thesis concerns a rather short time horizon, which does not take into account the investment cycle of the airport.

At the time of construction or purchase of additional airport infrastructure and equipment, costs increase by leaps and bounds. In turn, the dynamics of passenger traffic dynamics are characterized by greater stability of the growth rate. In the period in which large investment outlays were made, the opposite may occur, namely, costs may increase by 30-40%, while passenger dynamics may increase 3-5%.

To analyse these two situations, a long-term analysis was carried out for 11 Polish regional airports (LCJ, WMI, KRK, KTW, LUZ, RZE, POZ, SZZ, WRO, BZG, GDN) in the period 2000-2015 (125 observations) using linear regression for the dependent TC variable (total costs) and the independent PAX variable (number of passengers served). Statistical significance (***) $p < 0.0001$ was confirmed for the relationship: $TC = 0,028PAX + 19542$ (thousands PLN).

This means that, on average, each passenger at Polish airports increased variable costs by PLN 28. To compare these values to Ruciński's thesis (1998), the percentage changes in total costs were compared with the percentage changes in the volume of passenger traffic. The elasticities calculated in this way took very different values (from -96 to 1245). If only the arithmetic average of 9.9858 is taken into account, it can be generally confirmed that there are airports where 40% growth of passenger traffic (PAX) caused a 4% increase in total costs (TC). In other words, for every 1% increase in total costs, there is a 10% increase in passenger traffic. The median in this set contributed only 0.377, therefore the distribution is characterized by right-hand asymmetry, i.e. in most periods airports recorded slightly lower elasticity than the arithmetic average indicated above.

Fixed costs in the short term consist primarily of depreciation, but also costs associated with the ongoing maintenance of the facility in the form of material and energy consumption. On the example of the financial data contained in Table 4 and Figure 7, it can be seen that the depreciation in GDN and POZ alone account for 20% to 30% of all costs. It is worth noting that as the airport develops, the share of depreciation in the total costs increases. With an increase in passenger traffic from 1.2 to 3.7 million, depreciation at the Gdańsk Airport increased from PLN 6 million to PLN 40 million (Table 4). The share of material and energy consumption in the structure of operating costs is similar in all analysed companies, amounting to around 10% regardless of the reporting period.

Labour costs represent a relatively lower share than in other transport-related industries, although a large variety of outsourcing makes it difficult to compare. Some airports outsource only the simplest tasks, such as security, cleaning, etc., while others decide to outsource to a much wider extent. Often, even half of all people working in an airport are people dealing with handling. If this activity is outsourced, the remuneration of these persons will become part of the amount contained in the 'external services' line. It is worth remembering when comparing different airports with partial indicators or other benchmarking methods. One way to deal with this problem is to introduce variables in which we add labour costs and external services.

It is a good practice to use EBITDA instead of EBIT when comparing operating profits of airports from different countries. Reducing EBIT by depreciation and interest allows comparative analyses regardless of the differences arising from various depreciation accounting systems and differences in the ways infrastructure is financed.

In the case of the Gdańsk Airport, salaries and social benefits constituted a maximum of 30% of all costs and in nominal terms grew more slowly than other costs. In 2017 their share fell to 20%. A similar tendency was observed in external services, which fell from 17% to 7% in 2017. In other companies, total labour costs usually constitute about 30-35% of operating costs. The highest share, i.e. 40% in 2017, was recorded in the Krakow airport.

The differences in the item "III, External services" are even greater. The smallest share, only 7%, is in a Gdansk company, and the most 26% in Modlin airport. Handling is carried out by external entities at all airports. Therefore, if we assume that the same part of the costs of external services in both ports are labour costs, it can be concluded that the costs related to employees are much higher in Modlin than in Gdańsk.

Table 4. Operating costs of the Gdańsk Airport in the years 2006-2017

Year 20xx	06	07	08	09	10	11	12	13	14	15	16	17
Number of passengers (PAX) (mln)	1,2	1,7	2,0	1,9	2,2	2,5	2,9	2,8	3,3	3,7	6	4,6
Operating expenses (PLN mln) (100%)	31,8	37,1	44,4	51,1	57,4	61,8	83,9	93,5	97,5	111	116,6	132
Depreciation	21%	20%	20%	18%	12%	12%	27%	32%	32%	30%	33%	31%
Usage of materials and energy	10%	10%	10%	11%	11%	10%	13%	12%	9%	9%	9%	8%
Foreign Service	17%	14%	16%	18%	20%	20%	9%	7%	6%	7%	7%	7%
Taxes and fees	3%	3%	2%	2%	2%	2%	1%	2%	2%	2%	2%	2%
Salaries	22%	21%	20%	19%	18%	20%	18%	18%	18%	16%	15%	16%
Social security and other benefits	7%	6%	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%
Other costs	21%	25%	26%	28%	32%	31%	25%	25%	29%	31%	29%	32%

Source: own study based on the financial statements of the Gdańsk Airport.

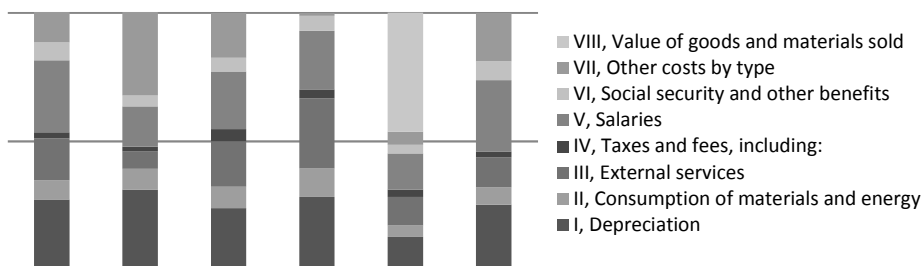


Figure 7. The structure of operating costs at airports: Krakow KRK, Gdansk GDN, Katowice KTW, Warsaw-Modlin WMI, Wroclaw WRO and Poznan POZ * in 2017

* The data did not include the item "VIII, Value of goods and materials sold" because the WRO operator is the only one in the analysed group to sell fuel and this item accounted for almost half of operating costs, while in other companies this value is close to zero.

Source: own elaboration based on financial statements.

BREAK-EVENT POINT ANALYSIS

In the literature on the subject, one can come across the repetitive thesis that the quantitative break-even point for airports is usually around 1 million passengers per year. This means that the airport will make a profit when it serves more than the above mentioned one million passengers during a year. In the case of very small local airports, it is recognized that the company can achieve a profitability of just 0.5 million passengers. One such analysis is the work of Adler *et al.* (2013), who examined 85 European regional airports with traffic less than 1.5 million PAX in the period 2002-2009. The results of the research indicate that the profitability threshold for small airports is PAX 0.464 million. Also, it was noted that due to increasing cost burdens (e.g. due to stricter safety regulations), the threshold increased by 100% over the decade.

Another analysis of this type is Bubalo (2012), in which the author compares 210 European airports of different sizes in the period (2002-2010). Regression analyses have shown that airports typically reach a break-even point at EBIT when they exceed about PAX 1 million. The analysis of empirical data also showed that profits significantly higher than zero are obtained only in the case of enterprises with passenger traffic greater than 2 million PAX. The author also indicates that the use of average measures can be harmful to extremely small and extremely large entities discussed in these analyses. In this case, he proposes to use the Profitability Envelope algorithm, which sets a benchmark for each airport from a group of other entities of similar size.

Break-even analysis is a useful tool to study the relationship between fixed costs, variable costs and returns. A break-even point defines when an investment will generate a positive return and can be determined graphically or with simple mathematics. Break-even analysis computes the volume of production at a given price necessary to cover all costs. Break-even price analysis computes the price necessary at a given level of production to cover all costs.

Break-even point can be verified by a mathematical calculation as follows:

Revenues are calculated from equation:

$$R = p \times q \quad (1)$$

where:

R - revenues;
 p - price;
 q - quantity of production.

Costs can be expressed by the equation:

$$C = FC + vc \times q \quad (2)$$

where:

C - costs;
 FC - fixed costs;
 vc - variable costs per a piece;
 q - quantity of production.

Profit is given well-known equation:

$$P = R - C \quad (3)$$

where:

P - profit;
 R - revenues;
 C - cost.

To make the profit = 0, it is necessary to apply the equation ($R = C$):

$$p \times q = FC + vc \times q \quad (4)$$

A critical amount of production, which characterizes Breakeven point, is calculated by gradual modifications of equations:

$$q = \frac{FC}{p - vc} \quad (5)$$

The equation $(p - vc)$ is called allowance for payment of fixed costs and profit, thus covering allowance. The higher the value of the covering allowance, the smaller the quantity of production to achieve a profit. (Kampf *et al.*, 2016).

To examine the break-even point of Polish airports, financial data and traffic statistics were collected from 11 regional airports in Poland in 2000-2017 (155 observations). Figure 8 shows net profit or loss in selected enterprises in 2012-2017. Based on the results of the analysis, it can be concluded that large airports with more than 2 million passengers a year, i.e. Kraków Airport (KRK), Katowice Airport (KTW) and Gdańsk Airport (GDN) have relatively high net profits i.e. in the range of PLN 10-50 million. The financial result of medium-sized ports, i.e. with a volume of passenger traffic of 1-2 million, oscillates around the break-even point, and smaller ports usually have a loss of up to -50 million (e.g. Warsaw-Modlin WMI in 2013).

To calculate the quantitative and valuable break-even points, two regression analyses were carried out according to the pattern recommended by Aczel (2011). The variable "Net profit" was explained in the first analysis by "the number of passengers served annually" (Figure 9) and in the second by "sales revenues" (Figure 10). In both cases, results with high statistical significance, i.e. with a parameter value of $p < 0.0001$ *** were obtained.

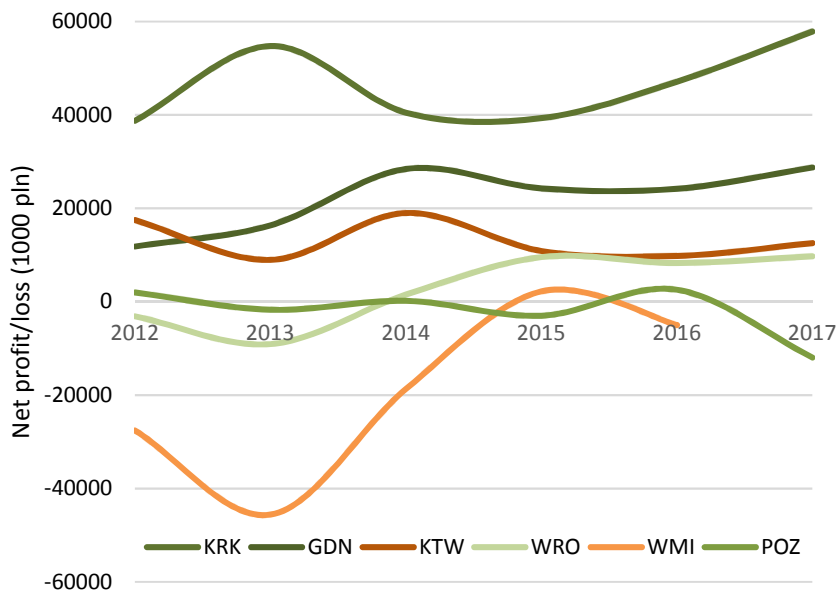


Figure 8. Net profit or net loss of selected Polish airports in 2012-2017 (data in 1000 PLN)

Source: Augustyniak (2017).

For the first dependence the function was obtained:

$$\text{Profit}_{\text{net}} = 0.0117 \times PAX - 13154 \quad (6)$$

The quantitative break-even point understood as the zero value of the above function was obtained for the annual number of passengers served equal to $PAX_{\text{BEP}} = 1124273$. This value is surprisingly close to the aforementioned number of millions of passengers, which in scientific and industry literature is often mentioned as the 'typical' break-even point at airports.

The second relationship has been described by the function:

$$\text{Profit}_{\text{net}} = 0.249 \times REV - 13073 \quad (7)$$

The value break-even point understood as the zero place of the above function is obtained for the sales value $REV_{\text{BEP}} = 52502008$ (PLN). This means that a "typical" Polish regional airport achieved positive profit after exceeding PLN 52.5 million in revenues.

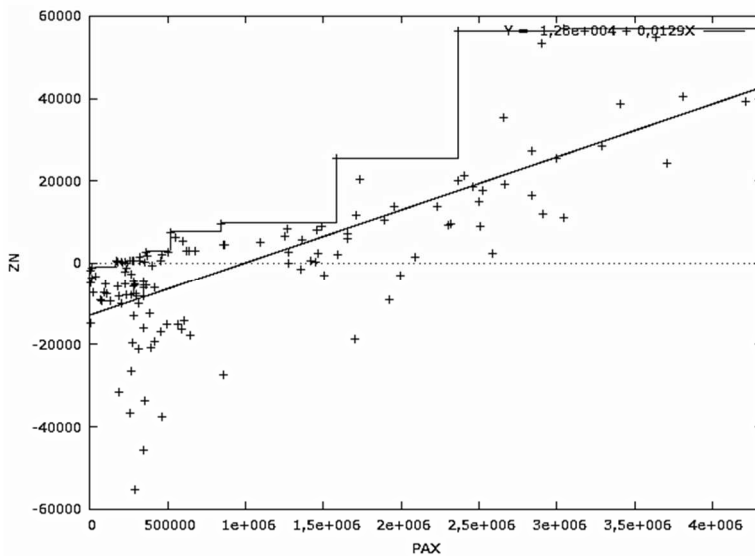


Figure 9. Relationship between net profit ZN (in 1000 PLN) and the number of passengers PAX
Source: own elaboration.

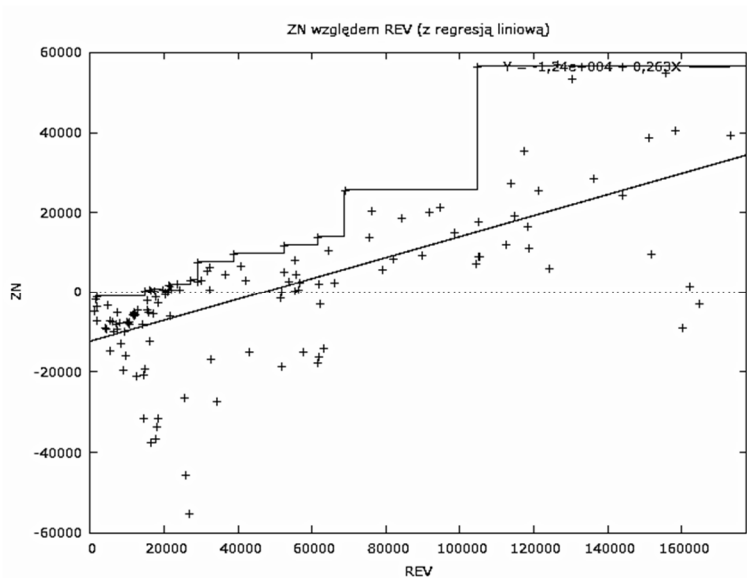


Figure 10. Relationship between net profit ZN (in 1000 PLN) and the value of annual sales revenues REV (in 1000 PLN)
Source: own elaboration.

CONCLUSIONS

This article presents several tools that allow you to familiarize yourself with typical financial characteristics and processes of airports. The structure of revenues at airports was traced, indicating the price list of charges as an example of a tool partially solving the problem of “bottlenecks” when it is impossible to quickly increase the capacity of a critical element of infrastructure. An analysis of costs at Polish airports was carried out confirming the thesis about a very high share of fixed costs in the total operating costs of aviation activities and its small elasticity regarding number of passengers served. A relatively small share of employee costs was also indicated, especially for larger airports.

Despite its theoretical nature, the linear profit function can be used to identify subgroups that contain similar observations in terms of the level of relationships studied (profit, revenues, number of passengers). For this purpose, you can use the Profitability Envelope algorithm (Bubalo, 2012), which allows you to show areas with a step increase in the explained variable. The method consists in dividing the population (in this case airports) into subgroups. In each of them, the observation with the highest profit becomes a relative benchmark for others. In subsequent iterations, by increasing the value of the explanatory variable, the script draws a new group after encountering an observation with a function value higher than the previous benchmark. The graphic results of the script are marked with a broken light shade in figures 9 and 10.

The Profitability Envelope method allowed to set up contractual 3 groups of airports established according to PAX sizes:

- small: with annual passenger traffic below 0.6 million PAX,
- average: with annual passenger traffic of 0.6-1.6 million PAX,
- large: with annual passenger traffic above 1.6 million PAX.

Benchmarks for small airports turned out to be airports in Poznań and Katowice, which at the beginning of the 21st century recorded a positive net profit of about PLN 0.5 million. For medium-sized entities, the Wrocław airport became the benchmark with data from 2010, when net profits of PLN 7 million were achieved. In turn, for large airports, the benchmark was set by the Krakow airport in the period 2006-2008 with net profits exceeding PLN 50 million.

It should be remembered that the results obtained indicate theoretical average levels of break-even points. The inaccuracy of the above modelling corresponds to a fixed residual component in the linear regression model, which forces the assumption that fixed costs do not change in subsequent years of the period under review. In fact, over the longer term, fixed costs increase by leaps and bounds according to the airport’s investment cycle. It seems necessary to repeat the research on a larger and more diversified sample. It will allow making a com-parable analysis and take into consideration the impact of national differences on entrepreneurial behaviours. Another important aspect is to analyse institutional forms of support for airports’ development and its impact on airports’ operators financial results.

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Protection of intellectual property rights in the European Union: The role of customs authorities on the example of Poland

Małgorzata Czermińska

ABSTRACT

Objective: The aim of the article is to measure and analyze the scale of trade in counterfeit and pirated goods in the European Union in order to provide decision-makers with solid empirical evidence about this threat. The specific objective is to show the role of customs authorities in preventing infringements of intellectual property rights.

Research Design & Methods: The research methods include the critical review of existing literature, analysis of relevant legal and official documents of the European Union and the case study of the role of the Polish customs authorities in preventing infringements of intellectual property rights.

Findings: The infringement of IPR is no longer limited to branded products such as clothes, luxurious watches, brand-name sunglasses, handbags, but it also concerns more and more popular foodstuffs, pharmaceuticals, chemicals, electronic items and household appliances.

Contribution & Value Added: This paper provides a description of copyright protection, counterfeiting and piracy, but also contains a reference to legal regulations applicable within the European Union and relating to this area, changes to such regulations, as well as the scope of activity, working procedures (and their consequences) of EU Member States' customs authorities, with special attention given to Polish customs.

Article type: research paper

Keywords: Intellectual Property Rights (IPR); right holders; trade in counterfeit and pirated goods; IPR detentions; customs authorities

JEL codes: F19, F59, O34

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INTRODUCTION

Intellectual property (IP) is a powerful tool designated to stimulate innovations, growth, competitiveness and create new jobs. When properly protected and effectively used, intellectual property rights give great competitive advantage on the market. Trade in counterfeit and pirated goods that infringe intellectual property rights is the major challenge in a global innovation-based economy. These practices produce adverse effects on the sales and profits of interested companies and also create a detrimental impact on governments, companies and consumers as regards their revenues, economy, health and safety. Organised criminal gangs are perceived as groups that play a more and more influential role in such activities, as they gain substantial benefits from counterfeiting and piracy.

Increased technological advancement and digital revolution pose new challenges in the IP environment, on the one hand, but they also offer new opportunities, on the other. When properly protected and effectively used, intellectual property rights give clear competitive advantage on the market. Despite the great significance of intellectual property, its contribution to innovations and social development, innovative companies, particularly small and medium-sized enterprises (SMEs) and start-ups, still face serious problems concerning the protection of their inventions and creative works. Furthermore, the enforcement of intellectual property rights – which often entails combating piracy and counterfeiting – has proved to be more difficult in a digital world and amid globalisation, specifically beyond state borders.

According to a study carried out by EU Intellectual Property Office (EUIPO) and the OECD in 2019, estimates of IPR infringement in international trade in 2016 could reach as much as 3.3% of world trade. Counterfeit and pirated goods could make up as much as 6.8 % of EU imports, amounting to EUR 121 billion (EUIPO, EUROPOL, 2019). In recent years, this amount has significantly increased (EU publications, 2019).

The paper assumes that customs authorities play a significant role in limiting the influx of goods that infringe intellectual property rights. Moreover, goods that infringe intellectual property rights are no longer luxury goods, but everyday goods.

The aim of the article is to measure and analyze the scale of trade in counterfeit and pirated goods in the European Union in order to provide decision-makers with solid empirical evidence about this threat. The specific objective is to show the role of customs authorities in preventing infringements of intellectual property rights. The research methods include the critical review of existing literature, analysis of relevant legal and official documents of the European Union and the case study of the role of the Polish customs authorities in preventing infringements of intellectual property rights.

LITERATURE REVIEW

Intellectual property right infringements in the form of counterfeiting and piracy have yet to establish itself as an independent stream of research. The subject has been studied from numerous perspectives, including management, logistics and law. Literature on counterfeiting and piracy, which is relatively vast, includes, in principle, several main, separate aspects of this phenomenon. The first research area encompasses the general characteristics of counterfeiting and piracy perceived as a growing, global problem which causes

serious concerns among consumers, governmental units, law enforcement agencies and companies. This crime involves a variety of illegal activities associated with the infringement of intellectual property rights, and affecting nowadays all types of goods (Bush at al., 1989; Chaudhry *et al.*, 2017; Heinonen at al., 2014). Despite the diversity of counterfeit goods, which is reflected through their complexity, manufacturing technology, investment in manufacturing equipment, potential threats or values for users and a scale of conflict between counterfeit producers and local authorities, they (counterfeiters) are often treated in the scientific literature as a homogeneous group. Hence the results of empirical research by means of a cluster analysis performed by Staake at al. (2012) deserve particular attention. The said results point to five different groups of counterfeiters which brand owners have to deal with: (1) disaggregators, (2) imitators, (3) fraudsters, (4) desperados, and (5) smugglers (Staake at al., 2012). The results of this research are conducive to a more diversified understanding of the learning strategy and the development of each group and help companies achieve a better position on the counterfeit market and devise a strategy for combating counterfeit articles.

The second research area relates to international and national legal frameworks and institutions set up with a view to managing and combating goods that infringe international property rights (Alfadhel, 2015; Jain, 1996; Jandhyala, 2015; Khan & Sokoloff, 2001; Mercurio, 2012; Rinnert, 2015; Vrins, 2018). Interesting research into determinants of IPR protection was conducted by Marron and Steel (2000). Based on data pertaining to computer piracy, they examined differences in the protection of intellectual property across individual countries. The results of the research show that intellectual property is protected to a greater extent in developed economies, and lower piracy rates are reported in high-income countries. Interestingly enough, the authors further claim that such protection is also conditional on cultural factors. Countries with an individualistic culture have lower piracy rates than countries with a collectivist culture. Piracy rates are also lower in countries where powerful institutions have been created with a view to enforcing agreements and protecting intellectual property. The results in question indicate that national intellectual property policies reflect not only economic problems but also the culture and national institutions (Marron & Steel, 2000).

The third research area comprises an analysis of consumer behaviours regarding indicators of attitudes, intentions and actual purchasing behaviours, including also purchases of counterfeit and pirated goods. This area has received considerable attention in the literature, however, several publications are particularly worth mentioning (Albers-Müller, 1999, Casola, at al., 2009). Consequently, marketing researchers have drawn a distinction between deceptive and non-deceptive counterfeiting (Bloch at al., 1993; Grossman & Shapiro, 1988a; Grossman & Shapiro 1988b; James & Lemon, 2013; Nill & Shultz, 1996). Counterfeiting is deceptive when consumers are tricked and believe that the product they are buying is genuine. On the other hand, non-deceptive counterfeiting occurs when circumstances surrounding the purchase – specifically, the location, price difference and quality level – prove beyond any doubts that the goods are fake. Consumers who intentionally buy counterfeit goods, desire to have their visual attributes – a well-known brand or logo – however, by paying less than in the case of good-quality genuine articles (Cordell at al., 1996; Gentry at al., 2001; Gentry at al., 2006; Grossman & Shapiro, 1988b; Phau & Teah, 2009; Turkyilmaz & Uslu, 2014; Vida, 2007; Wee, at al., 1995).

The fourth research area deals with the consequences of counterfeiting and piracy – not only negative, but sometimes also positive ones – which are faced by companies whose operations are legitimate and by economies (Chaudhry & Walsh, 1996; Chaudhry & Zimmerman, 2009; OECD, 2008). Another one, the fifth research direction relating to a literature study includes managerial strategies, instruments used and actions taken by companies in response to counterfeiting and piracy (Berman, 2008; Cesareo & Stöttinger, 2015; Chaudhry at al., 2005; Chaudhry at al., 2009; Li, 2004; Liang & Xue, 2010; Yang at al., 2008). And finally, the sixth research area reflects a view on the supply of illicit products, by examining the supply chains and distribution of entities committing the breach (Cho at al., 2015; Piquero, 2005; Speier at al., 2011; Wilson & Kinghorn, 2015; J. Zhang & R. Q. Zhang 2015).

This paper covers several research areas, which means that it not only provides a description of copyright protection, counterfeiting and piracy, but also contains a reference to legal regulations applicable within the European Union and relating to this area, changes to such regulations, as well as the scope of activity, working procedures (and their consequences) of EU Member States' customs authorities, with special attention given to Polish customs. The juxtaposition of several research areas, an analysis – both theoretical and empirical, gives definitely strong grounds for the claim that this work is unique.

MATERIAL AND METHODS

The proliferation of counterfeiting operations is common in most countries all over the world. An increase in the number of counterfeit goods is not only seen in the territories where such goods are manufactured, since they are also frequently exported to other countries. Consequently, further movement of counterfeit goods through borders has become one of the biggest challenges for law enforcement agencies, and particularly for customs authorities. This research used data from the European Commission and the EUIPO, as well as statistics from Polish customs authorities, which refer mainly to seizures made by customs authorities, in order to identify trends in the growth of counterfeiting. The research includes also an evaluation of a risk associated with counterfeiting and piracy in the main product sectors.

RESULTS AND DISCUSSION

EU Regulations on Intellectual Property Right Protection: Main Provisions and Course of Changes

The aim of EU legislation on border measures for IPR protection is to guarantee consumers safety and protection, respect for holders' IPR and the financial interests of the EU in an economic area that is both competitive and open to free competition. It should serve to promote business innovation and competitiveness and safeguard jobs while protecting national economies. However, its main objective is to provide the single market and consumers with more effective protection in a bigger Community (European Commission, 2003).

The first EU provisions concerning procedures for the protection of intellectual property rights and the prevention of infringement were laid down in the Regulation No 3842/86 of 1986 (Council Regulation (EEC) No 3842/86), and subsequently – the Regulation No 3295/94 of 1994 (Council Regulation (EC) No 3295/94) amended by Council Regulation (EC) No

241/99 of 1999 (Council Regulation (EC) No 241/99) (for details, see Acquah, 2015). The EU Council adopted new regulations on combating counterfeiting and piracy, simplifying measures and conditions governing activities undertaken by customs authorities with respect to goods suspected of infringing intellectual property rights, which entered into force on 1 July 2004 (Council Regulation (EC) No 1383/2003; Commission Regulation (EC) No 1891/2004; amended by Commission Regulation (EC) No 1172/2007).

After ten years of combating the counterfeiting of goods in the European Union under the 2003 Regulation, a new Regulation No 608/2013 was enacted, which entered into force on 1 January 2014 (Regulation (EU) No 608/2013). The said Regulation was supplemented by the Commission Implementing Regulation (EU) No 1352/2013 of 4 December 2013 concerning application for action (AFA) forms filed by copyright holders. The new Regulation should strengthen the enforcement of intellectual property rights by customs authorities and improve the effectiveness of law amidst economic, commercial and legal changes. The new regime aims to:

- Implement a mandatory procedure for destruction of goods violating law without the need for a court order.
- Prevent the growing influx of counterfeit goods shipped by post and couriers, stemming from an increase in Internet sales; and
- Expand the scope of intellectual property rights on which right holders may rely with respect to customs law enforcement procedures.

Major innovations introduced by the EU regulation No 608:

- Customs protection extended to new rights and infringements.
- New specific procedure for small consignments.
- Exchange of information with third countries for goods in transit suspected of infringing an intellectual property right.
- Establishment of a central electronic database (COPIS) where all information relating to applications requesting the customs authorities to take action for the enforcement of IPR is stored. COPIS is the new central database of the European Union in which the Member States enter all the information needed to fill in the application for action (AFA) that they intend to submit to the competent customs services.

The Regulation (EU) No 608/2013 set out conditions and procedures relating to actions taken by customs authorities with respect to goods suspected of infringing intellectual property rights, which are or should be under their supervision or control. As part of their procedural rights, customs authorities can only find that goods are “goods suspected of infringing intellectual property rights”. The Regulation (EU) No 608/2013 does not lay down any criteria for stating whether there has been an infringement of intellectual property right or not. The matter of whether an intellectual property right has been infringed or not is resolved by substantive law on intellectual property in accordance with the interpretation of competent national courts and the Court of Justice of the European Union (Commission notice, 2016).

In order to strengthen the enforcement of intellectual property rights, the scope of customs authorities’ activities was extended to include the types of rights and infringements which were not covered by the Regulation (EC) No 1381/2003. Under new regulations detention is permitted also where the customs authority have suspicions that a utility

model, trade name or topographies of semiconductor products have been infringed. In this case, a good example includes mobile phones and their accessories. Goods classified under this category were detained mainly on account of trade mark infringement, and on rare occasions – where a patent or an industrial design was infringed.

To deal with an increased number of counterfeit and pirated goods contained in small consignments that are usually delivered to the EU by post or shipped by courier companies after being purchased online and to reduce administration costs and expenses arising from the handling of the above cases, a new simplified procedure for small consignments (containing up to three units or having a gross weight of not more than two kilograms) of counterfeit and pirated goods was introduced. Such goods can be destroyed without the applicant's express consent, provided, however, that the application for actions to be taken by customs does not rule out this procedure.

In the event of suspected counterfeiting, the Regulation provides for (in addition to the destruction of small consignments) two types of actions to be taken by customs:

- Ex officio actions (accounting for approx. two per cent of actions taken by customs within the entire EU (European Commission, 2019, p. 8.) (it does not apply to perishable goods); and
- Actions on application (national or Union application) previously filed in respect of intellectual property rights registered within the entire EU. The number of applications for protection filed by copyright holders is increasing, for comparison: in 2007 – 10,260, in 2018, it was three times bigger – 34,047. Customs authorities can perform actions either on the basis of applications for action (AFA) filed by right holders or on their own initiative (ex officio). National AFAs are filed in a Member State – they concern actions to be carried out by customs authorities within that specific Member State. Intellectual property right holders can file a Union AFA, which is effective in more than one Member State. Such an application must be filed with the central customs authority of the relevant Member State, and subsequently, it can be immediately provided to other designated Member States.

The previous regulations permitted the use of a so-called simplified procedure, in specific cases for all goods, irrespective of the type of transport and quantity of goods – nevertheless, it was not mandatory. Whether this course of dealing was followed or not depended on who enjoyed intellectual property rights, and on the importer. If a settlement regarding the destruction of goods was reached between the said parties involved in the procedure, it happened very quickly and it was not necessary to bring a legal action. Polish customs officers used this procedure very rarely. The simplified procedure for destruction of goods – which was optional under the former regulation – has become a standard mandatory procedure in all Member States. It allows for the quick destruction of goods suspected of infringing intellectual property rights without the need for seeking a court order, that is to say, it is not necessary to determine whether an intellectual property right has been infringed or not; after the decision holder has confirmed in writing that – in their opinion – an IPR has been infringed and with the consent of both parties.

Under the “standard procedure”, following a written confirmation of the decision holder that – in their opinion – an intellectual property right has been infringed, and with explicit or implicit consent given by both parties (i.e. the right holder and the holder of goods/the declarant), suspected goods can be destroyed. Otherwise goods are released,

unless the decision holder notifies customs authorities that he or she has instituted proceedings to determine whether an intellectual property right has been infringed or not. The time limit for expressing consent to the destruction of goods or notifying customs authorities that proceedings have been instituted is ten working days (three days for perishable goods) and, where appropriate, in the event that the proceedings have been initiated, it may be extended by additional ten working days at most (Fig. 1).

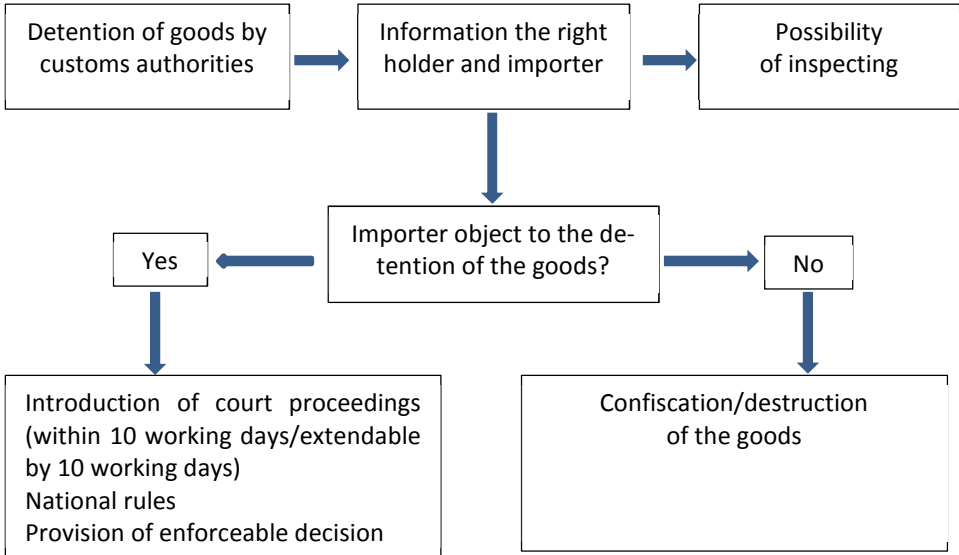


Figure 1. Detention procedure in the European Union
Source: own elaboration based on Regulation (EU) No 608/2013.

Both the standard procedure and the small consignment procedure allow the possibility of the destruction of goods on the basis of implied consent of the holder of goods/the declarant instead of their express consent. The holder of goods is usually the addressee, and the declarant lodging a declaration for customs clearance purposes is e.g. the sender or, in certain cases, a courier company (in principle, customs officers contact the owner of goods, but if his or her particulars are unknown – they contact the declarant).

**Extent of Intellectual Property Right Infringements:
Detentions by EU Customs Authorities**

As already mentioned, challenges associated with combating counterfeit goods require customs authorities to react properly and in a more stringent manner. In this context, the traditional role of customs authorities has been increased, and it now includes, but is not limited to, facilitating legitimate trade and enforcing intellectual property at borders. There are arguments for the claim that ensuring protection on borders is of paramount importance to preventing counterfeit goods from entering target markets or leaving them. Such actions are considered more effective than the detention of goods after they have been admitted to trading on such markets. Therefore, border measures are deemed to be

more effective, especially when they entail using preventive measures which are less expensive than court proceedings (Widdowson, 2007).

The majority (approx. 90,000) of detentions of goods suspected of intellectual property right infringement at EU's customs borders was observed between 2011 and 2012, whereas recent years have seen a sharp decrease in the number of such detentions. In 2018, Customs authorities made over 69,000 detentions (Tab. 1), the number of seized counterfeit goods brought to the EU rose in 2018 due to a large quantity of small consignments delivered by postal and courier services. 2018 saw considerably fewer detentions of goods – almost 26.7 million, compared to previous years – over 114.7 million articles infringing intellectual property in 2011, and 103 million in 2010 (Tab. 1). The number of seized consignments went up from 57,433 in 2017 to 69,354 in 2018, even though the total quantity of articles detained is lower than in recent years.

Table 1. Cases Involving Intellectual Property Right Infringements in Cross-border Trade in Goods within EU between 2003 and 2018

Dynamics Previous	Articles in million	Dynamics Previous	Cases	Detention Total
100	92.2	100	10,709	2003
112	103.5	208	22,311	2004
73	75.7	119	26,704	2005
170	128.6	140	37,334	2006
61	79.1	117	43,671	2007
226	178.9	113	49,381	2008
66	117.9	88	43,572	2009
88	103.3	181	79,112	2010
111	114.7	115	91,245	2011
35	39.9	99	90,473	2012
90	35.9	96	86,854	2013
99	35.6	110	95,194	2014
114	40.7	85	81,098	2015
102	41.4	78	63,183	2016
76	31.4	91	57,433	2017
82	26.7	121	69,354	2018

Source: own calculation based on European Commission (2008, 2013, 2017, 2018, 2019).

Due to the fact that the number of detained goods fell, their retail value, set as a price at which goods would have been sold in retail trade on Member States' market, also declined: in 2018 it amounted nearly to EUR 738 million, in 2017 – EUR 582 million, whereas in 2011 – as much as EUR 1.1 billion (Tab. 2). For the assessment of the value of detained goods, the domestic retail value (DRV) is taken into consideration, which is a price at which goods

would have been sold in retail trade on the Member States' market, had they been genuine. Goods infringing intellectual property rights are more and more frequently sold at a price that is similar to the price of genuine goods and they easily drive the latter out from the market – except for luxurious goods. It is often difficult to differentiate counterfeit goods from genuine ones, as the former are confusingly similar to the latter. Undoubtedly, this is one of the reasons why the number of detained goods has diminished that much.

Table 2. Trends in Seizures in the European Union between 2010 and 2018

Criteria	2010	2011	2012	2013	2014	2015	2016	2017	2018
Numbers of seizures/cases	79,112	91,245	90,473	86,854	95,194	81,098	63,184	57,433	69,354
Numbers of articles/articles	103,306,928	114,772,812	39,917,445	35,940,294	35,568,982	40,728,675	41,387,132	31,410,703	26,720,827
Estimated value (EUR)*	1,110,052,402	1,272,354,795	896,891,786	768,227,924	617,046,337	642,108,323	672,899,102	582,456,067	738,125,867
Articles per seizure	1,306	1,258	441	414	374	502	655	547	385
Value per seizure (EUR)	14,031	13,944	9,913	8,845	6,482	7,918	10,650	10,141	10,697

* Domestic retail value

Source: own calculation based on European Commission (2013, 2018, 2019).

Second In more than 89% of cases, interventions made by customs concerned imports, approx. 7% of goods were under the transit procedure with the destination in the EU and approx. 1% of cases concerned re-exports with the destination outside the European Union (European Commission, 2019, p. 13). Taking into consideration the number of detained articles, it is clear that the share of articles detained in transit is greater (15.5%), which stems from the fact that most goods were detained during sea or air transport (in which case consignments were large), whereas as regards imports, the majority of goods were detained during postal deliveries, with the quantity of articles being obviously smaller.

The counterfeiting issue concerns almost all products. When it comes to goods detained by customs officers, the majority of them included (2017): foodstuffs (24%), toys (11%), cigarettes (9%), „other goods” (9%) and clothing (7%); in total, they accounted for 60% of all detained goods (Fig. 2 and own calculation based on European Commission 2019, Annex 2). The most important categories of detained articles in 2018 were: cigarettes, which repre-

sented 15.6% of the total number of detained articles, followed by toys (14.2%), packaging materials (9.4%), labels, tags and stickers (8.9%) and clothing (8.6%). It must be noted that the number of detained everyday goods which are potentially dangerous to consumers' health and safety is on the rise (and to be precise, this concerns the suspected infringement of trade marks): food and beverages, body care articles, medicines, electrical household goods and toys; in total accounted for 43.3% (2017 r.) of all articles detained (which means a considerable rise compared to 2015 and 2016 – 25.8% and 34.2% respectively).

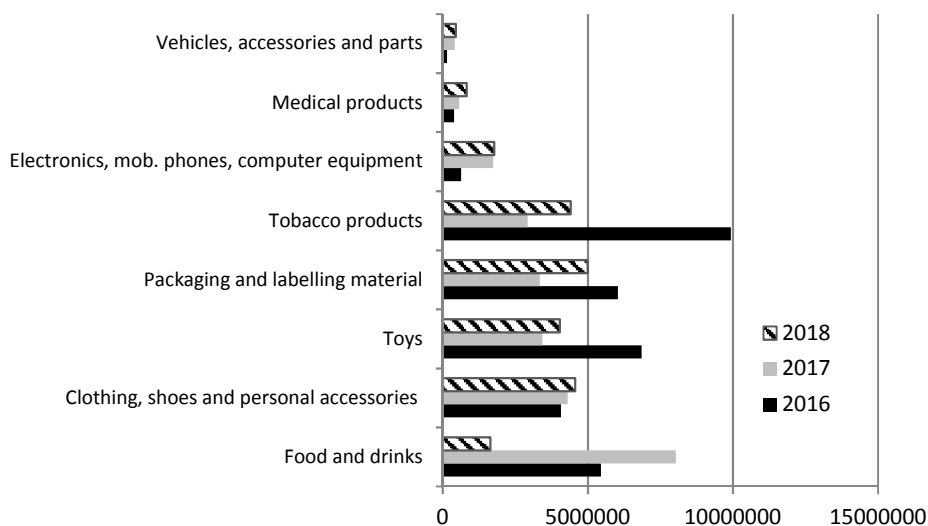


Figure 2. Number of IP infringing articles seized per product category, in the EU for 2016-2018

Source: own calculation based on European Commission (2018, 2019).

Table 3. Cases and Articles Detained at Borders in Relation to Infringement of EU Intellectual Property Rights – Structure Broken Down by Branches of Transport between 2006-2017, in per cent

Criteria	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cases/ means of transport												
Air and express courier	53.1	52.9	43.2	43.6	26.1	28.2	27.3	26.0	18.1	25.4	30.7	30.8
Post	23.0	20.0	24.4	34.4	61.9	62.9	61.8	64.0	77.0	70.5	65.3	64.8
Rail	0.5	0.3	0.2	0.1	0.1	0.2	0.00	0.03	0.01	0.00	0.02	0.02
Road	11.8	16.6	21.3	13.1	7.2	4.9	6.8	5.7	1.9	1.3	1.1	1.5
Sea	7.6	7.9	9.4	8.7	4.5	3.8	4.1	4.4	2.9	3.0	2.9	2.9
Articles / means of transport												
Air and express courier	6.9	10.8	6.5	17.1	9.4	7.9	19.4	22.2	17.1	17.3	16.4	22.9
Post	0.4	1.0	0.4	0.9	1.0	1.6	2.7	3.1	2.3	2.2	2.2	2.7
Rail	0.2	0.2	0.05	0.4	0.2	0.1	0.0	0.2	0.9	0.0	0.04	0.12
Road	15.3	28.3	11.8	6.3	7.7	22.3	19.2	11.9	9.8	6.5	14.3	9.9
Sea	75.5	58.1	80.9	75.1	81.6	67.9	58.6	62.6	70.0	74.0	67.0	64.4

Source: own calculation based on Report on EU Customs enforcement of Intellectual Property Rights (2019).

In recent years, most detentions of goods at borders have been seen in relation to consignments delivered by post, courier and by air (in 2017, it was in total over 90%) (Tab. 3). This results mainly from the growing popularity of online shopping. And as regards the number of goods detained, sea transport occupies a dominant position, which stems from the fact that in this particular case, consignments are shipped in containers, that is to say – in large bulks; the share of air transport and courier deliveries, as well as road transport has also risen dramatically over the last two years (Tab. 3).

Customs Authorities' Activity in Poland Associated With Combating Goods Infringing Intellectual Property Rights

Staff resources designated for the protection of intellectual property rights are closely correlated with the level of priority treatment received by intellectual property rights in individual Member States, the number of applications for action (AFAs) submitted at a national level, the organisation of customs department responsible for the handling of AFAs and the role it performs. In most Member States customs departments designated to process applications for action operate at the central level.

The role of these departments may be so defined that tasks concerning intellectual property rights are highly centralised within a given Member State (which also concerns the level involved in the procedures for the notification of right holders and the holder of goods/the declarant of detentions initiated by local customs offices). As regards the central level in Poland, there is the Intellectual Property Right Protection Unit at the Customs Department (*Zespół ds. ochrony praw własności intelektualnej w Departamencie Cef*) of the Ministry of Finance. Like in certain Member States, intellectual property right protection coordinators have been appointed at the local level (in main offices dealing with matters concerning intellectual property rights, namely in Tax Administration Chambers (*Izba Administracji Skarbowej*)).

Compared to 2017, in 2018 a decline in the detentions of IPR-infringing goods was seen in the majority of EU countries (and such a downward trend was also noticed in Poland), however, the number of consignments detected by customs officers from Portugal increased by 12 times. Similar tendencies can be observed, comparing statistics on the number of detained fakes. In Poland and many other countries, a drop in detained counterfeit goods was reported, whereas in Croatia – this number increased over 30 times, and in Hungary – over 20 times. It must be emphasised that the EU offers freedom to decide on a place of customs clearance, irrespective of the final destination of goods. Consequently, dishonest economic operators, deterred by effective actions taken by customs of one country, may attempt to transport illicit goods across the borders of another Member State. Compared to such countries as Germany, Belgium, France, Spain or the United Kingdom, in Poland relatively few detentions and IPR-infringing articles are reported (Fig. 3; Fig. 4). In the years 2013-2017, the share of goods detained by Polish customs authorities in all detentions in the EU was 2.1%, and as regards the estimated value of detained items – 1.4% (EUIPO, 2019b).

As regards the number of detentions and the number of IPR-infringing goods detained by Polish customs authorities (based on the latest available data), a downward trend can be observed, as in the case of the EU (Fig. 3; Fig. 4). While the number of detentions of counterfeit goods, for example in 2011, 2012 totalled nearly 4,000, 2016 saw slightly more than 1,000 cases (cf. Fig. 3). Similarly, when it comes to the number of detained goods: in 2011, it was over 6 million goods, and in 2016, slightly more than 2 million (Fig. 4). On the

other hand, the number of applications for action to be taken by customs authorities was on the rise, specifically Union applications (cf. Fig. 5).

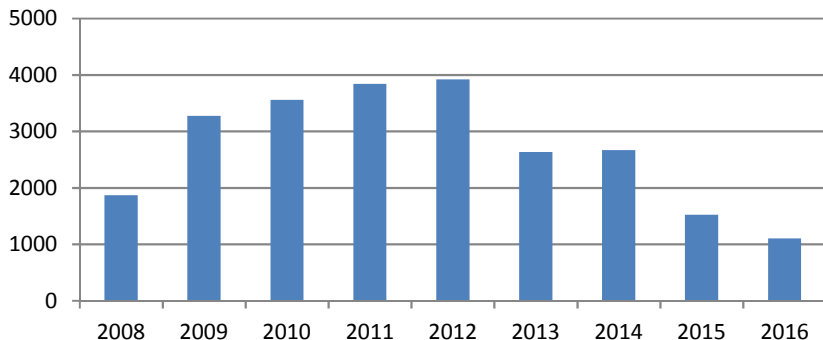


Figure 3. Number of Detentions of IPR-infringing Goods in Poland between 2008 and 2016
 Source: own elaboration on the basis of Służba Celna (2014); Pogorzelski (2017).

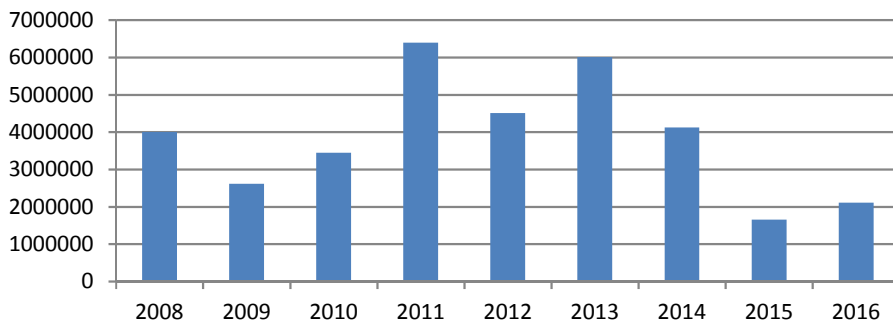


Figure 4. Number of IPR-infringing Goods Detained in Poland between 2008 and 2016
 Source: the same as for Figure 3.

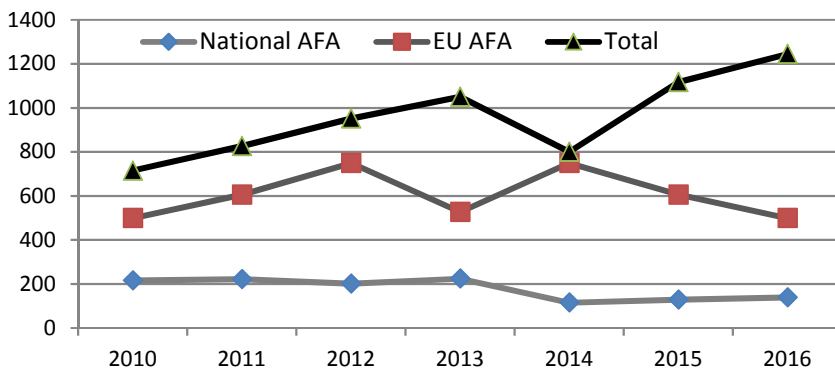


Figure 5. Number of Applications for Action to Be Taken by Customs Authorities in Poland between 2010-2016
 Source: the same as for Figure 3.

As for the share of detained goods, proportions for respective years vary slightly, nevertheless most of detained goods were cigarettes (mainly at the eastern border), pharmaceuticals, games, sports gear and toys, cosmetics, watches, jewellery and accessories, mobile phones and accessories and clothing (similarly to the entire EU). Nevertheless, sealing the eastern border, pursuing a stringent policy for tight controls at border crossing points, providing additional equipment (especially at the border with Ukraine) and suspending the local border traffic agreement with the Kaliningrad oblast bring effects.

CONCLUSIONS

The protection of intellectual property rights is a matter of paramount importance and increasing priority for governments. Its significance is reflected through the key role it plays in fostering innovation and development on the one hand, and growing concerns over the negative consequences of counterfeiting and piracy for the economy, companies and society on the other. The infringement of IPR is no longer limited to branded products such as clothes, luxurious watches, brand-name sunglasses, handbags, but it also concerns more and more popular foodstuffs, pharmaceuticals, chemicals, electronic items and household appliances. These goods, which often do not comply with standards, may pose a serious risk to consumers' health and lives. Furthermore, it appears that counterfeit products more and more frequently enter into legal distribution systems, which means that they are available at shop shelves. Organised criminal gangs are perceived as groups that play a more and more influential role in this regard, as they gain substantial benefits from highly profitable counterfeiting and piracy operations. And finally, the greater use of the Internet as a sales platform for selling products has opened up a new market, which counterfeiters and pirates quickly took advantage of. Hence priority is assigned to fostering greater international co-operation with a view to restricting trade in counterfeit and pirated products. The growing priority is reflected through efforts undertaken by governments and business society in recent years in order to enhance the effectiveness of intellectual property policies and programmes all over the world.

The European Union has been taking actions aimed at the protection of intellectual property rights for more than three decades. An important element of combating counterfeit and pirated goods is customs control based on a risk analysis. Therefore customs authorities of Member States, including also the Polish customs, perform an influential role in the identification and detention of consignments containing IPR infringing goods at borders. Pursuant to harmonised EU regulations, customs authorities have the right to detain goods at a border either on application of the right holder who believes that goods infringe their intellectual property rights or ex officio, that is to say, on their own initiative, in the event of suspected infringement. The right holder may – throughout the period during which goods are under customs authorities' control – institute court proceedings to determine whether infringement has been committed or not. Furthermore, the EU law provides for expedited proceedings, in which case detained goods are destroyed without the need to resort to judicial proceedings to determine whether IPR has been infringed, provided, however, that an alleged perpetrator gives their express or tacit consent to such destruction.

Statistics of the European Commission indicate a continuously high number of articles suspected of infringing intellectual property rights. In 2018, over 26 million such goods were detained, with the estimated value of their genuine equivalents totalling slightly more than

EUR 730 million. As regards detentions, the same goods have been still (for the past four years) occupying the prominent place, namely clothing and footwear. These are usually goods which can be ordered online and shipped by post or a courier company. The number of detained goods in Poland is also considerable, despite a continuous downward trend in this regard, which has been seen in recent years. However, it must be noted that detentions account only for a few per cent of all counterfeit articles in circulation. Official data on detention of goods are used in this article. This is a significant limitation of the conducted research.

Having considered the large body of evidence indicating the extent and impact of IP-related crime on the EU's economy and society, efforts to combat intellectual property right infringement must be strengthened, irrespective of actions which have been already undertaken to counteract the threat in question. Entities and institutions that serve a prominent role in combating crime associated with IPR face a number of limitations and challenges, such as the need for coordination of cross-border investigations and new technologies used by offenders to conceal their location and activities. Better coordination between EU's institutions and authorities involved in combating intellectual property right infringements and greater co-operation in the law enforcement process, as well as simplified exchange of data are necessary in order to reduce counterfeiting and piracy. Such coordination and co-operation are also required due to the fact that the EU offers freedom to decide on a place of customs clearance, irrespective of the final destination of goods. As a consequence of such freedom, dishonest economic operators, deterred by effective actions taken by customs of one country, may attempt to transport illicit goods across the borders of another Member State.

The study is an introductory one, and it faced some data limitations. Further research should include changes that are taking place in EU regulations and actions in the field of intellectual property protection. The studies should also analyze the effectiveness of customs authorities in the protection of intellectual property rights.

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Determinants of female entrepreneurship in male- and female-dominated sectors in selected European countries

Katarzyna Mroczek-Dąbrowska, Aleksandra Gawęł

ABSTRACT

Objective: Female entrepreneurship rates vary strongly across countries and industries. The aim of this paper is to verify what determines female entrepreneurship in male-dominated industries and female-dominated industries and whether the differences between those types of sectors are significant.

Research Design & Methods: We use panel data across 7 European countries in the timespan of 2009-2018 to verify our assumptions. We study the Construction (NACE F) and Human Health and Social Work Activities (NACE Q) industries.

Findings: The research shows significant differences amongst the determinants of female entrepreneurship in male-dominated and female-dominated industries. Industry-specific determinants play an important role in male-dominated industries and a much lesser role in female-dominated ones.

Contribution & Value Added: The conducted research indicates the necessity of including the industry-perspective in studies on female entrepreneurship. Previous studies have frequently neglected this aspect, paying more attention to country-specific determinants.

Article type: research paper

Keywords: Female entrepreneurship; gender gap; male-dominant industries; female-dominant industries; labour market segmentation

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INTRODUCTION

Men are twice as likely to enter into entrepreneurship as women, which creates and sustains a gender gap in entrepreneurship. There are multiplied factors of diverse nature and several theories which give the explanation of this gap (Pérez-Pérez & Avilés-Hernández, 2016) of both natures: similar for women and men and gender-specific (Kobeissi, 2010).

On the other hand, women are not equally present in all industries; there are some industries with female over- or underrepresentation. It is explained by labour market segmentation theory, which divides the labour market into primary and secondary markets, with women pushed to enter the secondary ones with lower productivity and wages (Bauder, 2001; Daw & Hardie, 2012; Munir Sidani, 2013).

The main aim of the paper is to understand the gender gap in entrepreneurship by comparing the determinants of female entry to entrepreneurial activities in male- and female-dominated industries. Thank to this, we implement the point of view of labour market segmentation theory into research on entrepreneurship. We understand entrepreneurship as one of two forms of an individual's occupational choice as to who can enter into paid employment or entrepreneurial activities. This choice is made based on the perceived costs and benefits of these two forms of professional activity, which is explained by occupational choice theory (i.e. Inci, 2013; Salas-Fumás, *et al.*, 2014).

We conducted the research in European countries, based on yearly panel data for the time span of 2009-2018. Among the initial dataset of 12 chosen industries based on NACE Rev.2 and 22 countries, we calculated female participation rates and selected two industries, one male-dominated and one female-dominated. Construction (NACE F) was classified as a male-dominated industry with a female participation rate around 9,5%, and Human Health and Social Work Activities (NACE Q) was accepted as female-dominated, with the female participation rate around 80%. Because of data availability, we extracted from the research countries with missing data. Finally, we included 7 economies, i.e. Czechia, Germany, Netherlands, Poland, Spain, Switzerland, and United Kingdom.

Using the panel regression method, we estimated models which explain female entrepreneurship by industry-specific and country-specific factors. Determinants are related to segmentation theory (female participation rate) or occupational choice theory as pushing (unemployment, gender pay gap) or pulling factors (education level; working time). The control variable is the industry added value, which indicates the importance of a given industry in added value creation of the economy. Our results show that the impact of female entrepreneurship is determined by the characteristics of the industry. Both industry-specific determinants and labour market determinants influence female entrepreneurship; however, in a female-dominated industry, female entrepreneurship is shaped by labour market determinants, while a male-dominated one is shaped by industry-specific determinants.

Our paper is structured as follows: the literature review discusses the gender gap in entrepreneurship, labour market segmentation leading to male- and female-dominated industries and hypotheses development. In the next section of the paper, we present our research method and results to come to a conclusion in the last part of the paper.

LITERATURE REVIEW AND THEORY DEVELOPMENT

Gender gap in entrepreneurship

Female entrepreneurship has gained an increasing research interest recently (Khyareh, 2018). The fact is that men are twice as likely to enter into entrepreneurship as women (Carter *et al.*, 2015; Ester & Román, 2017). The gender gap is connected not only with lower rates of female than male entrepreneurship (Anambane & Adom, 2018), but also with women's sectoral segregation, and their poorer performance with fewer financial resources, smaller companies and fewer employees (Pisani, 2018).

Research results show that there are multiplied factors of diverse natures (Pérez-Pérez & Avilés-Hernández, 2016), and in consequence, several theories give an explanation of gender gap in entrepreneurship. The neo-classical approach as reflected in occupational choice theory treats entrepreneurship as an individual choice between a wage worker with a risk-free salary and an entrepreneur with uncertain entrepreneurial profit (i.e. Inci, 2013; Salas-Fumás *et al.*, 2014). Comparing costs and benefits from these two forms of occupation, the decision to enter into entrepreneurship is made when the net entrepreneurial benefits exceed the net employment benefits. The occupational choice can be driven by positive factors, known as entrepreneurial pull or opportunity-driven theory; or by negative factors, known as recessional push or necessity-driven theory (Moulton & Scott, 2016; Terjesen & Amoro, 2010). With pull factors (Cantú Cavada *et al.*, 2017; Ng & Fu, 2018), women enter into entrepreneurship because of such psychological and social benefits as independence, flexibility, and job satisfaction (Holmen *et al.*, 2011; Lawter *et al.*, 2016), and better work-life balance (McGowan *et al.*, 2012). For push factors (Cantú Cavada *et al.* 2017; Ng & Fu, 2018), women are motivated towards entrepreneurship by an unfavourable situation in the labour market, connected with frustrations and a lack of professional development, or by the predominance of male networks (McGowan *et al.*, 2012) and by gender stereotypes (Adom & Anambane, 2020). Regardless of gender, some of these factors are similar for both women and men, while some are gender-specific (Kobeissi, 2010).

The next explanation comes from institutional theory, within which formal and informal institutional factors, or regulative, normative and cultural-cognitive pillars influences are used to explain female entrepreneurship (Estrin & Mickiewicz, 2011). Informal factors, such as female networks (Khyareh, 2018) or stereotypes (van Ewijk & Belghiti-Mahut, 2019), or cultural dimensions such as masculinity, individualism, and indulgence (Anambane & Adom, 2018; Gimenez-Jimenez *et al.*, 2020) are more significant in explaining female entrepreneurship than the formal factors (Khyareh, 2018). The prototypical entrepreneur is perceived as masculine, while females are archetyped as caring and nurturing (Orser *et al.*, 2011). Female domestic responsibilities are also often discussed as the determinant of the gender gap in entrepreneurship (Pérez-Pérez & Avilés-Hernández, 2016).

The gender gap in entrepreneurship should be also seen in the wider socio-economic context (Bourne, 2010) as the result of gender equality (Berger & Kuckertz, 2016) in the context of gender wage gaps, gender labour-force gap, the presence of women in positions of power (Ribes-Giner *et al.*, 2018) or human development (Maniyalath & Narendran, 2016). Discrimination against women reduces their entry into entrepreneurship (Estrin & Mickiewicz, 2011), while inter- and intergenerational factors are expected to bridge the gender gap (Ester & Román, 2017).

Regarding personal factors, the impact on female entrepreneurship of the following ones are analysed: fear of failure, self-efficacy (Noguera *et al.*, 2013; Pathak *et al.*, 2018), female identity as participative, action-oriented, creativity and problem-solving leaders (Orser *et al.*, 2011).

The general line in the previously summarised research on the gender gap in entrepreneurship is that the lower female entrepreneurship rate is the result of some unfavourable aspects of women's situations. Although the capitalist system is accused of inducing inequality (Ragoubi & El Harbi, 2018), from a historical perspective, social inequalities, including gender inequalities, are noted in every civilization and inequality held the key position in philosophical debate (Sunajko, 2016). As the level of gender inequality in modern societies is reduced, thanks to the raising female participation rate in the workforce and the rise in men's contributions to domestic work (Alsos *et al.*, 2016), the gender gap in entrepreneurship might be regarded as a failure in increasing gender equality. However, research results also show that the gender pay gap from entrepreneurial earnings is even higher than the wage gap, making female entrepreneurship a glass cage of economic inequality (Lawter *et al.*, 2016). Moreover, from a cultural point of view, entrepreneurship is perceived to be appropriate for uneducated women, while highly-educated women are pushed more towards formal employment (Anambane & Adom, 2018). From that perspective, the gender gap in entrepreneurship might result from income and cultural inequality among women.

Male- and female-dominated sectors as the consequence of labour market segmentation

One of the problems for professional women, no matter whether their occupation involves employment or entrepreneurship, is their under- or overrepresentation in some sectors or industries. Occupational gender segregation is a worldwide characteristic of problematic labour markets in regards to gender inequality, as typical female jobs are lower paid and give fewer career opportunities (Damelang & Ebensperger, 2020). Such a situation is explained by labour market segmentation theory, which divides the labour market into two parts – the primary and secondary labour markets – because of gender, formal education, geographic regions, and race with limited mobility between segments (Mora & Muro, 2015). Segments are different in regards to such job characteristics as earning level, sector or industry, working conditions, carry benefits, and advancement opportunities (Daw & Hardie, 2012). Critics of segmentation theory indicate that dualism in the labour market is related to dualism in the economy, which consists of core and periphery industries (Hudson, 2007).

The research results show both horizontal and vertical gender segregation in occupational choices (Symeonaki & Filopoulou, 2017). Men tend to concentrate in primary sectors or segments with higher productivity and higher wages, while women concentrate in secondary ones, in low-productivity sectors or less profitable businesses with lower wages (Aidis & Weeks 2016; Campos *et al.*, 2017; Jamali *et al.* 2008; Karamessini & Ioakimoglou 2007). Female-typed occupations are most often paid a lower wage than male-dominated ones (Munir Sidani, 2013). Segmentation theory indicates that barriers between labour segments are rigid; individuals cannot freely move between them (Bauder 2001) and worse wages cluster with poor working conditions (Daw & Hardie, 2012).

The deindustrialization and nonstandard work agreement also allows the identification of the intermediary segment of the labour market with part-time jobs and no health

insurance or benefits (Hudson, 2007). There are also labour market segmentation models which assume tripartite, quadruple and hierarchical segmentation (Bauder, 2001).

There are several explanations of female occupational choices, among them limited female possibilities, domestic responsibilities, the higher importance of job security and employment benefits rather than higher remuneration (Cutillo & Centra, 2017). Female representation in some occupations is also explained by a self-enforcing cycle as an effect of past representation (Damelang & Ebensperger, 2020). Feminist theory indicates that occupational segregation is an outcome of the gendered socialization processes resulting from female human capital investment (Karamessini & Ioakimoglou, 2007).

Regarding female entrepreneurship, it is observed that a higher rate of women's economic participation encourages them to enter into entrepreneurial activity (Pathak *et al.*, 2013). Research results show as well that when female entrepreneurs enter into male-dominated sectors, they are as profitable as male entrepreneurs and three times more profitable than women who stay in female-dominated sectors. Factors pushing women to male-dominated sectors are not related to their skill, abilities or access to financial resources, but women are influenced by information about profitability, male role models or family and friends experience in those sectors (Campos *et al.*, 2017). This supports the observation that male-dominated women must adopt accommodation strategies to survive in their workplace (Ouedraogo, 2018) to overcome norms connected with occupational segregation.

Hypotheses development

On the one hand, as gender segregation explained by labour market segregation theory is one of the most important factors of the gender pay gap (Karamessini & Ioakimoglou, 2007), it raises the question of whether female entrepreneurship can also be explained by industry segregation. On the other hand, as Fitz-Koch *et al.* (2018) point out, the sector, or the industry perspective, is rarely incorporated in entrepreneurship research; frequently, the sector or industry is treated only as a control variable, if at all. To fill this gap, the determinants of female entrepreneurship are analysed by comparing male- and female-dominated industries.

There are some example of research on female entrepreneurship from the industry perspective, but they are rare. For example, research on women's entrepreneurship in female-dominated welfare industries in Sweden was conducted by Sköld and Tillmar (2015).

As socio-economic and cultural contexts develop and sustain industries with unequal participation from women and men, a different set of determinants is expected to shape female entrepreneurship in male-dominated and female-dominated industries. This assumption is reflected in *Proposition 1*.

Proposition 1: The determinants of female entrepreneurship in male-dominated industries are significantly different than the determinants in female-dominated industries.

Accepting arguments of segregation theory and occupational choice theory, it might be assumed that both industry-specific determinants and labour market determinants influence female entrepreneurship; however, in female-dominated industries, female entrepreneurship is shaped by labour market determinants, while male-dominated industries are shaped by industry-specific determinants. These assumptions are presented in *Proposition 2* and *Proposition 3*.

Proposition 2: The impact of country labour market determinants on female entrepreneurship is higher in female-dominated industries than in male-dominated industries.

Proposition 3: The impact of industry-specific determinants on female entrepreneurship is higher in male-dominated industries than in female-dominated industries.

MATERIAL AND METHODS

To verify the assumed propositions, empirical research was conducted to estimate econometric models of female entrepreneurship determinants in female-dominated and male-dominated industries. The first step was to choose the industries which represent male and female domination in participation rates. Based on annual data from Eurostat databases for the years 2009-2018, we initially analysed female participation rates in 22 European countries in the chosen industries, based on NACE Rev.2, the statistical classification of economic activities in European Community. The initial set consisted of 12 industries and compared female participation rates, showing the share of women in total employment by economic activity by industry. At this point in the research, we used all the available data; however, female participation rates were not available in all industries and all countries.

Then, all industries were classified based on female participation rates in male-dominated industries, with over 70% of men in total employment; mixed industries; and female-dominated industries, with over 60% of women in total employment (Karamessini, 2012; Sköld & Tillmar, 2015). Details are presented in table 1.

Table 1. Classification of industries based on average female participation rates in selected in European countries

Industry	Average female participation rate (%)
Male-dominated industries	
Manufacturing (NACE C)	29.37
Construction (NACE F)	9.59
Information and Communication (NACE J)	29.19
Mixed industries	
Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles (NACE G)	50.95
Accommodation and Food Service Activities (NACE I)	56.53
Financial and Insurance Activities (NACE K)	53.21
Professional, Scientific and Technical Activities (NACE M)	49.52
Administrative and Support Service Activities (NACE N)	47.33
Arts, Entertainment and Recreation (NACE R)	50.42
Female-dominated industries	
Education (NACE P)	71.99
Human Health and Social Work Activities (NACE Q)	80.22*
Other Service Activities (NACE S)	66.78

Note: * the rate in table 3 (79.27%) indicates the value for the final 7 countries included for the study sample whilst here, we indicate value for all countries the data was available for.

Source: own calculations based on Eurostat data.

Among the 12 analysed industries, we classified 3 industries as male-dominated, 3 industries as female-dominated and 6 as mixed. Eventually, in further analysis, we included only two industries that represent male- and female-dominated sectors, i.e. Construction (NACE F) and Human Health and Social Work Activities (NACE Q; in short: Health). We have chosen these particular industries, since the distance between these industries, measured by the difference between their average female participation rates, is the highest. In Construction (NACE F), women represent 9.6% of the entire labour force, while in Health (NACE Q), they represent over 80%.

Next, we focused on distinguishing both country-specific and industry-specific determinants of female entrepreneurship in Europe (Table 2). Although we are aware of wide discussion of the term's definition, by female entrepreneurship we understand the share of self-employed women in the overall number of self-employed persons. We distinguish four industry-specific variables, which reflects the situation in the industry, namely: gender pay gap, demand for time, female participation rate and industry added value. By gender pay gap, it is understood how much less (or more) women earn in a particular industry compared to men. The demand for time represents how many hours – on average – per week women devote to running their own business in certain industries. The female participation rate refers to the percentage of women employed in an industry and the gross value added – as the name suggests – per industry. As far as the country-specific variables are concerned, we named female unemployment rate as the measure of the degree of women's involvement in professional life and the education level, which refers to the share of women with higher education in the overall number of self-employed women in a particular country. The chosen variables are related to segmentation theory (female participation rate), or they can be interpreted as pushing (unemployment, gender pay gap) or pulling factors (education level; working time) according to the theory of occupational choice. Industry added value is implemented as the control variable, which shows how a given industry is important for the economy in added value creation.

Table 2. Variable operationalization

Variable	Abb.	Operationalization	Level
Female entrepreneurship	FE-I	Share of self-employed women (%) in total self-employment by industries	Industry-specific
Gender pay gap	GPG-I	Gender pay gap (%) in unadjusted form (structure of earnings survey methodology of Eurostat) by industries	Industry-specific
Female unemployment	FU-C	Share of female (15-74) unemployment in the country	Country-specific
Demand for time	DT-I	Average number of actual weekly hours of work per self-employed women by industries	Industry-specific
Higher education rate	ED-C	Share of women (15-64) with higher education in the total number of self-employed women in the country	Country-specific
Female participation rate	FP-I	Share of women in total employment by economic activity by industries	Industry-specific
Industry value added	VA-I	Share of gross value added by the industry in total gross value added to the economy	Industry-specific

Source: own study.

The sample consisted of country-annual observations that referred to the years 2009-2018. In the case of Construction industries (NACE F), we have identified valid data for 7 economies, i.e. Czechia, Germany, Netherlands, Poland, Spain, Switzerland, and the United Kingdom. In the case of Health industries (NACE Q), we have gathered data from 11 more countries. However, to ensure comparability of the results, we have restricted the sample to the above-mentioned countries for both sectors.

Table 3. Descriptive statistics for the variables

NACE	Statistics	FE-I	GPG-I	FU-C	DT-I	ED-C	FP-I	VA-I
Health (NACE Q)	Mean	66.44	22.65	8.35	33.58	39.20	79.27	6.67
	Std. dev	4.90	4.31	5.95	4.70	8.81	2.33	1.64
Construction (NACE F)	Mean	4.96	7.85	8.35	32.43	39.20	9.59	5.87
	Std. dev	3.00	9.45	5.95	7.99	8.81	2.25	1.32

Source: own study.

Table 3 presents the descriptive statistics for both industries. As can easily be noted, the industries vary significantly in terms of industry-specific characteristics. The level of female entrepreneurship is significantly higher in the case of health activities in comparison to construction industry (66.44% vs 4.96%). At the same time, women are paid more equally with men in construction (7.85% vs 22.65%), which may not have been an obvious conclusion to start with. That may, however, stem from the fact that the construction industry poses pre-entry barriers that might demotivate women from entering the sector. The female participation rate in construction amounts to less than 10%, whilst in health it reaches almost 80%. The only variable that shows relative similarity is the value added, which in the case of construction amounts to a little less than 6%, and in the case of health, it slightly exceeds 6%.

For each industry, we have estimated regression models. We followed the commonly accepted rule that one explanatory variable requires at least 10 observations; therefore, we have been able to include the 6 variables specified in Table 2 (and a constant). In order to avoid autocorrelation and heteroscedasticity problems, we have used the PCSE (Panel Corrected Standard Errors). We carried out the Breusch-Pagan test to determine the appropriate regression methods and – if need be – the Hausman test to choose between random and fixed effect models. In the case of the Construction industry (NACE F), the Breusch-Pagan test pointed to the classical least squares method (0.20), whilst in the case of the Health industry (NACE Q), it pointed to a model with fixed effects (value <0.05 in case of Breusch-Pagan and Hausman tests). Table 4 presents the results of the variance inflation factor (VIF) and squared semi-partial correlation coefficient, which additionally enabled us to determine potential collinearity problems.

The analysis reported VIF of variables below 10, which indicates that we do not fear collinearity. However, it needs to be noted that the value-added variable was close to the threshold value (9.01).

The results of the empirical analysis, conducted for the Construction (NACE F) and Health (NACE Q) industries, are presented in Table 5. The model was specified as follows: $FE-I_{it} = \beta_0 + \beta_1 GPG_{it-I} + \beta_2 FU-C_{it} + \beta_3 DT-I_{it} + \beta_4 ED-C_{it} + \beta_5 FP-I_{it} + \beta_6 VA-I_{it} + \alpha_i + u_{it}$.

The results enabled us to verify the propositions regarding the differences in determinants of female entrepreneurship in female- and male-dominated industries.

Table 4. VIF and semi R2 estimations

Variable	GPG-I	FU-C	DT-I	ED-C	FP-I	VA-I
Construction (NACE F)						
VIF	2.41	1.41	1.54	2.69	2.57	2.01
Semi R2	0.58	0.29	0.35	0.63	0.61	0.50
Health (NACE Q)						
VIF	1.34	1.19	7.02	4.54	1.46	9.01
Semi R2	0.25	0.16	0.86	0.78	0.32	0.89

Source: own study.

Table 5. Parameters of regression function estimations

Variable	Construction (NACE F)	Health (NACE Q)
<i>Const</i>	2.05*** (2.05)	-71.65** (25.73)
<i>GPG-I</i>	-0.2*** (0.02)	0.51*** (0.08)
<i>FU-C</i>	0.04* (0.02)	-0.09 (0.10)
<i>DT-I</i>	-0.22*** (0.03)	-0.10 (0.27)
<i>ED-C</i>	-0.08** (0.03)	0.23** (0.08)
<i>FP-I</i>	0.87*** (0.10)	1.48** (0.35)
<i>VA-I</i>	-0.34** (0.15)	-0.47 (0.77)
<i>R²</i>	<i>Adj. R² = 0.64</i>	<i>LSDV R² = 0.83</i>

Note: Standard errors in parentheses. *** p< 0.01; ** p< 0.05, *p<0.1

Source: own study.

In line with our *Proposition 1*, we assumed that the determinants of female entrepreneurship in male-dominated industries would be significantly different than the determinants in female-dominated industries. This assumption proved true, since all the analysed determinants were significant (however, with a different p-level) in a male-dominated industry, exemplified here by Construction activities. On the other hand, in the Health industry, the female unemployment rate, demand for working time and industry value added did not report significant values. Additionally, the results displayed reverse relations. In male-dominated industries, the gender pay gap had a negative relation, i.e. the gender pay gap negatively impacted the level of female entrepreneurship. In female-dominated industries, however, the relation was positive; i.e. the gender pay gap boosted the level of female entrepreneurship. The relationships were also reversed in the case of education, which in male-dominated industries negatively impacted the female entrepreneurship rate, whilst in female-dominated industries, it pushed women towards self-employment.

According to our *Proposition 2*, we assumed that the impact of the country's labour market determinants on female entrepreneurship would be higher in female-dominated industries than in male-dominated industries. By labour market determinants, we understand the

female unemployment rate and female education level. Here, the results are mixed, indicating that these factors play a more important role in male-dominated industries than in female-dominated ones. The female unemployment rate is statistically important only for Construction, whilst female education level reported significant for both activities. However, again, the direction of the dependence is reversed, i.e. the unemployment rate amongst women negatively impacted female entrepreneurship in female-dominated industries and positively in male-dominated ones; education level negatively impacted female entrepreneurship in male-dominated industries and positively in female-dominated ones.

Regarding our *Proposition 3*, where we assume that the impact of industry-specific determinants on female entrepreneurship would be higher in male-dominated industries than in female-dominated industries, the results were supportive. In the Construction industry, all of the factors determined the female entrepreneurship ratio at the significance level of at least 0.05. In the case of the Health industry, two of industry-specific determinants were statistically insignificant (demand for time and industry value added). Male-dominated industries, like Construction activities, pose a challenge for women, as they create pre-entry barriers that impede women from entering these sectors. Therefore, once they enter the industry, women's decisions to create their own businesses are subject to high sensitivity to industry-related factors. In the case of most of these factors, it is the so-called *push-motivation*, which means that women are more forced to undertake self-employment rather than encouraged to do so by positive industry conditions. This can be seen in the case of pay gap, demand for time or value added.

CONCLUSIONS

Although women slightly dominate in the population of the European countries, they are very underrepresented amongst entrepreneurs, as they constitute only ca. 30% of the self-employed. This phenomenon has been widely studied, invoking different theories (the human capital concept, the theory of occupational choice, etc.). However, many scholars highlight the need to implement the industry-specific perspective into the analysis, since empirical studies mostly lack such attempts. Therefore, the aim of this study was to verify whether determinants of female entrepreneurship varied in male-dominated and female-dominated industries. The results clearly indicate that there are significant differences between these types of activities. Male-dominated industries are highly impacted by industry-specific determinants, whilst such dependencies are less observable amongst female-dominated ones. Therefore, we see an increasing need to conduct analyses as industry-led studies, since industries cannot be treated as homogenous.

The conducted study, however, has some limitations. Firstly, we restrict the analysis to only two industries, which exemplified the adopted perspective of male- and female-dominated industries. However, there is a pressing need to conduct similar studies on a wider sample of industries. Secondly, the studied sample was relatively homogenous in terms of country-specificity, i.e. the countries included in the study are either members of the European Union or are closely associated with it. Therefore, they follow similar institutional regimes. Potential developments on the topic might include the influence of institutional distance in the creation of (un)favourable conditions for female entrepreneurship. With the development of today's business reality, there is a pressing need to focus on the

issue of entrepreneurship and especially on the female entrepreneurship. We fear, however, that the previous insistence on treating entrepreneurs as one homogenous sample lacks justification. Therefore, we should analyse it in a context-based perspective, which will allow for more accurate and to-the-point observations.

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Government policy, financial inclusion and performance of SMEs in South Eastern Nigeria

Kenneth Chukwujioko Agbim

ABSTRACT

Objective: This study seeks to determine the contribution of government policy and Financial Inclusion (FI) to the financial and non-financial performance of SMEs in South Eastern Nigeria.

Research Design & Methods: The study adopts qualitative methodology. The interview guide was pre-tested for reliability and validity. The study data were generated from purposively selected one hundred and twenty respondents. The audio recorded interview was transcribed and subjected to thematic content analysis.

Findings: SMEs that received support from the government recorded marginal financial performance and improved non-financial performance. Also, SMEs that adopted FI strategies and devices experienced improvement in both their financial and non-financial performance. However, SMEs that combined government, friends and family supports, and FI strategies and devices recorded better improvements in their financial and non-financial performance.

Contribution & Value Added: The combination of government, friends/family supports and FI strategies and devices gives better improvement to the financial and non-financial performance of SMEs in South Eastern Nigeria. Thus, the government can reinvent its policies so as to strengthen its implementing agencies and the families of SME owners. SME owners can achieve better financial and non-financial performance by combining government entrepreneurship incentives, friends/family supports and FI strategies and devices.

Article type: research paper

Keywords: Government policy; FI; financial performance; non-financial performance; SME; CBN

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INTRODUCTION

Small and medium-sized enterprises (SMEs) have the potential to improve employment generation, promote local entrepreneurship and indigenous technology development, improve wealth creation, reduce the rate of poverty, mitigate rural-urban drift, improve income redistribution, facilitate industrial dispersal, promote exportation, and improve the economic status of a nation (Abehi, 2017; Valentine, 2014). Yet, in Nigeria, the development and performance of SMEs is constrained by lack of enabling government policy (Bubou *et al.*, 2014; Eniola & Entebang, 2015). Moreover, the first ranked problem among all the problems facing SMEs in Nigerian is lack of finance for starting and developing the business (Etumeahu *et al.*, 2009).

The post-independence era in Nigeria is dotted with policies that are geared towards the development of SMEs. However, till date, financial exclusion has remained the main challenge of SMEs in Nigeria. Evidently, 39.2 million adults representing 46.3 per cent of the adult population of 84.7 million Nigerians were financially excluded. The World Bank, Global Findex data show that only 30.0 per cent of Nigerian adults transact through/with formal financial institutions; one of the lowest in Sub-Saharan Africa (CBN, 2012; Kama & Adigun, 2013). Financial exclusion is conspicuously predominant in Nigeria (Kama & Adigun, 2013) because greater part of the money in the Nigerian economy is outside the banking system. Specifically, the Central Bank of Nigeria (CBN) put the currency outside banks at N1.471 trillion as at March 2015 (CBN, 2015).

The Nigeria banking industry has more than 5,797 bank branches, 112,400,254 Automated Teller Machines (ATMs), 6,716,596 Point of Sales (POS) terminals and the average of 3,882 clients per branch. These infrastructures are operating below its potential and have the capacity to serve more clients (Sanusi, 2012). The SMEs financing practices show that formal financing is very negligible. The statistics show that personal savings and family source represents 84.6 per cent and 29.8 per cent respectively, while loans from banks and cooperative/Esusu represents 9.2 per cent and 8.0 per cent respectively (SMEDAN/NBS, 2012). The Federal Government of Nigeria in 2011 made Financial Inclusion (FI) a priority by initiating the National Financial Inclusion Strategy (NFIS) which was aimed at reducing financial exclusion from 39.7 per cent in 2012 to 20.0 per cent of the population by 2020 (Sanusi, 2012).

Most of the studies that have related government policy to SME performance are conceptual (Abbasi *et al.*, 2017; Eniola & Entebang, 2015), while the empirical studies that have related FI to SME performance are still rare in Nigeria (Eniola & Entebang, 2015; Ibor *et al.*, 2017). The choice of South Eastern Nigeria for this study is premised on the fact that 32.0 per cent of adults in South Eastern Nigeria are excluded from financial services (Akingunola, 2011; Nwite, 2014). In addition, numerous policies and institutions of the Federal Government of Nigeria that are geared towards promoting the development of SMEs have been implemented in the zone. Owing to the commonplaceness of SMEs in the zone, this study seeks to investigate the influence of these policies on the performance of SMEs and the contribution of FI to the performance of SMEs.

LITERATURE REVIEW AND THEORY DEVELOPMENT

Government Policy

Government policies are key elements that influence the establishment and sustainable performance of SMEs, and the economy of nations. Government can do this through grants and expert advices, financing products, flexibility in the conduct of business in the public sector, tax relaxation, loan without collateral, guaranteeing loan, and equity investment (Jasra *et al.*, 2011).

After Nigeria's independence in 1960, the Federal government formulated policies and established relevant institutions to support the development of SMEs. These include the industrial Development Centres (1960 to 1970) and the Small Scale Industries Credit Guarantee Scheme (SSICS) in 1971. The Nigerian Industrial Development Bank (NIDB) (1964), Nigerian Bank for Commerce and Industry (NBCI) (1973), and the National Economic Recovery Fund (NERFUND) (1989). In 2000, these institutions were merged to form the Bank of Industry (BOI) (Ayozie *et al.*, 2013; Babajide *et al.*, 2015; Olekamma & Tang, 2016). The Nigerian Agricultural Cooperative Bank (NACB) (1973), People's Bank of Nigeria (PBN) (1989) and Family Economic Advancement Programme (FEAP) (1997) were merged to form the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) in 2000. In 1986, National Directorate of Employment (NDE) was established to stimulate skills and entrepreneurship development (Ayozie *et al.*, 2013; Babajide *et al.*, 2015; Olekamma & Tang, 2016).

Small and Medium Enterprise Development Agency of Nigeria (SMEDAN) and National Credit Guarantee Scheme (NCGS) were established in 2003 to provide access to industrial infrastructures and credit. The Small and Medium Enterprises Equity Investment Scheme (SMEEIS) was formed in 1999, while the Rural Banking Scheme was introduced in the 1970s (Ayozie *et al.*, 2013; Kama & Adigun, 2013; Olekamma & Tang, 2016). In addition, in its efforts to encourage and support aspiring entrepreneurial youths in Nigeria to develop and execute business ideas, YouWIN was launched in 2013 (Anochie *et al.*, 2015). Similarly, owing to the high inflation rate and high cost of doing business in Nigeria (Rafiq, 2016), the Federal Government initiated the Ease of Doing Business Executive Order E01 to eliminate all impediments and bottlenecks, which make doing business in Nigeria cumbersome and problematic (Imandojemu, 2018; Ministry of Budget and National Planning, 2017; World Bank, 2015).

Financial Inclusion

FI is a process of promoting or ensuring access to appropriate financial products and services needed by all sections of the society and the vulnerable groups such as the lower income groups, the SMEs. FI is a means of giving credit facilities to stimulate self-employment opportunities (Chakravarty & Pal, 2013), and supporting business development especially in developing countries (Irakunda, 2017). The CBN established that FI is achieved when adult Nigerians have easy access to a broad range of formal financial services that meet their needs at affordable cost (CBN, 2012). The strategies employed by the CBN are: agent banking; mobile banking/mobile payments; linkage models; and client empowerment (CBN, 2012; Onalo *et al.*, 2017; Sanusi, 2012).

Small and Medium Enterprises

The National Council of Industries (NCI) definition of SMEs is adopted for this study. NCI (2001) define SMEs as the business enterprises whose total costs excluding land is not more than two hundred million naira only.

SME Performance

SME performance is measured using financial and non-financial indicators. The financial indicators include profit and growth (Panigyrakis *et al.*, 2007, as cited in Esuh, 2012). The measures of profitability are return on assets, return on investment and earnings per share (Monday *et al.*, 2014). The measures of growth are sales, employment and business revenue (Altinay & Altinay, 2006; Kelley & Nakasteen, 2005; Monday *et al.*, 2014). Non-financial indicators are customer satisfaction and customer's referral rates, delivery time, waiting time and employee's turnover (Monday *et al.*, 2014).

Empirical Review

Ibor *et al.* (2017) found that FI positively and significantly impacts the operation and growth of MSMEs. Salman, Ayo-Oyebiyi and Emenike (2015) reveal that FI has a significant positive effect on the growth and development of SMEs. Abdulrahman and Olofin (2017) establish that FI is positively and statistically related to the inclusive growth of SMEs. Abeh (2017) empirically conclude that government efforts significantly affect the growth and development of SMEs. Onugu (2005) found that the poor performance of SMEs in Nigeria is due to instability of governments and inconsistency in government policies. It is evident from the review that empirical studies in this area are few. Moreover, there is a rarity of similar studies in South Eastern Nigeria. Therefore, the current study seeks to determine the contribution of government policy, and FI strategies and devices to the performance of SMEs in South Eastern Nigeria.

MATERIAL AND METHODS

Participants

The choice of South Eastern Nigeria is premised on: the commonplaceness of SMEs in the five States (i.e., Abia, Anambra, Ebonyi, Enugu and Imo States) that make up the zone; the rarity of studies that have related government policy and FI to SME performance in the zone; the challenges facing SMEs in the zone; and the need to enhance the performance of the SMEs in the zone. The study adopted purposive sampling technique. The study is limited to SMEs in the trading, services, manufacturing and agricultural/agro-allied sectors. Two SMEs were studied in each of the sectors per State. Three respondents (the business owner and two top level managers) were studied in each SME. In all, forty SMEs and one hundred and twenty respondents participated in the interviews.

Instrument for Data Collection

The qualitative data for the study were generated using the interview guide in the Appendix. Verbal permission to audio record the interview was sought for and obtained before commencing each of the interviews. During the interviews, the respondents were permit-

ted to ask questions at any point. On the average, each of the interviews lasted for twenty minutes. At the end of each interview, the audio recorded interview was transcribed.

Data Analysis

The generated qualitative data were subjected to thematic content analysis. In doing this, the coded quotes were underscored based on observed patterns amongst them. These patterns were then used to develop the study themes. The quotes were thereafter sorted according to the developed study themes. In presenting the results, pseudo names (i.e., **R** = Respondent & **SME** = Small and Medium Enterprise) were used to avoid revealing the identity of the studied SMEs and/or giving the public any reason to guess the identity of the respondents.

RESULTS AND DISCUSSION

The result of the study is presented based on the developed themes under two sub-headings; contribution of government policy to SME performance, and contribution of FI to SME performance.

Contribution of government policy to SME performance

The developed themes from the transcribed interviews on the contribution of government policy to SME performance are: sources of information on existing government policy for SME development; institution implementing existing government policy; nature of government support and consistency of the institution in delivering the support; and effect of the support on SME performance.

Sources of information on existing government policy for SME development

The following summarized responses lend support for the choice of this theme:

*...my friends told me about this government support programme (**R2 from SME30**).*

*I came to know NACB and the government support it was implementing through my TV and radio sets (**R1 from SME21**).*

Institution implementing existing government policy

The reason this theme was selected is substantiated by the following responses.

*The support I received from NDE helped to improve the performance of my SME (**R3 from SME3**).*

*Thanks to NACB...through their support, my SME perform better now (**R2 from SME40**).*

Nature of government support and consistency of the institution in delivering the support

The following responses substantiate this theme:

*I acquired the skills for my SME from NDE...committed at the beginning. At some point into the programme, NDE became inconsistent (**R1 from SME5**).*

I obtained the first loan for my SME from NACB. Afterwards I could not secure another. This was surprising since the inspection report of NACB showed that I needed more supports to strengthen my SME (R3 from SME9).

Although NDE and NACB still exist, their commitment to the implementation of these policies has greatly reduced (R2 from SME18).

Effect of the support on SME performance

The explanations in support of this theme are given by the following responses:

Without government support, my SME recorded improved performance. Through the support of friends and family members, my customers are satisfied. This is because I deliver quality products and services on time and retain my knowledge workers. I have also opened new SMEs (R1 from SME26).

Government support has helped my SME to achieve marginal profit and growth. Despite this, my SME has records of better delivery time, shorter waiting time, reduced employees' turnover and improved customer satisfaction (R3 from SME34).

Contribution of FI to SME performance

The quotes from the transcribed interview which are related to the contribution of FI to SME performance are grouped into three themes. The themes are: knowledge of financial inclusion strategies and devices; influence of FI strategies and devices on the siting of SMEs and business transactions; and performance indicators affected by FI strategies and devices.

Knowledge of financial inclusion strategies and devices

The assertions in support of this theme are explained by the following responses:

I'm aware that I can use the POS machine and my mobile phone to make payment and receive money (R1 from SME7).

I know that the closeness of bank branches and bank agents to my SME facilitate payments and receipt of money (R2 from SME11).

Influence of FI strategies and devices on the siting of SMEs and business transactions

The choice of this theme is elaborately captured in the following responses:

I chose this location for my SME because it is surrounded by bank branches that are connected to my SME with good road network. The area is dotted with bank agents. To me, these factors have helped to make paying in and withdrawal of money from the bank easier (R1 from SME16).

In my SME, we start and conclude business transactions without exchanging cash. This became possible when we started using POS devices and mobile phone banking (R3 from SME23).

Performance indicators affected by FI strategies and devices

This theme is supported by the following summarized responses:

Due to the closeness of my SME to the bank, the good access road to the bank, and the prevalence of bank agents, the rate of armed robbery attacks on my SME has reduced and I now spend less on security (R2 from SME38).

Ever since I started employing POS devices and mobile phone in business transactions, the customers of my SME are now better satisfied (R3 from SME27).

My customers are no longer afraid to visit my SME for business transactions, while the rate at which my workers resign has equally reduced. This is as a result of the significant reduction in the rate of insecurity in this area (R2 from SME35).

The introduction of the use of mobile phone in my SME for calls, money transfer and payment marked the beginning of carrying on business transactions without physical contacts. This practice has also reduced the time between receipt of payment and delivery of goods and/or services (R1 from SME22).

I have expanded into similar and different businesses using the profits I made from my SME (R3 from SME15).

With government support, at first I noticed little improvement in profit and better improvement in customer satisfaction, delivery time, waiting time and resignation of workers from my SME. After combining supports from the government, friends and family members with the strategies and devices that make payment and receipt of money easy, I observed better improvement (R2 from SME1).

The results of this study are consistent with previous findings (Abdulrahman & Olofin, 2017; Abehi, 2017; Ibor *et al.*, 2017; Salman *et al.*, 2015). However, the current results are somewhat different from previous results. Previous findings have shown that FI strategies and devices, and government policy or support for SME development improves the performance and growth of SMEs. No past result seems to have depicted the contribution of such policy, strategies and devices to the financial and non-financial performance of SMEs.

Globally, SMEs are known to add to a nation's Gross Domestic Product (GDP) (Noor, 2016). In Nigeria, 46.54 per cent of the GDP are contributed by the Micro, Small and Medium Enterprises (MSMEs) (SMEDAN/NBS, 2012). This suggests that SMEs in Nigerian need the attention of the Federal Government. This attention should be geared towards assisting the SMEs with favourable policies that ensure they have access to finance and relevant trainings (Etumeahu *et al.*, 2009). Through these policies and institutions, the government can provide adequate enabling environment and monitor the establishment and performance of the SMEs (Aiyedun, 2004; SMEDAN/NBS, 2012). Government support is important to SMEs because lack of the resources such as finance and trainings that come with such policies can limit the capacity of SMEs to improve their performance (Harvie *et al.*, 2010; OECD, 2009). However, SMEs have not been sufficiently provided with the much-needed government support to enhance their growth (Noor, 2016). Valentine (2014) asserts that when government policies are not effectively or efficiently reliable as a result of frequent volatility in policy formation, the tendencies for the unpredictability of investment environment and failures of SMEs operations becomes more pronounced.

In the view of Sathe (2006), government regulations can hinder as well as facilitate the development of new and existing SMEs. Despite these policies and institutions, many practitioners and researchers are of the view that among other factors, the inconsistencies in the

implementation of the policies and lack of finance have made the policies and institutions not to sufficiently facilitate the establishment and performance of SMEs in Nigeria (Akinbogun, 2008; Aremu & Adeyemi, 2011; Omoruyi & Okonofua, 2005). However, many SMEs are still being established every year in different sectors and parts of the country. Moreover, based on the financial and non-financial dimensions of performance, some of these SMEs have recorded improved performances (Harvie *et al.*, 2010). The foregoing therefore lends support to the result of this study. The current result has revealed that the insufficient and inconsistent support received by the SMEs from the government has helped the SMEs to achieve some level of performance especially non-financial performance.

Financial support is important for SMEs' superior performance (Wiklund & Shepherd, 2005). Generally, SMEs are deprived access to funds from formal financial institutions because lending to SMEs is risky, SME loan management is expensive and costly to supervise, and unavailability of comprehensive credit ratings that signal credit worthiness of SMEs. The inability of SMEs to meet the requirements for loans from formal financial institutions has made the owners of SMEs to resort to informal financial institutions for support (Porter, 1985). These assertions are in tandem with the current result that SMEs that did not receive government support were able to achieve improved performance based on the supports received from friends and family members. Thus, personal savings of an SME owner, and support from friends and family members can enhance the performance of the SMEs.

All over the world, savings mobilisation policies are known to contribute to FI. Unfortunately, the Federal Government of Nigerian does not have any policy in place for savings mobilization, most of her policies and intervention institutions are geared towards credit enhancement that are yet to produce the desired results (CBN, 2012). Zarook, Rahman and Khanam (2013) remarked that the performance of a firm influences its access to financing, particularly with formal source. The difficulty in accessing finance might prevent the SMEs from growing to their optimal size and can lead to many enterprises operating outside the formal system. This can equally translate to low productivity, sub-standard products, unemployment and untimely winding up of the SMEs. Despite this, proponents of FI have argued that formal source of finance remains reliable source of SMEs growth, development and performance in various countries, Nigeria inclusive (Kihimbo *et al.*, 2012; OECD, 2006; Oladele *et al.*, 2014; SAEED, 2009).

Before now, researchers have reported that the state of FI was relatively poor owing to poor implementation or adoption of wrong strategies and devices (Ajakaiye & Olowookere, 2013). However, the result of the current study reveals that FI strategies and devices contribute to the financial and non-financial performance of SMEs. Thus, the FI strategies and devices are not wrong. Corroborating this view, Triki and Faye (2013) asserts that FI helps individuals to grow their capacity, and firms to reinforce their human and physical capacity. Moreover, a high level of capital accumulation, right combination of other factors of production, good business environment, and reduced financial exclusion will bring about improved level of SMEs' performance. FI cannot be achieved if there is no good road network connecting the SMEs and the banks and if there is lack of access to secure, and reliable payment and settlement systems. Banks are important in the achievement of FI. However, their services must be easily and cheaply available when needed (Imandojemu, 2018; Jasra *et al.*, 2011; Nwafor & Yomi, 2018).

CONCLUSIONS

This study has shown that SMEs that did not receive any support from the government showed improvements in their financial and non-financial performance. The SMEs that received government support reported marginal profit. However, they recorded improvement in their non-financial performance. The FI strategies and devices used by these SMEs are POS device, mobile phones for financial transactions, agent banking and closeness of bank branch to the SME. The adoption of the FI strategies and devices helped to better improve both their financial and non-financial performance. It was further found that government support alone improves financial performance a little, while a combination of supports from the government, friends and family members, and FI strategies and devices improves both the financial and non-financial performance better. This study therefore contributes to the existing literature on SME performance by establishing that the combination of government policy, friends/family support and FI strategies and devices gives better improvement to the financial and non-financial performance of SMEs in South Eastern Nigeria.

The managerial implications of this study is that owner/managers of SMEs need to access loans and acquire skills through the government policy implementing institutions, and apply the FI strategies and devices in their SMEs. Specifically, this will ensure that their product/service quality is improved, delivery time is reduced, security challenges are reduced, knowledge workers are retained, customers are satisfied, profit is improved, and the business is diversified.

The government should reinvent its policies so as to strengthen its implementing agencies and ensure more consistent in the implementation of policies geared towards SME development. The relevant institutions saddled with the responsibility of implementing such policies should be more committed in delivering the supports. This is to ensure that the policies contribute to both the improvement of the financial and non-financial performance of the SMEs. To increase the level of empowerment given to SME owners, government can formulate policies that are targeted at improving the living standard of families. The supervisory functions of the Central Bank of Nigeria (CBN) over formal financial institutions should be strengthened to ensure the sustenance of the implementation of the FI strategies and devices, and the actualisation of FSS 2020. Aside support from the government and the benefits of applying and employing the FI strategies and devices, owner/managers of SMEs should also seek support from friends and family members for the improvement of the financial and non-financial performance of their SMEs.

The first limitation of this study is that the geographical scope is restricted to South Eastern Nigeria. Thus, the application of the results by implication will be limited to the zone. Secondly, the study covered only SMEs from the trading, services, manufacturing and agricultural/agro-allied sectors. This suggests that generalisation of the results for all sectors will be difficult since business sectors and the SMEs operating in them differ on the basis of resource needs (e.g., finance, training, skills). The replication of this study is needed in other zones of Nigeria or other parts of the world in order to confirm our results and by extension ensure the generalisation of our findings. Future research may investigate more business sectors to show the interplay between the dimensions of performance and different types of supports.

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Appendix: Interview Guide

1. Are you aware of any way that government supports the development of SME?
 - i. Who or what was the source of your awareness?
 - ii. Has your SME been supported by government in any way?
 - iii. What is the name of the government institution through which the support was provided?
 - iv. Can you describe the support your SME has received from the government?
 - v. Is the relevant institution saddled with the responsibility of facilitating the support consistent in delivering it to your SME?
 - vi. Has the support helped to improve the profit, growth and/or customer satisfaction, customers' referral rates, delivery time, waiting time, employees' turnover of your SME?
 - vii. If yes, tell me about the contributions to the performance of your SME.
 - viii. What about the continued facilitation of the support and the existence of the relevant institution?
2. How conversant are you with the strategies and devices that make payment and receipt of money easy for individuals and SMEs?
 - i. Which of the strategies and devices have you employed in business transactions involving your SME?
 - ii. Has the employment of the strategies and devices contributed to the profit, growth and/or customer satisfaction, customers' referral rates, delivery time, waiting time, employees' turnover of your SME?
 - iii. If yes, in what areas has the performance of your SME been improved?
3. Do you agree that a combination of government support and ease of payment and receipt of money among individuals and SMEs contribute to the profit, growth and/or customer satisfaction, customers' referral rates, delivery time, waiting time, employees' turnover of your SME?

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Older workers from the viewpoint of their younger colleagues. Do organisations fail to harness the potential of an ageing workforce?

Tanja Kosowski

ABSTRACT

Objective: Scholars agree that due to an ageing workforce which is observable in many societies around the globe, organisations will face an employee base that is getting older and more age-diverse (Kunze *et al.*, 2011). This development can be beneficial for organisations when its potential gets harnessed; however, it leaves us also with some concerns. Research studies found rather unpromising results for an ageing workforce in the organisation. This article sheds light on the perception of older employees from the perspective of their younger co-workers, where little is known about.

Research Design & Methods: It uses a qualitative study design through in-depth interviewing and metaphorical talk. In total, 27 interviews have been collected in Germany and Poland.

Findings: Respondents point out that their senior colleague possesses crucial human and social capital for the organisation. They further reveal obstacles which partially explain, why results from previous studies may vary.

Contribution & Value Added: The perception of younger employees offers valuable inside for employers and entrepreneurs alike. Employers have been found to have a somewhat negative attitudes towards the employability of senior-aged workers. Younger employees revealed that senior-aged workers are perceived to have a vital role in knowledge transfer by their younger colleagues.

Article type: research paper

Keywords: ageing workforce; older workers; human resource management; personnel management; qualitative study

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INTRODUCTION

The ageing of the population is identified as a grand global issue (Barkema *et al.*, 2015; George *et al.*, 2016). Under an ageing workforce, scholars understand an increase of high aged employees in the organisation, plus a more age-diverse employee base (Stankiewicz, 2015). A first concern is the strong presence of people belonging to the baby boomer generation in the workforce (Van Bavel & Reher, 2013). A second concern is an observation that fewer people enter the workforce in comparison to older people active in the workforce. The latter one results from corresponding trends which are evident in many societies around the world (e.g. decreasing fertility rate, increasing life expectancy, delayed entrance in the labour market owed to higher education, better access to health systems and increasing health conditions in high ages) (van Dalen *et al.*, 2009).

Consequently, companies are commonly confronted with the fact that their workforce is getting older and more age-diverse (Kunze *et al.*, 2011). One may ask why this observation is a grand challenge. Unfortunately, research indicates prevailing negative attitudes against older workers among managers (Turek & Perek-Białas, 2013), and employees alike (Finkelstein *et al.*, 2013). In result, older workers experience negative consequences, such as age discrimination (Patel *et al.*, 2018). Moreover, the results of studies undertaken on an increasing age diversity within the organisation are not too promising, at best mixed (Kunisch *et al.*, 2011; Kunze *et al.*, 2011). Negative attitudes, plus unpromising results from the field of age diversity management, could provoke counterproductive management decisions, recruitment decisions or human resource management decisions. Overall, it could have negative consequences concerning the employability of senior workers in organisations.

This study wants to contribute to the literature in two ways. It aims to shed light on the perception of older workers from the viewpoint of their younger colleagues, where little is known about (Patel *et al.*, 2018). Older workers are often described to possess a higher degree of expertise in comparison to their younger colleagues (van Dalen *et al.*, 2009). Hence, they are believed to have a focal role in generating social capital (Rabl & Triana, 2013). Second, it wants to understand the role of older workers within the organisation from the viewpoint of younger co-workers. Therefore, a qualitative study design was used to shed light on the perception of younger workers through metaphorical talk.

LITERATURE REVIEW AND THEORY DEVELOPMENT

Age diversity in the organization

As shown in literature, age diversity has a dual nature, exhibiting positive and negative effects (Kunze *et al.*, 2011). There is an ongoing debate concerning age diversity in general or the effects of age-diversity for the organisation. A well-supported stream in diversity researcher literature follows the *similarity-attraction paradigm*. Here, the adverse effects of age diversity get outlined. The assumption of similarity can be drawn from various surface-level diversity attributes, as demographics (e. g. age, gender, ethnicity) or deep-level diversity attributes (e. g. attitudes, beliefs. Social identity theory (Tajfel, 1978) and social categorisation theory (Turner, 1982) have been used to describe that individuals define themselves over their group memberships. The rationale of these theories suggest that people categorise others based on similarities and dissimilarities (Mohammed & Angell,

2004; Tajfel & Turner, 1986). In result, individuals tend to favour their group (in-group) at the cost of others (out-group), against which they tend to discriminate (Turner, 1982). There is vast support in the literature that age serves as a criterion based on which formation and categorisation processes can take place (Kearney & Gebert, 2009).

Diversity research outlining the positive effects of age diversity belongs to the *'information/decision-making perspective'* (van Knippenberg & Schippers, 2006). Important here is the information richness, resulting from the heterogeneity of team members. The heterogeneity can likewise be caused by surface- and deep-level diversity. Heterogeneity of group members benefits from complementing information, knowledge and experiences (Beckman & Haunschild, 2002). Within this stream, social capital theory and human capital theory are used to explain why diverse groups are often found to perform better than heterogenous groups (Rabl & Triana, 2013). Scholars mainly base their arguments on the information-richness and access to a wide range of capabilities and networks. (Gerpott *et al.*, 2017). Heterogeneity seems to be especially useful when facing non-standard problems (Carpenter, 2002). While human capital stands for the uniqueness of a person's experiences, skills, knowledge, abilities and expertise, gained throughout life (Becker, 1964), social capital describes the value of an individual's network for the organisation (Tasheva & Hillman, 2019).

In conclusion, the whole diversity research field made use of two main theoretical perspectives. While the similarity-attraction paradigm explains possible adverse outcomes of diversity, information/decision making perspective argues for the positive effects of diversity within organisations (van Knippenberg & Schippers, 2006). Overall, employers have a crucial role in handling an ageing workforce. They need to manage age diversity effectively within their organisations. Likewise, in the light of a potential skill shortage, they need to retain and recruit senior employees (Sousa & Ramos, 2019; von Bonsdorff *et al.*, 2018). Asking about employers' perception of an ageing workforce, increased age diversity and an increased number of senior employees in the workforce results so far are not too promising (Stypinska & Turek, 2017; Turek & Perek-Białas, 2013; Van Dalen *et al.*, 2015). From the viewpoint of employers, individual productivity of their employees plays a vital role in their assessment. Unfortunately, higher age often gets associated with a decline in individual productivity (Goštautaitė & Bučiūnienė, 2015). Having lower productivity compared to younger aged individuals is one of the most common age-biases, senior-aged employees have to face in the workplace. Although, up to date, studies are failing to prove that higher age and lower productivity are related (Costanza & Finkelstein, 2015). On the other hand, studies conducted among employers have frequently evidenced that employers associate senior-aged employees with lower productivity (Conen *et al.*, 2012; Turek & Perek-Białas, 2013). As found by Van Dalen and colleagues, the perceived *"productivity gap"* affects the recruitment and retention of senior individuals in the organisation (Conen, van Dalen and Henkens, 2012, p. 641).

Senior-aged employees in the organisation

Studies on age diversity, in particular, the groups of senior-aged workers are carried out by using different research samples (employers/managers, senior workers or co-workers (young and mid-aged)). Exemplary literature for studies carried out using the managers' or employers' perspective constitute a significant part in the up-to-date literature (Conen *et al.*, 2012; Rego *et al.*, 2017). A vast majority of studies also pertains to the perception of senior-aged individuals, reflecting their self-perception (Kraak *et al.*, 2018; Taneva *et al.*, 2014). Fewer studies are focusing on the perception of co-workers (Patel *et al.*, 2018).

However, considering an ageing workforce and an increase in senior individuals within the organisation, it becomes more critical that different aged individuals can work together effectively. One of the few studies which considered the viewpoint of younger employees, brought to light a rather negative attitude concerning the physical capability, productivity, use of technology and acceptance of change (Brooke & Taylor, 2005; Cadiz *et al.*, 2015). Such studies have, however, been carried out quantitatively and provide no insights. The main objective of the presented study is, therefore, to provide such insight with the help of metaphorical talk and in-depth interviewing.

MATERIAL AND METHODS

Methodology

The research is exploratory. It seeks to generate a more detailed view of the perceived role of senior workers from the viewpoint of younger co-workers. An extensive body of literature sheds light on senior workers in the organisation from the viewpoint of employers (Turek & Perek-Białas, 2013). Employees perceptions, in general, are rather underrepresented. We know only little about the younger employee's perception.

Since the aim is to explore perceptions of older workers in the organisation from the viewpoint of their younger co-workers, an interpretative research approach was adopted. The main research question guiding the study is: How do younger employees perceive their senior-aged co-workers. Younger employees have been asked to describe a senior-aged colleague with a metaphor. The openness of the qualitative method used facilitates data collection that is not constrained by categories of analysis that are predetermined and therefore allows for more depth and detail than a quantitative methodology.

The research question was explored in the German and Polish context. The data presented in this article are preliminary findings to a more extensive study on working in age-mixed teams in both countries. Considering both contexts together is reasonable, as Germany and Poland share essential cultural and institutional commonalities. Both are members of the European Union; they are neighbours and have geographical and economic closeness. However, they also have specific differences. Germany currently presents a participation rate of senior employees above the EU-average, while at the same time it is one of the oldest countries in Europe. On the other hand, Poland currently counts to the youngest countries in the European Union, with a participation rate of senior workers below the EU-average (European Commission, 2018). Taking both countries together allows drawing conclusion based on two different contexts (high participation rate of senior workers, and low participation rate of senior workers) which may facilitate to reflect reality in a better way. In total, 27 in-depth interviews have been collected among younger employees (employees aged 20-35 years).

A total of 15 interviews was collected in Germany, while 12 interviews have been conducted in Poland. All respondents have been knowledge workers within the service sector. Interview participants worked as engineers, sales engineers, accountants or consultants. Jobs in the service sector show an often higher degree of social interaction and collaboration, which seems to be crucial for the investigation of the research questions (Göbel & Zwick, 2012). Although the service sector was chosen as an exemplary industry, finance, information technology (IT) and insurance companies have not been considered. Research

proofed that these genres demonstrate to have high stereotyping behaviour (Posthuma & Campion, 2009). As the research does not aim to expose stereotypes about older age groups, they have been avoided.

At the outset of the research, the project the author sampled for service organisations using platforms such as Kununu, Staufenbibel, LinkedIn, Xing and own contacts. After five organisations declared their initial consent to participate in the research, the interview process started. The organisations, as well as the interview participants, helped to locate further participants within the organisation or outside. In the end, 12 service organisations in Germany and Poland contributed to the research project. All interviews were conducted on-site, recorded with the consent of the participant, and transcribed verbatim. The analysis involved a two-cycle coding process. During the first cycle, initial coding was used. Focused coding was performed during the second coding cycle. Hence, a combination of theoretical and convenience sampling was used to inform the research study.

All interviews were conducted on-site in the native language of the interview participants (German) or English. The interviews were transcribed, coded, and analysed using MAXQDA software. After the analysis, only selected excerpts were translated from German to the English language in a subsequent step. An interviewer guideline helped to ensure comparability between interviews but left enough room to allow for a more in-depth discussion of emerging issues. The openness allowed for a broader analysis of held perceptions and considered the internal burden of participants to talk about their perceptions and colleagues. Interviews ranged from 41-180 minutes and were recorded and anonymised during the transcription process.

The transcripts have been coded for references to perceptions of younger workers about their senior colleagues. Using open coding (Strauss & Corbin, 1998), a record of every kind of metaphor was kept in the participants' words, and constant comparative analysis was then used to aggregate metaphors into broader themes. Metaphors are an outcome of the cognitive processes of individuals. Metaphorical images comprise our way of thinking and reveal the connotation of words and the language we use. Hence, there is power in metaphors to structure our thoughts and present the essence of a topic (Latusek & Vlaar, 2015). I am aware that such a qualitative study, using metaphors of respondents may have its limitations. The qualitative methodology used may not allow for generalisability of the presented results with the same certainty as a quantitative study could. Especially, as qualitative studies must be closely interpreted in the context in which they have been performed. Further, respondents may have been influenced by their own stereotypical beliefs. However, it may provide a unique and in-depth understanding of the perception younger employees shape about their senior co-workers which was the main goal of the presented study. The metaphorical analysis revealed that younger respondents identified three major key themes when talking about a senior colleague. Metaphors used to describe an older colleague were mainly, network-related images, wisdom-related images, and scarcity-related images. Each of the key themes is elaborated below.

Empirical findings

Network related images

Network related images have been used to refer to two different kinds of network. Either respondents referred to the internal network of their senior colleagues (e.g. co-workers,

managers, owner) or the metaphor was used to point towards the external network (e.g. business partners, employees of competitors, clients) of their senior co-worker. For references to the internal network, interview respondents recognised that their senior workers have a well-developed network within the organisation. Senior colleagues have contacts to members of different teams, department, or units within the organisation. They also recognised that senior workers have contact with persons from different management levels.

My colleague here is a bit like in the lion king. But Scar and Mufasa are two completely different characters. They are also two different persons, and he often disagrees with our boss. They work together for so many years, they are friends, and our boss appreciates his opinion. Maybe Zazu would fit better in that case, yes he is like Zazu. He is always the one to inform our boss.

Younger colleagues value the strong internal network as it would help them to push their interests. Their senior co-workers would be able to refer them to a person who can help with internal issues. Further, some interview respondents mentioned that a strong relationship between their senior colleague and their manager would be profitable for them. In some cases, the senior colleague, therefore, addresses topics which other younger team members would be afraid of addressing.

Concerning the external network, respondents likewise outlined connections within the industry or to competitors, as well as a network of clients and business partners. Such strong ties outside the organisation can be profitable in many ways. Maintaining contacts within the industry or to competitors would help senior colleagues to get information from other organisations. The external network of senior colleagues was further mentioned as helpful when younger employees want to consider new possibilities outside their current organisation (e.g. job change).

The older ones are a bit like farmers. They work on the basis of relationships and loyalty. They can harvest each relationship. That is very much like a farmer; they can harvest their relations. They work together with this person for years, and now they just need to harvest the seed they planted many years ago.

Wisdom-related images

When using a wisdom-related image, respondents either talked about job experience, life experience, knowledge about the organisation or knowledge about the industry. Words, such as “wisdom”, “know-how” or “expertise” often have been used interchangeably. Other than knowledge related to the job, they also outline “career advice” and “life advice” as general guidance they receive from senior-aged colleagues. Therefore, respondents using such a metaphor wanted to outline a combination of substantial knowledge in the job, plus an equally substantial amount of life experience.

It is a bit like Gandalf. He is this powerful, good wizard from Lord of the Rings. He has the knowledge about witchcraft and secrets-, he is a good advisor for general life troubles too.

Most respondents using these metaphors also refer to specific hierarchical differences younger respondents perceive between them and their senior colleagues. Almost all used metaphors pictured the senior worker in a kind of authority position, while the younger

respondent pictured themselves in a non-authority position. The hierarchy gets established by a different knowledge base. While considering themselves as having knowledge gaps, they describe their senior colleagues as knowledge-rich. Respondents, therefore, agree that they can learn a lot from their senior colleagues, but do not see much knowledge they could offer in return. That knowledge difference creates a feeling of respect towards their older colleagues.

A would say a king-, or a superhero. Something in this direction. Someone you look up to. They usually do not make any errors. Well, I have great respect for them, because I can learn so much. There are so many things I need to catch up, and I hope I will get a chance.

Wisdom related images also have been used to describe a rather one-directional knowledge transfer between the younger employee and their senior colleague. Within their relationships, the senior colleagues would have the role of a kind of mentor or teacher, whereas the younger employee would represent the mentee or student. Knowledge within this relationship flows from the senior colleague to the younger colleague.

The old Jedi master and the young padawan, and the old Jedi master guides the young padawan. But I think that describes it well. The old Jedi master who has gathered experience and the young one who needs to be guided a bit.

In sum, these metaphors have been chosen to picture the knowledge base of senior colleagues. The used metaphors described a perceived hierarchical difference between the senior colleagues and the younger colleague. The rich knowledge base, plus the perceived hierarchical difference manifested in a feeling of respect what younger colleagues described to have towards their senior co-worker. Knowledge transfer is a central part of these metaphors, where knowledge would flow from the senior worker to the younger worker. Knowledge in their description related to job-relevant knowledge, but also knowledge about work and life in general.

Scarcity related images

Using metaphors to describe the isolation, respondents referred to senior workers as a minority within the organisation. Metaphors have been used from movies, cartoons, a particular profession, or from animals. All the metaphors pictured either a figure which leads a withdrawn life or a kind of endangered animal. Respondents using such a metaphor wanted to describe a lack of peers for senior workers in their organisation. Moreover, they wanted to point out that senior workers in their organisation are somewhat underrepresented in the staff base.

I would say senior workers are-, a bit chameleon-like in our organisation. They are extremely rare, I mean-, I think a few are working here, but only a few. I have one in my team, and I know of three or four others, but that is it, I think there are some more, but only one or two hands full. That makes them even more chameleon-like if you happen to see one than rather only one. You really must watch out for them.

The described scarcity is not problematic itself, as explained by the younger respondents. However, they perceive that since sometimes they are the only aged person among a group of younger colleagues, they self-isolate themselves further.

Probably, yeah, there is, probably he is not looking quite like Shrek, but then Shrek was not old, but he was sort of alone, living in the woods, aside from other people. And there were not many Shrek-like persons around, there was just Fiona also, but that was about it. And I think it is like this with Mr. xxx. He is a likeable person, likeable, but then he has nobody to talk to. You know what I mean, someone with similar interests, similar age. I think we are just too young for him.

CONCLUSIONS

It can be concluded from the metaphorical descriptions that younger respondents agree that their senior colleagues have valuable social capital for the organisation. The social capital for older workers consist of a vital internal (e.g. other members of the organisation, management members of the organisation) network and external network (e.g. clients, potential clients, business partners, former clients, members of other organisations), This social capital can be profitable for the organisation. However, some respondents also described situations in which this social capital may exert adverse consequences for the organisation (e.g. helping qualified colleagues to change to another organisation), as it can be used to help talented workers to find a position outside the organisation.

Much of the wisdom-related images, pictured the strong knowledge base of senior worker and would most probably suit to what is referred to in the literature as human capital (D'Netto *et al.*, 2014; Tasheva & Hillman, 2019). The knowledge described by younger respondents comprised different sorts of knowledge. There are qualitative differences among respondents. Some describe rather hard facts, such as sector knowledge, technical or product knowledge and usually referred to '*expert*' or '*expert knowledge*'. On the other hand, others referred to relatively soft sorts of knowledge, such as the knowledge about different methods, practical application of knowledge or codes of conduct and have been somewhat tempted to talk about '*experience*' or '*expertise*'.

Respondents in majority outline a classic transfer of knowledge in which knowledge flows from the senior colleague to the younger colleague. However, nowadays also, the reversed pattern could be of increased interest. As younger colleagues often feel great respect and little self-confidence towards their knowledge, younger co-workers could be discouraged or restraint to share their knowledge with their senior co-worker. In consequence, it may have a negative consequence for complementing knowledge which is said to be one of the significant benefits of having people of different age groups working together. People of different ages, especially younger employees, maybe constraint from sharing their knowledge. This may at least partially explain why not all investigated age-diverse groups succeed to harness their full human capital potential.

Scarcity-related images pictures senior workers as rather seldom and unique in the organisation. A lack of peers and a substantial visible minority of a particular age group within the organisation may create tokenism like environments for senior colleagues which in return could be detrimental for the motivation and well-being of senior colleagues in the organisation (Zimmer, 1988). Further, it provides a ground for age discrimination within the organisation (Comer *et al.*, 1998). Future research may want to distinguish between actual and perceived age discrimination of older workers. Some qualitative studies may also want to shed light on possible personal and interactional consequences for senior workers in strong age-dissimilar groups (extreme young groups).

The presented point out obstacles which could explain why harnessing the potential of a diverse age workforce gets hampered. Senior workers are of importance to the organisation as they possess relevant human and social capital. In line with the literature, possessing a diverse range of human and social capital does not always have to be automatically beneficial for the organisation (Kunze *et al.*, 2011). Harnessing the potential of human capital can also become hampered when members of other age groups are restrained from knowledge sharing possibilities, due to a predominant classic model of knowledge transfer, or feelings of inferiority. Social capital may become a disadvantage by missing development opportunities within the organisation. Lastly, the research brought to light that senior workers in the organisation are firmly underrepresented, which may bear the risk of creating tokenism-like environments that foster ageism in the workplace.

In summary, the presented study contributes to the literature in two ways. Firstly, it provides insight into the perception of the role of senior workers within the organisation from the viewpoint of young employees. Younger respondents perceived that their senior-aged co-workers are focal for an organisation's human capital, have a crucial role in knowledge transfer within the organisation, as well as they are important in the creation of social capital. Future research may have a closer look at the types of knowledge which are passed on from senior to younger colleagues, to gain a subtler understanding of the knowledge sharing process. What is more, within this study, young employees have been defined as individuals aged a minimum of 20 years, up to 35 years. Future research may wish to consider individuals belonging to Generation Z and individuals belonging to Generation Y separately. Secondly, employer opinions and opinions of company owner have, so far, reflected a rather negative attitude towards an increasing number of senior employees in the workforce. The presented brings to light positive aspects of an increasing number of senior workers in the workforce and outlines their focal role in knowledge transfer and the creating of social capital. Employers and entrepreneurs alike need to be aware of its positive aspects in order to potentially harness the potential benefits of increasing age diversity and an increasing number of senior employees in the organisation, to avoid counterproductive management decisions.

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