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Wydawnictwo Uniwersytetu Wrocławskiego sp. z o.o.
50-137 Wrocław, pl. Uniwersytecki 15
tel. 71 3752474, e-mail: sekretariat@wuwr.com.pl

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Mariusz-Jan Radło
ORCID: 0000-0001-7756-1613
Warsaw School of Economics
mjradlo@sgh.waw.pl

Aleksandra Szarek-Piaskowska
ORCID: 0000-0002-9553-7761
Warsaw School of Economics
aszare@sgh.waw.pl

Competitiveness of international merchandise trade: The case of Poland

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Abstract

The aim of the article is to present the possibilities that qualitative classifications of industries and goods introduce to the analysis of structural changes in the economy, as well as to assess changes in the international competitiveness of Polish merchandise trade in the long term. The article presents a review of the literature and the results of authors' own research on the structure of Polish merchandise trade. The study uses Lall's classification of goods which is relatively innovative and rarely used in the existing literature. By using this classification and the analysis of revealed comparative advantages (RCA) we also managed to assess the competitiveness of Polish exports. The research shows that since Poland's accession to the European Union, the international competitiveness of Polish trade in terms of its technological level has changed only slightly. After the growth in the first years of Poland's EU membership, the share of high technology products in the export structure stagnated in the 2010s and was still lower than that of medium or low technology products. Throughout the researched period, the RCA for high-tech products remained on the "foreign" side.

Introduction

The internationalization of the economy and the dynamic growth of exports were one of the key factors contributing to the growth of the Polish GDP. In the last two decades, the value of Polish exports of goods and services has almost quadrupled, particularly due to the strong increases in exports of intermediate goods and services. The increase in exports was fostered by, i.a., the proximity to European markets and integration with global value chains, competitive labour costs, and significant productivity gains (OECD, 2020). As a result, currently more than 40% of domestic employment depends on international markets. Polish exports also turned out to be resistant to short-term slumps — such as those experienced during the slowdown in world trade in 2011–2016 or the COVID-19 pandemic (OECD, 2020; Radło and Sagan, 2021).

The development of exports, on the one hand, stimulates future structural changes in the economy, and on the other hand, changes observed in the composition of exports are symptoms of structural changes that have already occurred in the economy. Therefore, taking into account the enormous importance of foreign trade for the development of the Polish economy, the aim of this study is to assess changes in the competitiveness of Polish exports, and indirectly — structural changes in the Polish economy between 2005–2020. In this study, we will use Lall's (2000) qualitative classifications of goods to show the degree of technological advancement or structural advantages of Polish enterprises, together with Balassa's (1965) revealed comparative advantage indicators (RCA) to estimate competitiveness in trade of specific goods. Structural changes in the Polish economy during the examined period will be approximated by changes in the structure of trade and RCA.

Previous research in this area has shown that Polish exports are highly dynamic, but small shifts can be observed towards an increase in the importance of sales of more advanced and more sophisticated goods (Czarny and Folfas, 2020; Nazarczuk, Umiński and Gawlikowska-Hueckel, 2018; OECD, 2020; Radło, 2011; Szczepaniak, 2018). Therefore, we hypothesize that, in the period under review, Polish exports exhibited high dynamics, but they were accompanied by rather moderate structural changes. This means that during the period in question, Polish economy developed relatively well. Yet, neither breakthrough changes in the competitiveness of products offered by Polish enterprises have been observed, nor new technologically advanced industries have emerged, the scale of which would induce changes in the product structure of Polish exports.

The first section of the article discusses the theoretical framework of the research, including the concept of competitiveness in trade and qualitative classifications of industries and goods. The second part is devoted to the description of the research methodology, sources of data and their processing, as well as in-

dicators used in the analysis. The final section presents the research results. The article ends with conclusions drawn from research findings, and some proposals for future research in the studied area.

1. Theoretical framework of the research

For years, analyses of economic (or national) competitiveness have been criticized by many authors due to the vague and subjective definitions of this concept, the impossibility of applying it to entities other than enterprises, or problems arising from looking at international trade through the prism of national competitiveness (Charrass, 2016; Krugman, 1994; Rinehart, 1995). Despite the observed criticism, competitiveness has long been, and still is, the subject of many research studies. This is evidenced by the number of scientific publications devoted to it. Even a simple search among books and articles in the ScienceDirect database indicates that the term "competitiveness" has appeared in over a million publications. Less frequently, although in numbers that are not negligible, it appears in combination with other terms: "national competitiveness" search identifies 2237 publications, "industrial competitiveness" — 2466, while "trade competitiveness" — 547. As shown by Radło (2008), one of the effects of the abundant research on competitiveness is the multiplicity of often very different definitions of the concept itself. Among reasons for this diversity, one should distinguish inconsistent views on the subjective scope of competition and its sources, as well as the difference of axiological approaches represented by various authors.

Competitiveness research in international trade is usually used to carry out a comparative analysis of selected economies[1] or analyze the performance of specific industries.[2] However, from the perspective of the research presented in this article, the most interesting part of the research on trade competitiveness focuses on structural modifications in national economies manifested by changing trade patterns and relative advantages in trade.[3] This approach is relevant because, as indicated by Melitz (2003), international trade not only allows for the identification of the current comparative advantages of various industries, but in itself it also creates pressure for structural changes in the economy, resulting in the relocation of resources to more productive firms.[4]

The trade competitiveness research uses various analytical methods, ranging from simple analyses of changes in the size and structure of trade in various industries or trade in various goods and services. More sophisticated assessments

[1] See, e.g., Bojnec and Fertő (2009), Shuai et al. (2022), Zhou and Tong (2022).

[2] See, e.g., Han, Wen and Kant (2009), Riker (2012), Drobetz, Ehlert and Schröder (2021), Long (2021).

[3] See, e.g., Uchida and Cook (2005), Riker (2012), Long (2021).

[4] See also Falciola, Jansen and Rollo (2020).

of competitiveness in the context of structural change or comparative advantage make use of more complex indicators such as revealed comparative advantages (Balassa, 1965; French, 2017; Herciu, 2013; Shuai et al., 2022; Startienė and Remeikienė, 2014) together with various taxonomies which allow for a qualitative categorization of goods, services, or industries. There are many classifications that may be considered. In his review of industry taxonomies, Peneder (2003) identified 16 classifications, of which 12 related to industries and 4 to goods. In turn, Kaplinsky and Paulino (2005) analyzed 22 classifications, of which 7 related to goods, while the rest related mainly to industries.

Due to the purpose of this work, which is the analysis of competitiveness of international merchandise trade, the classifications of industries will not be discussed here. It is worth noting, however, that most of such taxonomies refer to the scale of technological advancement, innovation, or quality (Aiginger, 2001; Davies and Lyons, 1996; Evangelista, 2000; Hatzichronoglou, 1997; Marsili, 2001; Pavitt, 1984; Peneder, 1999, 2010), but there are also classifications taking into account the structure of industries and their interrelationships (Dalziel, 2007) or the approach of enterprises to environmental issues (Andersen and Bams, 2022).

Among the classifications of goods cited by Kaplinsky and Paulino (2005) or Peneder (2003), a few deserve our attention, although in practice only one of them is suitable for a broad analysis of goods traded internationally. Classification of goods proposed by McGuckin et al. (1992), Hatzichronoglou (1997), or Jaffe and Gordon (1993) bypassed much of the trade in goods and focused on the identification of only high technology or high value goods. Therefore, applicability of these taxonomies to analyses presented in this paper is limited. In turn, Mayer, Butkevicius, Kadri and Pizarro (2003) in their analysis of international trade used Lall's (2000) classification of goods, but also proposed their own one based on trade dynamics.

From the perspective of the reviewed literature, Lall's taxonomy of goods seems to be the most extensive. The author distinguishes 6 basic and 11 specific product categories depending on the factor and technology intensity, based on the Standard Classification of Foreign Trade (SITC, revision 2). The breakdown into basic product categories includes: (1) primary products (PP), (2) resource-based manufactures (RBM), (3) low-technology manufactures (LTM), (4) medium technology manufactures (MTM), (5) high-technology manufactures (HTM), and (6) other transactions (OT). Some of the basic Lall categories are split into subcategories. RBM are divided into two categories (1) agro/forest-based products and (2) other resource-based products. LTM include (1) textile/fashion cluster and (2) other low technology manufactures. MTM are broken down into three subcategories: (1) automotive products, (2) medium technology process industries, and (3) medium technology engineering industries. And finally, HTM include (1) electronics and electrical products, as well as (2) other high technology. Although

Lall's classification allows for a fairly accurate grouping of products according to their level of technological sophistication, it also has some limitations. For example: it includes products of different quality or technology (internal combustion cars and hybrid cars) within one category, and does not inform to what extent the final product consists of foreign semi-finished products (i.e. whether the entire production process of a high-tech product took place in a given country or only the assembly of a product from foreign high-tech components). Such research, however, would require a slightly different approach and examining the trade in terms of value added, which can be done based on the input-output tables, which, in turn, relate to the analyses of trade between industries, not to trade in goods.

2. Research methodology

The article reviews the literature on the classification of goods and industries regarding their technological advancement as well as analyzes Polish trade flows based on these classifications. In addition, empirical studies of the structure of Polish merchandise trade were carried out according to Lall's classification and the RCA in Polish foreign trade were calculated.

The analysis of the structure of Poland's foreign merchandise trade was carried out according to Lall's classification for 2005, 2010, 2015, and 2020. The structure of exports and imports of goods according to Lall's classification was calculated by transforming the actual data on the value of Polish goods exchanged with foreign countries taken from SAD documents and INTRASTAT declarations given according to 6-digit Harmonized System (HS) codes into data of the Standard International Trade Classification (SITC, rev. 3, according to UN Trade Statistics, 2022), to which Lall's classification categories (UNCTAD Stat, 2022) were then matched. Since the output set includes data presented according to the HS codes in force in different periods, HS codes of products that were not in use in the 2017 HS database were manually assigned to the appropriate Lall's classification categories based on the category the product with the closest HS code belonged to in the 2017 database ('Nearest Neighbour'), and the type of product that a given HS code related to. The article analyzes the structure of Polish exports and imports of goods broken down into basic and detailed categories distinguished in Lall's classification. Moreover, the balance of Poland's merchandise trade was examined in accordance with the categories of the mentioned classification.

Apart from the structure of Poland's foreign merchandise trade, an analysis of the RCA in Polish foreign trade was performed. The RCAs were calculated for individual categories of Lall's classification for the years 2005, 2010, 2015, and 2020 in logarithmic terms (using the natural logarithm), using the formula for the modified formula by Balassa (1965):

$$RCA = \ln\left(\frac{x_{ij}^{K}}{m_{ij}^{K}} \div \frac{X_{ij}^{K}}{M_{ij}^{K}}\right)$$

where

x_{ij}^{K} – exports of the goods group 'i' from country 'K' to the group of countries 'j,'

m_{ij}^{K} – imports of the goods group 'i' to country 'K' from the group of countries 'j,'

X_{j}^{K} – global exports from country 'K' to the group of countries 'j,'

M_{j}^{K} – global imports to country 'K' from the group of countries 'j,'

i – Lall's classification category,

K – the analyzed country, i.e., Poland,

j – other countries of the world.

The values of the indicators are interpreted in such a way that a positive value of the indicator for a given category of Lall's classification shows that there is an RCA in Polish foreign trade as well as the intensity of this advantage, while a negative value of the indicator means having no RCA in a given category of Lall's classification (Misala, 2012).

3. Analysis of the research results

3.1. The structure of Polish exports and imports according to Lall's classification

Figure 1 shows the value of Polish exports of goods broken down into Lall's categories in 2005, 2010, 2015, and 2020. During the analyzed period, increases occurred not only in total exports of goods from Poland (by 265%), but also in exports within each category specified by Lall in his classification. Comparing the data from 2020 to those of 2005, the highest increase in the value of exports was recorded in the categories 'HTM: electronics and electrical products' (by 860%) and 'HTM: other high technology' (by 680%), which can be partially explained by a relatively low base value in 2005, and the lowest — in 'RBM: other resource-based products' (by 140%) and 'MTM: automotive products' (by 167%). Throughout the examined period, most goods exported from Poland originated from the categories 'MTM: medium technology engineering industries' and 'LTM: other low technology' according to Lall's classification. The third place in terms of the value of exports in 2005 and 2010 was occupied by the category 'MTM: automotive products,' and in 2015 and 2020 — by 'RBM: agro/forest-based products.' In all analyzed years, Poland reported the smallest exports in 'other transactions' category.

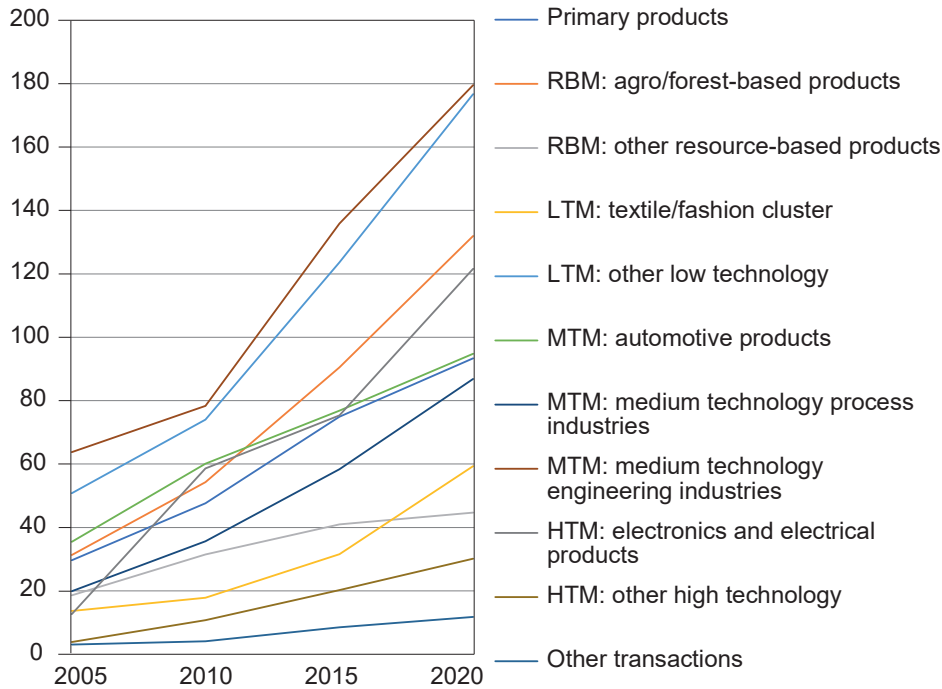

Figure 1. Exports of goods from Poland according to Lall's classification in 2005, 2010, 2015, 2020 (in billion PLN)

Source: own calculations based on the actual data on the value of Polish goods exchanged with foreign countries, taken from SAD documents and INTRASTAT declarations.

The data contained in Table 1 concerning the structure of Polish exports according to Lall's categories show that after a drop in 2010 compared to 2005, the share of the category 'MTM: medium technology engineering industries' (the largest category of exports by value) oscillated in the range of 17.4–18.4% in the subsequent analyzed years. Throughout the period covered by the analysis, 'LTM: other low technology' (the second largest category of exports in terms of value) accounted for 15.7–18% of the value of Polish exports of goods. The share of the category 'MTM: automotive products" (the third largest category of exports by value in 2005 and 2010) exceeded 12% of the value of exports in the 2000s and then dropped to 9.2% in the next decade. While the share of 'RBM: agro/forest-based products' — which has been the third category in terms of export value since 2015 — increased to almost 13% in 2020. Over the examined period, the largest increase in the share in the structure of exports of goods from Poland was recorded by 'HTM: electronics and electrical products,' which in 2005 accounted for only 4.5% of the export value, and since 2010 their share has ranged between 10% and 12.5%. Among other categories of Lall's classification, we observed growing importance of categories 'MTM: medium technology process industries,'

'LTM: textile/fashion cluster,' and 'HTM: other high technology' in Polish exports of goods. The share of the latter category in the structure of exports is still small and does not exceed 3% of the value of exports.

Table 1. The structure of exports of goods from Poland according to Lall's classification in 2005, 2010, 2015, 2020 (in %)

Product categories by Lall	2005	2010	2015	2020
primary products	10.5	10.1	10.2	9.1
RBM: agro/forest-based products	11.1	11.5	12.3	12.8
RBM: other resource-based products	6.6	6.7	5.6	4.3
LTM: textile/fashion cluster	4.8	3.8	4.3	5.8
LTM: other low technology	18.0	15.7	16.8	17.1
MTM: automotive products	12.5	12.7	10.4	9.2
MTM: medium technology process industries	7.0	7.5	7.9	8.4
MTM medium technology engineering industries	22.6	16.6	18.4	17.4
HTM: electronics and electrical products	4.5	12.4	10.2	11.8
HTM: other high technology	1.4	2.3	2.8	2.9
other transactions	1.0	0.7	1.1	1.2
Total	100.0	100.0	100.0	100.0

Source: own calculations based on the actual data on the value of Polish goods exchanged with foreign countries, taken from SAD documents and INTRASTAT declarations.

Summing up, after joining the European Union, Poland remained an exporter of mainly MTM (Table 2). Although their share in the structure of exports decreased during the analyzed period, they still accounted for over 1/3 of the value of Polish exports of goods. Almost a quarter of Polish exports concerned LTM and approx. 17–18% — RBM. Despite the fact that over the researched period, the share of HTM in the structure of exports of goods from Poland increased by several percentage points, it still did not exceed 15%. The largest increase in the share of HTM in the structure of Polish exports of goods took place in the first years after the EU accession, and since 2010, the structure of exports in the aforementioned product categories has stagnated.

Table 2. The structure of exports of goods from Poland according to the aggregated categories of Lall's classification in 2005, 2010, 2015, 2020 (in %)

Aggregated Lall's classification categories	2005	2010	2015	2020
primary products	10.5	10.1	10.2	9.1
resource-based manufactures	17.7	18.2	17.9	17.1
low-technology manufactures	22.8	19.5	21.1	22.9
medium technology manufactures	42.1	36.8	36.7	35.0

Aggregated Lall's classification categories	2005	2010	2015	2020
high-technology manufactures	5.9	14.7	13.0	14.7
other transactions	1.0	0.7	1.1	1.2
Total	100.0	100.0	100.0	100.0

Source: own calculations based on the actual data on the value of Polish goods exchanged with foreign countries, taken from SAD documents and INTRASTAT declarations.

In the analyzed years, the value of Polish imports of goods — similarly to exports — increased both in total (by 197%) and within each category distinguished by Lall (Figure 2). Comparing 2020 with 2005, the highest increase in the value of imports was recorded in the following groups: 'other transactions' (increase by 441%, low base value), 'LTM: textile/fashion cluster' (increase by 345%) and 'HTM: electronics and electrical products' (increase by 326%), and the lowest for 'primary products' (increase by 135%, high base value), 'RBM: other resource-based products' (increase by 146%), and 'MTM: medium technology engineering industries' (increase by 154%, high base value).

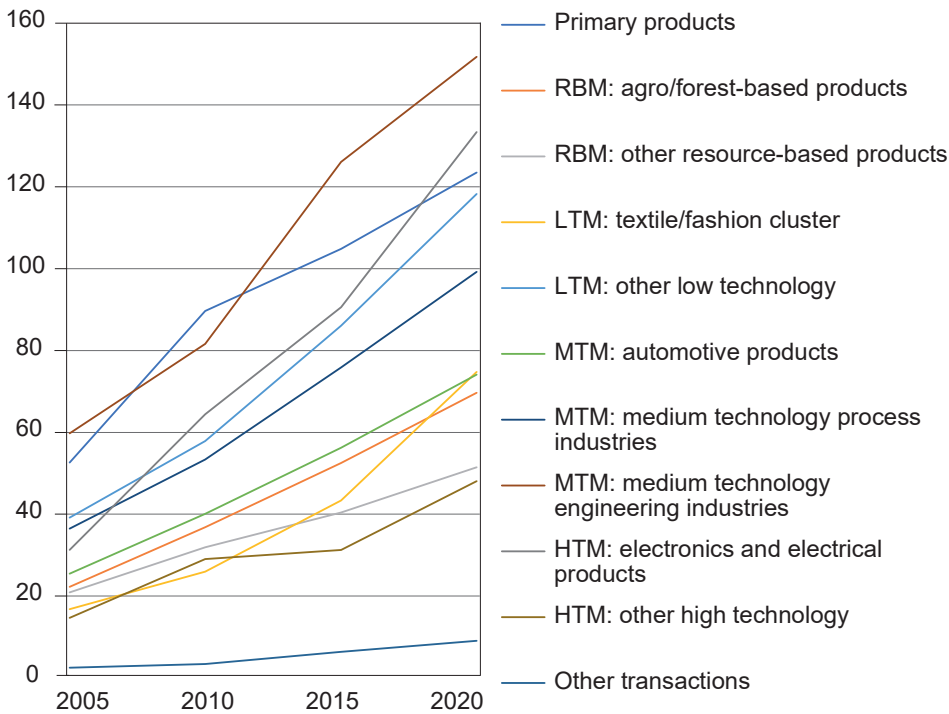

Figure 2. Imports of goods to Poland according to Lall's classification in 2005, 2010, 2015, 2020 (in billion PLN)

Source: own calculations based on the actual data on the value of Polish goods exchanged with foreign countries, taken from SAD documents and INTRASTAT declarations.

In 2005, the top three places in terms of the value of imported goods in Poland were occupied by 'MTM: medium technology engineering industries,' 'primary products,' and 'LTM: other low technology.' Fifteen years later, 'MTM: medium technology engineering industries' and 'primary products' were still in the top three major categories of Lall's classification by value of imports (1st and 3rd places, respectively), alongside 'HTM: electronics and electrical products' (2nd place). Throughout the entire analyzed period, Poland imports in the 'other transactions' category were the lowest.

The structure of the imports of goods to Poland according to Lall's classification is presented in Table 3. The share of the largest category of products by value of imports according to Lall (except for 2010) in the structure of the imports of goods — 'MTM: medium technology engineering industries' — fluctuated between 15.9% and 18.6% in the analyzed period. After an increase in the first decade of the 21st century to 17.5%, the share of 'primary products' in the import structure began to decline in the following years down to 13% in 2020. The share of 'HTM: electronics and electrical products' exhibited a constant upward trend in the structure of imports. In 2020 electronics and electrical products became the third largest category of imports in terms of value. It resulted from the increased consumer demand for high-tech products as the Polish society grew rich. The share of none of the other categories of Lall's classification in the analyzed years exceeded 12.5%.

Table 3. The structure of imports of goods to Poland according to Lall's classification in 2005, 2010, 2015, 2020 (in %)

Product categories by Lall	2005	2010	2015	2020
primary products	16.4	17.5	14.7	13.0
RBM: agro/forest-based products	6.9	7.2	7.4	7.3
RBM: other resource-based products	6.5	6.2	5.7	5.4
LTM: textile/fashion cluster	5.2	5.1	6.1	7.9
LTM: other low technology	12.2	11.3	12.1	12.4
MTM: automotive products	7.9	7.8	7.9	7.8
MTM: medium technology process industries	11.4	10.4	10.6	10.4
MTM medium technology engineering industries	18.6	15.9	17.7	15.9
HTM: electronics and electrical products	9.7	12.6	12.7	14.0
HTM: other high technology	4.6	5.7	4.4	5.0
other transactions	0.6	0.3	0.7	0.9
Total	100.0	100.0	100.0	100.0

Source: own calculations based on the actual data on the value of Polish goods exchanged with foreign countries, taken from SAD documents and INTRASTAT declarations.

In all analyzed years, Poland imported mainly MTM (Table 4). Although their share in the structure of imports fluctuated, over the entire period it exceeded 1/3

of the import value. In 2020, both LTM and HTM accounted for about 1/5 of imports. In the case of these categories — despite periodic fluctuations — a trend can be noticed, consisting in strengthening their position in the structure of imports. The share of PP in the structure of imports of goods decreased in the last ten years, while the share of RBM in the entire researched period oscillated around 13%.

Table 4. The structure of the imports of goods to Poland according to the aggregated categories of Lall's classification in 2005, 2010, 2015, 2020 (in %)

Aggregated Lall's classification categories	2005	2010	2015	2020
primary products	16.4	17.5	14.7	13.0
resource-based manufactures	13.4	13.4	13.1	12.7
low-technology manufactures	17.4	16.4	18.2	20.3
medium technology manufactures	37.9	34.1	36.2	34.1
high-technology manufactures	14.3	18.3	17.1	19.0
other transactions	0.6	0.3	0.7	0.9
Total	100.0	100.0	100.0	100.0

Source: own calculations based on the actual data on the value of Polish goods exchanged with foreign countries, taken from SAD documents and INTRASTAT declarations.

To assess the international competitiveness of Polish foreign trade, we also used data on the balance of trade in goods according to Lall's classification categories as presented in Table 5. After the deficit reported in the first decade of the 21st century, Poland generated a surplus in total trade in goods in 2015 and 2020. Throughout the analyzed period, the value of exports exceeded the value of imports in the following Lall's classification categories: 'RBM: agro/forest-based products,' 'LTM: other low technology,' 'MTM: automotive products,' 'other transactions' and 'MTM: medium technology engineering industries' (except 2010). In other categories of Lall's classification — 'primary products,' 'RBM: other resource-based products' (except 2015), 'LTM: textile/fashion cluster,' 'MTM: medium technology process industries,' 'HTM: electronics and electrical products,' and 'HTM: other high technology' — Poland recorded a constant trade deficit.

Table 5. The balance of Poland's merchandise trade according to Lall's classification categories in 2005, 2010, 2015, 2020 (in billion PLN)

Product categories by Lall	2005	2010	2015	2020
primary products	-23.0	-42.0	-29.9	-30.1
RBM: agro/forest-based products	9.1	17.5	38.0	62.3
RBM: other resource-based products	-2.3	-0.4	0.5	-6.8
LTM: textile/fashion cluster	-3.1	-8.1	-11.8	-15.4
LTM: other low technology	11.6	16.2	37.6	58.4

Product categories by Lall	2005	2010	2015	2020
MTM: automotive products	10.0	20.0	20.6	20.7
MTM: medium technology process industries	-16.6	-17.7	-17.5	-12.4
MTM medium technology engineering industries	4.0	-3.3	9.8	27.8
HTM: electronics and electrical products	-18.6	-5.8	-15.2	-11.8
HTM: other high technology	-10.8	-18.3	-11.0	-17.9
other transactions	1.6	1.6	3.1	3.6
balance of trade in goods	-38.1	-40.3	24.2	78.3

Source: own calculations based on the actual data on the value of Polish goods exchanged with foreign countries, taken from SAD documents and INTRASTAT declarations.

Despite Poland having been an EU member for several years, technological intensity of Polish exports still remains at an average level. Although after Poland's accession to the EU, exports of high-technology products from Poland increased, Polish exports continue being dominated by medium (mainly engineering industries) and low-technology (other low technologies) products. The share in the structure of exports of 'RBM: agro/forest-based products' is also high. This is reflected in the trade surplus in these categories. The stagnation in the share of HTM in the structure of Polish exports in the second decade of the 21st century is alarming. Although MTM dominate in the import structure, the share of high- and low-technology products (textile/fashion cluster) and primary products (due to the import of raw materials) is also high. In the case of the last three categories of Lall's classification, there is a surplus of imports over exports.

3.2. Revealed comparative advantages (RCAs) in Polish foreign trade according to Lall's classification categories

In order to assess the international competitiveness of Polish trade, RCAs of Poland's foreign trade for 2005, 2010, 2015, and 2020 were also calculated (Table 6). In the analyzed years, the RCAs in Polish trade were rather permanent. Throughout the researched period, Poland enjoyed an RCA in the following categories of Lall's classification: 'RBM: agro/forest-based products' (strengthening advantage), 'LTM: other low technology' (a declining advantage), 'MTM: automotive products' (the advantage decreasing since 2010), 'MTM: medium technology engineering industries' (the advantage growing since 2010) and 'other transactions' (a decreasing advantage). Over the years, Poland has lost its RCA in 'RBM: other resource-based products,' while not having any RCA in the other categories.

Table 6. RCA in Polish trade by Lall's classification categories in 2005, 2010, 2015, 2020

Product categories by Lall	2005	2010	2015	2020	2020–2005
primary products	-0.45	-0.55	-0.37	-0.36	0.09
RBM: agro/forest-based products	0.47	0.47	0.51	0.56	0.09
RBM: other resource-based products	0.01	0.07	-0.02	-0.22	-0.23
LTM: textile/fashion cluster	-0.08	-0.29	-0.35	-0.31	-0.23
LTM: other low technology	0.39	0.33	0.33	0.32	-0.06
MTM: automotive products	0.46	0.49	0.28	0.17	-0.29
MTM: medium technology process industries	-0.48	-0.32	-0.30	-0.21	0.27
MTM medium technology engineering industries	0.19	0.04	0.04	0.09	-0.10
HTM: electronics and electrical products	-0.78	-0.01	-0.22	-0.17	0.61
HTM: other high technology	-1.21	-0.91	-0.47	-0.55	0.66
other transactions	0.84	0.60	0.42	0.29	-0.55

Source: own calculations based on the actual data on the value of Polish goods exchanged with foreign countries, taken from SAD documents and INTRASTAT declarations.

However, it should be noted that in terms of high-technology manufactures, the RCA indicators for Poland were negative, which confirms the absence of RCA in trade in these products. Nevertheless, the value of RCA indicators for these product categories in 2020 was significantly higher than in 2005, which suggests a relative improvement in this regard. RCAs for medium technology products are rather low.

Conclusions

In the light of changes in the structure of Polish exports of goods according to Lall's classification, since Poland's accession to the European Union in 2004, the international competitiveness of Polish exports in terms of the level of technological advancement has changed only slightly. The most important feature of Polish exports in the period 2004–2020 was the almost constant share in the export structure of primary products, raw materials, and low technology products, and from 2010, also medium and high technology products.

A significant and systematic increase was observed in the total value of Polish exports and imports in the period in question. However, the three main categories of exports remained the medium technology engineering industries, other low technology products, and — in the 2010s — agro-/forest-based products. At the same time, main categories of imports included medium technology engineering products, primary products, and, since 2010, electronics and electrical products (HTM).

The share of high-technology products in the structure of Polish exports increased in 2005–2010. However, despite the dynamic growth in exports of this type of goods between 2010 and 2020, their share in total exports from Poland has not increased. As a result, in 2020, the exports of high-technology products were still lower than those of medium-technology products, low-technology products or resource-based products. This was reflected in the balance of Poland's merchandise trade for all Lall's categories over the entire examined period when Poland recorded a deficit in trade in high-technology products. A surplus of exports over imports occurred in the case of, i.a., selected categories of resource-based, low, and medium technology manufactures.

The type of balance of merchandise trade in different categories of Lall's classification coincided — with minor exceptions — with the absence of a revealed comparative advantage in Polish foreign trade. The RCA coincided with the surplus in the exchange of goods within a given category of Lall's classification, and the lack of the RCA coincided with trade deficit. Poland held RCAs in agro/forest-based products (RBM), other low technology products, and engineering and automotive products (MTM). The RCAs for high-technology products remained on the side of "foreign" partners. RCA indicators for high-technology products were negative, however they increased significantly over the period 2004–2020, which should be viewed as a positive structural trend.

It should be noted that the relatively stable structure of Polish exports after joining the EU, and the lack of shifting competitive advantages towards more advanced products should be a cause for concern. The reason for the lack of such changes in the structure of exports may be that the Polish economy developed competitive advantages in the categories of goods described and there were insufficient incentives for the development of high technology industries. Another factor may be the specificity of Polish export, which relies largely on the vendor–client relationship under which Polish exporters supply international companies, mainly from Germany. On the one hand, such a relationship creates opportunities for an increase in exports; on the other, the willingness of foreign recipients to relocate more advanced activities to Poland may be very low. The solution to this problem should be the subject of further research as well as of targeted public interventions.

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Alexander Lucian Drossart-Demond
ORCID: 0000-0003-0702-0218
University of Gdansk
alexander.drossart@outlook.com

Optimum currency areas: State of research, the European Monetary Union

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Abstract

The present paper deals with optimum currency areas (OCA). Its main goal is to give a synthesis of the central research areas in this field and provide a link to the real-life example of the European Monetary Union (EMU). Overall, the paper will possibly uncover potential areas for further research, and thus may be able to serve other researchers. The article illustrates the original OCA theory by Robert Mundell and further important research built upon it. The OCA criteria resulting from the foregoing research are then placed aside the actual Maastricht criteria set up by the European Union, necessary to fulfil for joining the eurozone. The question of whether these criteria are even necessary is examined alongside the topic of endogeneity, which is a relatively new field of research in the OCA field. Lastly, the pros and cons of joining a single currency area are analyzed, before the author provides suggestions for potential future research.

Introduction

In a world swaying between globalization and protectionism, the question of whether countries should continue to use their own currency is more relevant than ever. The motivation for this paper is to provide an entry point to the corresponding framework of the optimum currency area (OCA) theory, while also covering the stance of the European Union.

After discussing the theoretical framework and the research methodology, I will briefly describe the theory of optimum currency areas created by Robert

Mundell (1961), which can be considered the basis of all following research in this specific area. Additionally, further concepts that followed up on Mundell's original theory will be dealt with. Here, I will try to cover the most relevant ground regarding the state of current research.

After discussing the different theories of optimum currency areas, I will describe the Maastricht criteria. As the European Currency Union is a fitting example of a single currency area, it makes sense to look at the rules the Union set up for its member states and how they concur with the views of economists.

Out of all the theories dealing with optimum currency areas, the principle of endogeneity is one of the most recent and open topics. Therefore, it will be discussed in a separate section. Following that, I will present considerations regarding the perspective of a potential new member country while analyzing pros and cons of joining a currency union. Finally, after summarizing the current state of research, the results will be discussed.

The paper will attempt to show research areas requiring further exploration, which might lead to discussions in future papers. This can be seen as the main aim of this essay.

1. Theoretical framework of the research

With the end of the Bretton Woods system, 1971–1973, floating exchange rates between the currencies of the major industrial nations were established (Truman, 2018). Since then, it has been debated in many publications whether different countries should have their own currencies or a single one (e.g. in an article for the International Monetary Fund by Kocherlakota and Krueger (1998)). With Mundell's OCA theory, which will be discussed further, a basic framework has been established regarding this topic.

Moreover, with the introduction of the euro, the topic of currency unions has become the center of greater interest. Authors such as Frieden (1998) warned that the European Central Bank (ECB) may face inner conflicts when dealing with local recessions or financial crises within the EMU. In hindsight, it still cannot be answered for sure whether the benefits of a single currency union outweigh those of a country's own currency. The question, then, is to what extent currency unions have been researched and which criteria are relevant. Furthermore, this study can be applied to the eurozone and thus is of importance not only in theory, but also in practice.

2. Research methodology

The method used in this essay is quite straight-forward. As the goal of the paper is to expose open research topics regarding OCA theory and the eurozone, the

main method is the literature review of different papers and research approaches. With this goal in mind, some of the most exemplary papers regarding this topic have been analyzed for their key findings, e.g., those by Mundell, McKinnon, and Kenen. To make practical use of these findings, the framework of the EMU convergence criteria will also be reviewed and evaluated.

3. The classical OCA theory by Robert Mundell and further research

The classical theory of optimum currency areas has taken form in the 1960s, mainly thanks to three economists. Robert Mundell first introduced the theory in 1961 in his article "The theory of optimum currency areas." It states that a monetary union can only be successful if the labor mobility between the member countries is high enough. Because member states give up their instrument of devaluating currency, they can no longer react to differences in economic development. If, for example, a country faces an economic crisis, a devaluation of its currency would make produced goods cheaper abroad and thus increase the demand for them. With this natural instrument, a country can relatively easily steer against a crisis and its consequences, such as unemployment or inflation. However, in a monetary union, a country must face one common exchange rate to outside countries and a fixed exchange rate to other members. So, in an inefficient monetary union, price and wage levels can differ between member states, even if they are using the same currency.

Mundell then proposed an alternative to the missing instrument of currency devaluation to equalize different price levels: labor mobility. If a country faces high unemployment and low wages, people can move to areas of the currency union with higher wages and stable demand. This process would go on until price, wage, and unemployment levels are equal in the whole union again. For this mechanism to work, prices and wages must be flexible.

Mundell's original theory has been the basis for further research that has been conducted not long after. McKinnon (1963), just like Mundell, took a closer look at factor mobility as a main criterion for an optimum currency area. However, he distinguished between the geographical and the interindustry factor mobility. For example, if there are two regions with a different industrial focus and there is a rise in demand for a region's product, it now depends on the flexibility of the industry if the demand shock should be compensated by factor movement or by a flexible exchange rate. If the other industry can easily switch to the now more demanded product, a flexible exchange rate is optimal for an adjustment of the macroeconomic shock, as there is no need for factor movement between the two regions. However, if a switch of industries is not feasible, a factor movement towards the other industry, while using one common currency as proposed by Mundell, might be the right way to react to the new economic situation.

An additional adjustment to Mundell's and McKinnon's theories has been made by Kenen (1969), who focused on the diversification of economies. If an economy has a well-diversified industrial sector, it will not have to adjust in terms of trade (i.e., lowering its exchange rate) in case of a macroeconomic shock. A change of demand in one sector can be compensated with an increase of production in a more profitable sector. Thus, a fixed exchange rate with other economies is more feasible, as macroeconomic shocks can be better compensated by the area's own economy.

So, in the classical view, countries should form a currency union if macroeconomic shocks can be compensated by other means than adjusting their exchange rate. Those means — the factors of production, here: labor — must be mobile. Also, prices and wages need to be flexible enough to quickly react to demand shocks. Lastly, an economy needs to be well diversified to overcome smaller economic shocks at ease.

After this classical model, many more adjustments have been made to the original theory, and Mundell's theory has inspired many other economists to expand the criteria which need to be fulfilled for countries to join a currency union. These criteria are, according to Paolo Mongelli (2008): price and wage flexibility, mobility of factors of production including labor, financial market integration, the degree of economic openness, the diversification in production and consumption, similarities of inflation rates, as well as fiscal and political integration. While some of Mongelli's criteria can be covered by the previously described classical OCA view, the additional factors will now be described more extensively, providing an overview to the state of research in the OCA theory.

Financial market integration

Similarly to Kenen, Ingram (1962) also proposed a way to ease the effects of macroeconomic shocks, here through financial market integration. This also creates an alternative to the central bank instrument of lowering one's exchange rate to induce a higher number of exports. If the financial markets are integrated, it is easier for a country in a crisis to receive foreign capital of countries in the union, due to even the slightest adjustments of interest rates. This new capital can then be used to stimulate the economy. Schiavo (2008) also mentions that in one currency area, the eliminated risk of exchange rate fluctuations, will stimulate the flow of capital, thus bringing an ex-post advantage to members joining a currency union. Additional ex-post effects will be discussed in more detail in Section 5.

Similarities of inflation rates

The different economic motives of currency union member states were addressed by Fleming (1971). The dissimilar targets in rate of employment, economic policies, etc., could lead to a dispersion of the economic development of the member

states. To make sure that countries behaved similarly, Fleming introduced the convergence of the members' inflation rates as a factor. Similar inflation targets would indirectly lead to similar terms of trade and thus eliminate the need for different currencies. The inflation rate also became part of the Maastricht criteria, which the countries must fulfill to join the eurozone (see Section 4 for further information).

Fiscal integration

Also first pointed out by Kenen (1969) was the idea that in a currency union, member countries could help one another through redistribution of capital in times of crisis. This transfer mechanism in a fiscally integrated union would help overcome macroeconomic differences in terms of income and unemployment rates, and therefore serve as an alternative for a flexible exchange rate. Correspondingly, in a more recent model set up by Werning and Farhi (2014), their results showed that for countries outside a currency union, an optimal use of exchange rate adjustments will always be a better choice to ease the effects of macroeconomic shocks. However, in a currency union, where there are no possibilities of exchange rate adjustments, they show that risk-sharing through fiscal integration can have positive impacts. The beneficial effects of a fiscal union are greater with more persistent shocks and less open economies.

Political integration

Similarly to fiscal integration, political integration has also been proposed by numerous economists as an OCA criterion. Mintz (1970) mentioned how important the political will for integration in forming a currency union is. Machlup (1975) also found that many OCA definitions, in addition to the classical criteria such as free factor movements, had one common core: the willingness of the union members "to give up their independence in matters of money, credit, and interest." Thus, they also have a common monetary policy.

* * *

As so many prestigious economists keep on contributing to the topic and there still is the open question on which criteria are necessary to fulfill for an OCA, one can see how Mundell with his original theory inspired a broad field of research.

Summarizing these theories, the higher the fulfillment level of these and possibly other criteria between monetary union members is — i.e., the more economically and fiscally integrated they are — the less need there is for their own currency. If the common currency area is actually not optimal, a monetary union could negatively influence the economic performance of the member states.

4. Maastricht criteria

The EU itself also set up a list of barriers to overcome for countries to join the eurozone with the so-called Maastricht convergence criteria (European Union, 1992) for the European Monetary Union. If an EU member state fulfills the set goals in the fields of (1) inflation rate, (2) government budget deficit, (3) government debt-to-GDP ratio, (4) exchange rate stability, and (5) long-term interest rates, it can adopt the euro as its currency. As can be seen, the common goal of these criteria is to have an aligned monetary policy of the future members to concur with standards of the European Union. This ideally should reduce the risk for local macroeconomic shocks and thus make a common economic policy more feasible.

On the homepage of the European Union (2006), one can find a summary of the convergence criteria.

Price stability

"The inflation rate of a given Member State must not exceed by more than 1 1/2 percentage points that of the three best-performing Member States in terms of price stability during the year preceding the examination of the situation in that Member State."

Annual government deficit

"The ratio of the annual government deficit to gross domestic product (GDP) must not exceed 3% at the end of the preceding financial year. If this is not the case, the ratio must have declined substantially and continuously and reached a level close to 3% (interpretation in trend terms according to Article 104(2)) or, alternatively, must remain close to 3% while representing only an exceptional and temporary excess."

Government debt

"The ratio of gross government debt to GDP must not exceed 60% at the end of the preceding financial year. If this is not the case, the ratio must have sufficiently diminished and must be approaching 60% at a satisfactory pace (interpretation in trend terms according to Article 104(2))."

Exchange rates

"The Member State must have participated in the exchange-rate mechanism of the European monetary system without any break during the two years preceding

the examination of the situation and without severe tensions. In addition, it must not have devalued its currency […] on its own initiative during the same period."

Long-term interest rates

"The nominal long-term interest rate must not exceed by more than 2 percentage points that of, at most, the three best-performing Member States in terms of price stability (that is to say, the same Member States as those in the case of the price stability criterion)."

* * *

The bi-yearly convergence reports of the European Central Bank (2020) assess the readiness of the prospective EMU countries to adapt the euro as their currency, also taking the Maastricht criteria into account. Therefore, these reports give a good insight on where countries such as Poland or Hungary are on their way to becoming full-fledged EMU members.

Whether these standards are a viable choice as entrance criteria for a currency union has already been discussed by several economists. For instance, Paleta (2012) examined that the focus on price stability could worsen the effectiveness of a common currency if actual economic factors are not taken into consideration. He discusses Greece as an example of a country joining the currency union on a completely different economic level than the rest of the eurozone. Paleta also mentions the political background of the member countries as one of the reasons why divergence criteria often were obsolete due to ignorance in political decisions. Frait et al. (2004), in turn, criticized the exchange and inflation rate targets as contradictory, since countries would be pressured to ignore their inflation target in the two years before finally adopting the euro, just to meet the fixed exchange rate criterion. Some economists even deny the reasonableness of fulfilling any convergence criteria before joining a currency union.

5. Endogeneity of OCAs

Through the questioning of the Maastricht convergence criteria, a relatively new field of study arose: endogeneity of optimum currency areas. Frankel and Rose (1997) were among the first to state that it makes more sense to look at the EMU (European Monetary Union) criteria ex-post rather than ex-ante. In their model, they show that through continuous trade integration, business cycles of interlinked countries could synchronize. This circumstance is mainly caused by demand shocks appearing at the same time due to interindustry trade. So, if a country joins the EMU, it will not only increase its economic performance due to the loss

of trade barriers, but it will also synchronize its economic cycles with the other members. Because of this, there is a good chance that it will fulfill the divergence criteria after some time automatically ex-post.

To test the readiness of a country to join a currency area, Bayoumi and Eichengreen (1997) created an econometric equation consisting of several OCA criteria, thus creating an OCA index. Vieira and Vieira (2011) made use of this index and put Frankel and Rose's hypothesis to a test. By comparing the index for the EU countries before and ten years after establishing the eurozone, they found out that convergence had improved for nearly all countries, whether they were using the euro or not. Thus, the improvement in fulfilling OCA criteria cannot be singlehandedly attributed to the membership in the eurozone, but also to EU membership. Therefore, the authors could not prove endogeneity with this model. However, the financial crisis which hit some countries worse than others may have caused a bias in this period.

Another famous advocate of endogeneity within monetary unions is Paul De Grauwe, who has published several articles on this issue. De Grauwe (1996) already questioned whether the Maastricht critera were chosen as the right indicator for convergence of countries forming a monetary union. He also suggested to simply look at whether the benefits of joining a currency union outweigh the risks when making the decision as a country (see Section 6 for pros and cons).

De Grauwe and Mongelli (2005) also divided the possible endogeneities of the eurozone into different groups, such as economic integration (trade and prices), financial market integration, symmetry of shocks, and labor market flexibility. While looking at each criterion seperately, they came to the conclusion that some areas are showing more converging effects than others — for instance, that the currency union definitely improved inter-union trade. However, many financial market areas are still showing little to no integration effect. Overall, they are rather optimistic and suggest that endogenous effects are already at work.

One can certainly say that the endogeneity of a currency union is an interesting and open field in the OCA research, with much room for further research. Also, the EMU is continuously providing new data that can be analyzed in this regard.

6. Pros and cons of joining the eurozone

Lastly, taking a look outside the context of OCA theories, it makes sense to closer observe the perspective of a potential new member, as there need to be incentives to even consider giving up one's own monetary policy. Mankiw et al. (2008) list several advantages and disadvantages of being part of a monetary union.

The abolition of transaction costs

Trade between member countries is easier and cheaper since companies do not have to pay transaction fees for exchanging money before importing. The only aggrieved party in this case are banks, which earned money from these fees. However, for the economy as a whole, the advantages of no transaction costs outweigh the small possible shortcomings for banks.

The abolishment of price discrimination

The argument here is that if prices are now easily comparable with only one currency, consumers will buy where it is cheapest. This will force producers to offer their goods at market equilibrium prices, and as a result, social welfare will increase. This argument only holds true in theory, though, because goods with relatively high transport costs compared to their price will not necessarily become cheaper.

The decrease in changes of currency exchange rates

Discrepancies in exchange rates might stop companies from profiting from the positive effects of trade since there are always uncertainties regarding import prices. Even with fixed foreign exchange contracts, to secure a certain exchange rate, processing fees will occur and act as a tariff, which will ultimately decrease economic welfare. The certainty in exchange rates also positively affects exporting companies, since they can calculate their future export turnover more precisely and thus are able to better plan future investments. Conclusively, the whole economy would profit from an increase in investments through higher growth rates.

At the same time, Mankiw et al. (2008) do not only see advantages of a common currency. Countries lose their power concerning monetary policy. This can lead to tensions between member countries, because the independent European Central Bank, with its goal of price stability in the whole EMU, cannot act according to the wishes of all member states. If, for instance, France is worried about a high inflation rate and Germany is more concerned about its unemployment quota, German politicians would prefer a low interest level to increase domestic demand, while French politicians would rather see high central interest rates to decrease its aggregate demand and fight inflation. In the end, the ECB might determine an interest rate based on the average EMU inflation rate. So, in this example, the monetary policy for France with its high inflation rate would be too expansive, while being too restrictive for a country with an inflation rate below the EMU average.

To determine whether the advantages outweigh the costs, Krugman et al. (2012) make use of a GG-LL diagram (Figure 1).

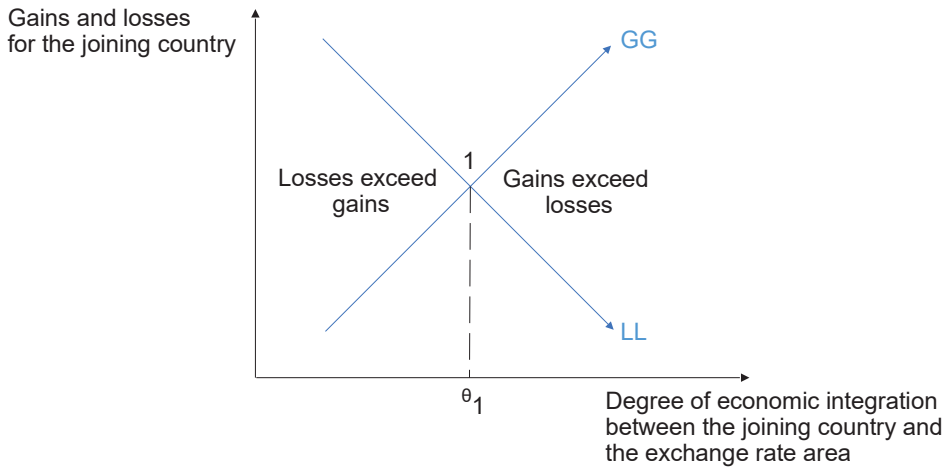

Figure 1. Deciding when to peg the exchange rate

Source: Krugman et al. (2012).

The GG curve represents the economic gains that a country would receive from joining a monetary union with fixed exchange rates. It increases with the degree of economic integration. The LL curve stands for the losses that a country would face for joining the monetary union. It decreases with the degree of economic integration.

Only if the gains outweigh the losses does it make sense for a country to join a monetary union. In cases where a country is indifferent, the degree of economic integration to join is denoted by θ_1. The GG-LL model is a basic framework for the optimum currency area theory.

Conclusion

The eurozone presents a perfect ground for further research in the field of optimum currency areas. A monetary union of this economic size has never been established before, so it seems like a real-life experiment, where the outcome is uncertain. Especially with all of Europe's cultural differences, some assumptions of the OCA theory may have to be rewritten or neglected if the EMU turns out to be a success. Especially the theory of endogeneity within currency unions holds a lot of possibilities for further research in which empirical data from the eurozone can be used.

Regarding potential research topics, other authors could analyze one of the countries which are not yet included in the exchange rate mechanism II, but are obliged to join the eurozone once they meet the Maastricht convergence criteria, without an opt-out option. These countries include Bulgaria, Croatia, the Czech

Republic, Hungary, Poland, Romania, and Sweden (European Central Bank, 2020). It certainly would be scientifically valuable to assess these countries for their readiness to finally join the eurozone. The Maastricht criteria here may be the wrong approach, not only due to their continued critique, but also because it is possible that some countries intentionally avoid having to join the eurozone.

With an ultimate goal to create a readiness ranking of the future eurozone countries, there are several possibilities to approach this issue. One could apply convergence models with a recent date, e.g., Frankel and Rose (1997) or Bayoumi and Eichengreen (1997). There is also a possibility to evaluate each country's personal benefits and costs of joining the EU and see if one side significantly outweighs the other. Lastly, one could look for further evidence of endogeneity to see if these states have to be ready to join the eurozone after all. It is even possible to define new convergence criteria and test these on the prospect or existing EMU countries. The amount of available data is only increasing, and this research field is offering many topics open for deeper analysis.

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Krzysztof Mroziewicz
ORCID: 0000-0003-4672-6504
krzysztof_m@poczta.onet.pl

Too big, too small: Why the size of the FOMC does matter

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Keywords: management, public administration, central banking, Federal Reserve System

Abstract

The present article discusses the effectiveness of the decision-making body of the Federal Reserve System (Federal Open Market Committee, or FOMC for short) in the context of management. It focuses on the size of the FOMC as a group larger than the optimum of the group's effectiveness (depending on the study, the optimum size of the group should be three to eight or five to seven people). The article also discusses the potential negative consequences of too large a group and ways to improve group decisions. The last part of the paper includes an explanation of the decision-making structural composition, and thus partially answers the question of why the FOMC consists of seventeen members, and its decision-making composition of twelve.

Introduction

The contemporary architecture of central banks is based on collegial decision-making bodies. According to the data of the Bank for International Settlements report from 2009, out of 47 surveyed central banks, only 15% had a non-group decision-making system (usually in such cases the decision-maker was the president of the central bank). In the remaining 85% cases, collective bodies were decisive, with an average of seven committee members. The report also states that the Federal Open Market Committee (FOMC) has 19 members and ranks second (after the General Council of the European Central Bank) in terms of the largest number of members (Bank for International Settlements, 2009). The purpose of this article is to discuss the effectiveness of the FOMC (as a group) in the light of management science. Previous empirical studies on the impact of the decision-

making process by the decision-making body of the Federal Reserve System were conducted by Ehrmnann, Tietz and Visser (2021, 1).

Management in central banks is quite a niche field of study. This topic was investigated by Vandenbushe (2006) who, basing on subject literature, tried to answer the question regarding the optimal number of a Monetary Policy Committee members. The functioning of the FOMC was described in books written by Kwiatkowski (2014) and Blinder (2001). Group efficiency was researched by Wheelan (2009) as well as Liker and Meier (2006). The article was based on a literature review from the fields of management and economics.

Exploring the topic of the efficiency of the FOMC, the article raises and investigates two issues:

1. the efficiency and construction of the Federal Open Market Committee as a team,
2. explanation of construction of Federal Open Market Committee.

1. Architecture of the Federal Reserve System

To better understand the issues relevant to this article, it is worth presenting the structure of the Federal Reserve System. The system is made up of twelve regional branches known as the Federal Reserve Bank — the de facto executive and control body of the Federal Reserve System. The primary tasks of the twelve regional branches of the Federal Reserve Bank include, among others: issuing and withdrawing cash, settling interbank transfers, and organizing public debt auctions in a given district. The Federal Reserve System is also based in Washington, where meetings of the main decision-making body of the Federal Open Market Committee are held. The FOMC was established under the Banking Act of 1935. Its final shape was specified in 1942, in an act amending the Federal Reserve Act. The FOMC has three main goals:

1. maximum employment,
2. price stabilization,
3. maintaining the stability of interest rates in the long term (Board of Governors of the Federal Reserve System, n.d.-a).

Formally, the committee decides on open market operations, but de facto also makes choices regarding discount rates, which are then officially regulated by the Board of Directors of every bank in the Federal Reserve System, and the required reserves, which are set by the Board of Governors (Kwiatkowski, 2014, 105). The FOMC is made up of nineteen members (seven members of the Board of Governors and all the governors of the twelve regional branches of the Federal Reserve System), with a restricted voting of twelve. Members of the Board of Governors are nominated by the President of the United States with the consent of the Senate for a fourteen-year non-renewable term and have permanent voting rights, while

the governors of the regional branches of the Federal Reserve System gain voting rights alternately every two to three years (the governors of the Federal Reserve of Cleveland and the Federal Reserve of Chicago gain voting rights every two years, while the presidents of other banks every three years), the only permanent member of the group of presidents of the regional branches of the Federal Reserve System is the president of the New York Federal Reserve System (Kwiatkowski, 2014, 105). Under the Federal Reserve Act, the FOMC meets at least four times a year at the request of the President of the Board of Governors or three members of the Committee on Open Market Operations. In practice, meetings are held more than four times a year (in 2017–2021, there were a total of 46 two-day meetings, including three unscheduled ones) (Board of Governors of the Federal Reserve System, n.d.-a). The agenda of the FOMC meeting is, in principle, always the same.

1. Reading the summary (FOMC minutes) of the previous meeting.

2. Speeches by the directors of the Department for Open Market Operations and the Department for Information and Statistics.

3. The presidents of the federal reserve gather their votes in the committee. Governors present the state of their district and express their position. The presentation is an introductory one.

4. The presidents of the federal reserve gather their votes in the forum of the committee. Governors present the state in their district and express their position. The presentation is informative for the rest of the FOMC members.

5. The issues of economic data forecast are discussed, followed by a discussion on the direction of future activities.

6. The President has the final vote, specifies the implementing directives, and the vote on the directive is also put to the vote.

7. The last stage before the publication of the meeting results is discussing the banking sector issues.

The governing body comprises the six-member Board of Governors, and the chairperson of the Board of Governors serves as the chief executive of the Federal Reserve System. The position of the Board of Governors chairperson is dominant. Their competencies include setting the agenda or summing up the FOMC meeting; they also have a decisive vote in the FOMC in case of a tie (Kwiatkowski, 2014, 107) and, above all, they are the "face" of the Federal Reserve System. The chairperson is the keynote speaker at press conferences and represents the Federal Reserve System outside the organization.

2. Group decisions in the central bank

2.1. Economic theory and group decisions in the central bank

The studies conducted so far indicate some economic benefits related to collective decision-making in central banks. Firstly, as Blinder (1998, 21) points out, collec-

tive decision-making bodies in the central bank create a check-and-blank system of their own accord. In this concept, the president or chairperson of the monetary policy board/committee is "anchored" by the rest of the board members not to use their dominant position, and they do not stand out in terms of views from other members. Secondly, group decisions eliminate extreme views (Blinder, 1998, 21). Thirdly, collegiality enhances independence. In a collegiate body, it is more difficult to exert pressure on individual members of the group, and the members themselves are most often elected by various centers of power. Alesina and Summers (1993, 151), among others, wrote about the economic benefits of central bank independence.

2.2. Management theory and group decisions in the central bank

As a rule, the academic literature shows that group decision-making is better than single-person decision-making due to the lower probability of making a mistake (Griffin 2014, 302). Among the advantages of making group decisions affecting monetary policy, the following can be mentioned:

— Different views. The group most often consists of members with different experience and education. Thanks to this diversity, a group can identify a larger number of problems and propose more solutions than a single person (Koźmiński and Piotrowski, 2009, 98). In the case of a direct goal, different views have an impact on the immediate goal of monetary policy, as the collegial decision-making body includes supporters of both "hawkish monetary policy" and "dovish monetary policy." However, in the case of intermediate targets, an example may be the decision on the "side" of the short-term Philips curve, which "illustrates the negative correlation between unemployment and inflation" (Krugman and Wells, 2012, 538). The short-run Philips curve is widely used in central banks for decision-making as well as by the Federal Reserve System (Hooper, Mishkin and Sufi, 2019).

— The mistakes of a single decision-maker can be noticed and removed by the group (Koźmiński and Piotrowski, 2009, 98).

— The group entails mutual influence of people. Thanks to free discussion, decision-makers inspire one another (Griffin, 2014, 301). Nowadays, central banks use discussions during meetings as a form of creating monetary policy. However, the analysis of the discussion may be difficult, as only 28% of 44 surveyed central banks affiliated with the Bank for International Settlements published minutes of meetings, and it is common practice to publish reports with a delay of several years (Bank for International Settlements, 2009).

Group decisions also have their drawbacks. Among these imperfections, one can mention the syndrome of group thinking, which consists in refraining from expressing dissenting views to provide the appearance of compatibility. Group

thinking has a negative impact on the critical thinking process, which deteriorates the quality of the final decision (Griffin, 2014, 304).

2.3. The FOMC as a group — analysis

The FOMC takes advantage of the benefits resulting from group decisions. First, the group is diverse. The Federal Reserve Act 10.1 explicitly states that FOMC members must represent the interests of different regions and industries. The current FOMC squad (as of April 2022) and previous squads met the legal requirements of Article 10.1. Moreover, the diversity of the FOMC manifests itself not only in the fields of "geographic" and interest representation, but also in education and professional career. Additionally, FOMC members have the right to express themselves and discuss freely, as well as to dissent during voting (dissenting votes). Each president of a regional branch of the Federal Reserve must also present the state of the economy in his district during the FOMC meeting and express their opinion. They also contribute to the Beige Book presenting economic data from individual regions.

The size of the FOMC is questionable. The results of research on the relationship between group size and group effectiveness are inconclusive. Research by Susan A. Wheelan (2009, 151) indicates a size of three to eight people as the most effective. In the case of groups of nine or more members, the efficiency does not increase (or even decreases) with successive members. At the same time, research conducted by Liker and Meier (2006, 154) shows that the optimal team size is within the range of five to seven people. However, it can be assumed that the upper limit of the group size is twenty-five — in larger teams, problems arise in terms of coordinating the body and dispersing responsibility (Pyszka, 2015, 13). Research proves that group size has an influence on the so-called bystander effect. A study by Darley and Latany concludes that the more people are present, the slower the response to an emergency and the lower the likelihood of intervention. The problem of the "bystander effect" is explained by the diffusion of responsibility — that is, "weakening in each member of the group the sense of duty to act, when he perceives responsibility as shared with all members of the group or it is believed that the leader assumed it" (Zimbardo, Johnson and McCann, 2010, 56).

Conclusions

From the presented analysis, we can conclude that the structure of the FOMC is in some respects an effective team. First of all, the group is diverse, the members have different professional experiences and education, and represent various regions and sectors of the economy. This means that the body can theoretically create more ideas and solutions. Furthermore, FOMC representatives have the opportunity to freely discuss issues — each member presents their point of view

and represents the interest of their district. Discussion and presentation create more opportunities and build the broader picture of the US economy as well as improve group decision-making as they overcome the pressures to group compliance that limits creative thinking. The size of the FOMC as a team, which may be ineffective and far beyond the group size optimum, remains a controversial issue. The consequences of too large a body may be low motivation and diffusion of responsibility, which could potentially delay the appropriate reaction of the central bank's decision-making committee in an emergency where intervention is required in a very short period. It is worth considering and undertaking further research on whether and how the Federal Committee for Open Market Operations tries to improve group decision-making, for example, whether it is struggling to apply nominal group techniques or brainstorming. A study could be carried out through a questionnaire addressed directly to FOMC members.

Despite reservations about the size of the group, it is important to remember the specific structure of the Federal Reserve System. Such a construction of the FOMC is anchored in the legal-historical order in which the Federal Reserve System operates, and it manifests itself in two areas. The first one is a mechanism called "check and balance." This institution is widely known in the American political culture; institutions control one another and none of them is dominant. In the case of the FOMC, "check and balance" works between the chairperson of the Board of Governors and the rest of the FOMC members. The president as a dominant figure is partially counterbalanced by other FOMC members.

The second area is federalism. The United States is a federal country where each region (state) has a high degree of autonomy. Within the construction of the FOMC, each president of the regional federal reserve system is automatically a member of the FOMC and is tasked with representing each district of the country. It is worth noting, however, the asymmetricity of the districts in the Federal Reserve System. The twelve districts are not evenly divided in terms of economy, population, or area (the largest district by population and territory is the twelfth district called the Federal Reserve Bank of San Francisco), while some states, such as Wisconsin, fall into two districts of the Federal Reserve System (Board of Governors of the Federal Reserve System, n.d.-b). This asymmetry creates doubts as to the adequate representation of individual regions.

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Mariusz Dybał
ORCID: 0000-0003-3539-9974
University of Wrocław
mariusz.dybal@uwr.edu.pl

Participatory budgeting: Is it a useful tool towards co-creation of public services?

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Keywords: participatory budgeting, co-creation, public services, citizens

Abstract

The research aim of the present paper was to check whether participatory budgeting fulfills the concept of co-creation of public services in Poland. To achieve this goal, the following research tasks have been implemented: (1) to identify the legal solutions of citizens' cooperation, (2) to identify the characteristics of participatory budgeting in terms of co-creating public services, (3) to identify the amount and structure of participatory budgeting, (4) to provide cross-country comparison, and (5) to identify difficulties in using participatory budgeting. It has been revealed that in 2021, participatory budgeting was most popular in big cities where it is compulsory. In 2019, Poland (with 2,014 budgets) and Portugal (1,666 budgets) were responsible for 71.69% of all implemented participatory budgets in Europe. In 2018, Europe constituted 48.9% of all worldwide projects, mostly because of their compulsory nature in Poland and Portugal. Participatory budgeting might be successful in its implementation, but needs: involvement of the local community; planning of preparatory activities; communication between all entities involved in the project; appointment of a team that will coordinate the preparation of the participatory budget. According to the research, participatory budgeting is a platform for social activation and providing services better suited to the needs of the inhabitants. Participatory budgeting is a certain form of co-creating public services, as the inhabitants create projects and decide on the allocation of funds for the implementation of public services. Nevertheless, it is a limited version of co-creation, since residents are not involved in all parts of the process. The research covers mainly the years 2018–2022. In the present paper, the following research methods have been used: analysis of scientific literature and normative documents, co-creation methodology, comparative analysis, and statistical analysis.

Introduction

The paper presents findings from the research concerning participatory budgeting as a useful tool of co-creation of public service innovations in Poland. The study is linked with the Popowice Laboratory project (ProPoLab for short). Figure 1 presents detailed roadmap of the ProPoLab as well as the information on project milestones (to the right).

ProPoLab is part of a pilot called "Co-housing of Seniors," the aim of which is to implement the concept of senior co-housing using the tools applied in the co-creation model. The experiment took place in Popowice (district of Wroclaw city, Poland), where local stakeholders and project implementers wanted to develop the space to realize joint plans and meet the stated needs (ProPoLab, 2018, 6).

The final look of the laboratory has to be decided by the stakeholders involved in the project (among others: residents, housing cooperative, municipality, developers, social and church organizations, NGOs). The project implementers encouraged the main stakeholders to develop their own definitions, tools, and models of the joint public services creation, which in our opinion would be a huge step in changing the public awareness in Poland regarding public services. As presented in Figure 1, this joint public service creation consists of:

— co-ideas,
— co-creation,
— co-governance and co-implementation,
— co-evolution,
— co-communication and co-dissemination.

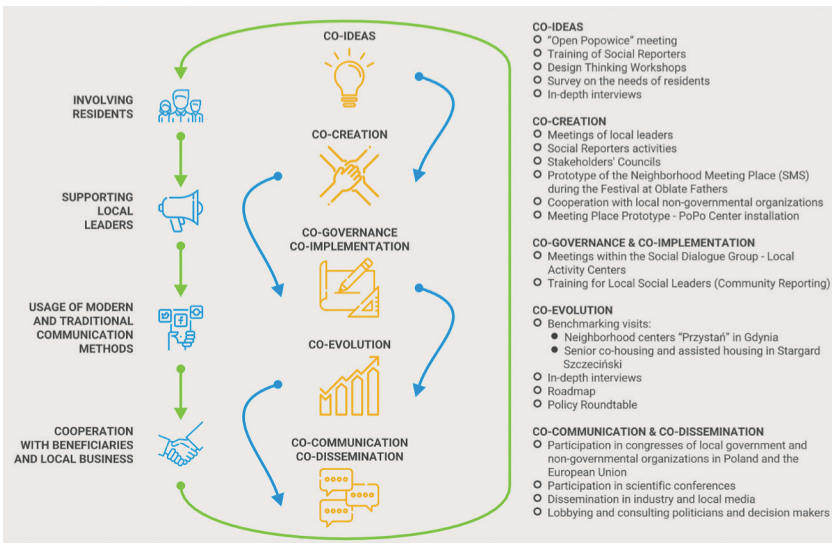

Figure 1. The roadmap of ProPoLab

Source: Wiktorska-Święcka et al. (2021, 186).

First, in order to be well-prepared for the co-ideas part of the project, desk research regarding the issue of co-creation of public services in Poland was conducted. We wanted to check: how co-creation is perceived in Poland, if it is present in scientific literature, what kind of policies could be reached with the help of co-creation, what examples of co-creation can be found in Poland, and whether or not citizens are involved in co-creation activities — and if yes, to what extent.

It is also worth mentioning that "Co-housing of Seniors," along with other eight individual (but interlinked) pilots, formed up the Co-creation of Service Innovation in Europe (CoSIE) project, which is part of the Horizon 2020. CoSIE is a consortium of 24 partners from 10 countries. According to CoSIE, public service innovations can be achieved by creating collaborative partnerships between service providers and beneficiaries. During the implementation of CoSIE (2017–2021), the collaborative partners tested and developed diverse methods of co-creation in the field of public services (Sakellariou 2008, 8).

Theoretical framework of the research

A breakthrough in the idea of co-creation of public services has its origins in the concept of public safety co-production. It was developed during the 1960s and 70s by Elinor Ostrom and her team, who used the term "co-production" in their research (Bovaird and Löffler, 2016b). Ostrom argued that cooperation between supply, customers, and service parties is a key factor in achieving the desired results (outputs) in most public services. Originally, co-production was defined as

> a combination of activities that are provided by both entities specialized in delivering public services and citizens who contribute to them. The former are involved as professionals or "regular producers," while "citizen co-production" is based on voluntary efforts by individuals and groups to improve the quality and/or quantity of the services they use. (Ostrom and Ostrom, 1977)

It should be mentioned that some researchers do not see significant differences between "co-creation" and "co-production," treating both ideas as complementary or having a similar connotation (Voorberg, Bekkers and Tummers, 2013). They use them synonymously or jointly. Others see significant differences and in their deliberations separate these concepts with strictly defined lines (Osborne, Radnor and Nasi, 2013).

Here, one can find characteristic of co-creation, which involves the active involvement of citizens in public service delivery by creating sustainable partnerships between local authorities and citizens (Voorberg et al., 2015). Co-creation is also the joint, collaborative, concurrent, peer-level process of producing new value, both materially and symbolically (Galvagno and Dalli, 2014). Another characteristic is the voluntary or involuntary involvement of public service users in any of the design, management, delivery, and/or evaluation of public services (Osborne, Randor and Strokosch, 2016).

In world literature, after the first conceptualizations of the citizen participation in the provision of public services as a phenomenon (Ostrom, 1996; Alford, 1998), the beginning of the 21st century brought researchers who began to analyze the possibilities of using it in various areas of the public sector (social care, health protection, safety, culture and entertainment, city management) and tried to identify the main motives, processes, and effects of using the concept (Pestoff, Osborne and Brandsen, 2006; Pestoff, 2012). Ostrom, laying the foundations for research on co-production, initiated a cycle of research dedicated to this area, extended by co-creation and continued by Pestoff (1998), among others. Thanks to them, it was possible to conduct in-depth research in this area in the following years (Pestoff and Brandsen, 2008; Pestoff, 2012). Recent co-creation and co-production research has evolved from conceptual framework to fact-finding: starting with the analysis of single case studies (Bovaird and Löffler, 2016a; Dybał, 2021a, 2021b, 2021c), then experimental (Jakobsen, 2013) and cross-sectional (Fledderus, 2015), finally extended into international comparative research (Voorberg et al., 2015; Wiktorska-Święcka et al., 2021, 22).

In Polish research, the term "co-creation" appears rarely, not to mention the related term "co-production." Other terms related to the concept of co-creation (co-design, co-management, co-governance) are not common either. Moreover, they are mostly used alternately and rarely with sufficient attention paid to the nuances and context. This is because, since the adoption of the Act of 24 April 2003 on Public Benefit and Volunteer Work (Ustawa z dnia 24 kwietnia 2003 roku o działalności pożytku publicznego i o wolontariacie, Dz.U. z 2003 r. Nr 96, poz. 873), the dominant term used by scientists to describe the relationship between non-governmental organizations, citizens, and public administration as a specific group of entities involved in the co-creation process is "cooperation." Therefore, if there is any relationship between the NGO or citizens and the public administration, it is defined as such. Consequently, most Polish research uses the terminology from 2003 (Ciepielewska-Kowalik, 2018, 57; Gumkowska, Herbst and Wygnański, 2005; Gumkowska, 2006; Herbst, 2008; Przewłocka, 2011), Institute of Public Affairs (Makowski, 2007; Kasprzak, 2007; Rymsza, Frączak, Skrzypiec and Wejcman, 2007; Niewiadomska-Guenzel, 2008; Olech, 2012).

It should be noted, however, that in Poland, the concept of co-creation/co-production in academic research is taken up — to a varying degree — by a narrow group of scientists (Ciepielewska-Kowalik, 2013; Kaźmierczak, 2014; Sześciło, 2015a, 2015b; Instytut Pracy i Spraw Socjalnych, 2015; Ciepielewska-Kowalik, 2016; Sienkiewicz-Małyjurek, 2016; Austen 2016; Heffner and Klemens, 2017; Gawłowski 2018a, 2018b; Kobylińska, 2018; Dybał, 2021a; Wiktorska-Święcka et al., 2021; Dybał, 2021b). Since the topic of co-creation of citizens and public institutions in providing public services is not widespread in Polish literature, I trust that this paper could be a valuable addition to it.

Research methodology

The lack of satisfaction from the existing possibilities of provided public services prompts public organizations and citizens to look for new ones. Co-creation occurs when citizens participate actively in delivering and designing the services they receive. As noted before, this form of improving existing practices can occur both in the aspect of co-initiating and co-designing, co-deciding, and then co-governance and co-implementing of public services.

In this paper, I focus on the cooperation between citizens and public institutions in Poland through co-creative approach towards the delivery of public services. The aim of the research was to check whether participatory budgeting realizes the concept of co-creation of public services in Poland. To achieve this goal, the following research tasks have been implemented: (1) to identify the legal solutions of citizens' cooperation, (2) to identify the characteristic of participatory budgeting in terms of co-creating public services, (3) to identify the amount and structure of participatory budgeting, (4) to provide cross-country comparison, and (5) to identify difficulties in using participatory budgeting.

The research mainly covers the years 2009–2022 and was conducted using the following research methods: analysis of scientific literature and normative documents, co-creation methodology, comparative analysis, statistical analysis.

Main findings

Since the meaning of co-creation has already been discussed, another term worth explaining is participatory budgeting. Thanks to the participatory budget, the inhabitants of the commune, district, village or housing estate can be involved in allocating local expenses. The authorities reserve a certain part of the budget for the residents, who decide for themselves what to spend the money on. They do this by: participating in identifying the most urgent expenses, submitting their own proposals, and playing a greater role in controlling public expenditure. Unlike with public consultations, in the case of participatory budgeting, the decisions taken by the residents are binding.

There are many different models for such budgeting, each of them varying in the scope of the inhabitants' direct influence. However, the most important thing is to allow the residents to speak. A participatory budget allows one to manage their money more efficiently. It facilitates the identification of the most important needs of the largest part of the inhabitants, allows one to effectively meet these expectations, encourages the integration of the local community, supports the local government community, and raises the level of social trust in local authorities.

Participatory budgeting means greater transparency of local government activities and involving citizens in the process of exercising power. Hence, it seems to be a useful tool towards co-creation of public services.

Unfortunately, in Poland, there is a shortage of legal solutions which allow for the participation of citizens acting in an informal way in the process of providing public services. At the core, there are only three possibilities: village council fund (*fundusz sołecki*), participatory budgeting / civic budget (*budżet obywatelski*), and local initiative (*inicjatywa lokalna*) (Wiktorska-Święcka et al., 2021, 77).

Since 2018, the provisions on the civic budget have been in force in the Act of 8 March 1990 on the on the Municipal Self-Government (Ustawa z dnia 8 marca 1990 roku o samorządzie gminnym, Dz.U. z 1990 r. Nr 16, poz. 95; hereinafter: the Act on the local government). Pursuant to Art. 5a sec. 3–7, the civic budget[1] is a "special form of public consultation which allow residents to decide on a part of the commune's expenses." This choice takes place annually as part of direct voting by residents. The tasks selected as part of the civic budget are included in the commune's budget resolution. In the course of working on the draft budget resolution, the commune council may not remove or significantly change the tasks selected under the civic budget. Moreover, since 2018, in communes which are cities with poviat rights,[2] the civic budget is obligatory, but it amounts to at least 0.5% of the commune's expenditure included in the last submitted report on the implementation of the budget (Ustawa z dnia 11 stycznia 2018 roku o zmianie niektórych ustaw w celu zwiększenia udziału obywateli w procesie wybierania, funkcjonowania i kontrolowania niektórych organów publicznych, Dz.U. z 2018 r. poz. 130). According to Art. 5a clause 7 of this Act, the commune council determines by resolution the criteria to be met by the draft citizens' budget, in particular: 1. formal requirements to be met by the submitted project; 2. the required number of signatures of residents supporting the project (however, it may not exceed 0.1% of the residents of the area covered by the pool of the civic budget in which the project is submitted); 3. rules for assessing the submitted projects as to their compliance with the law, technical feasibility, compliance with formal requirements and the procedure for appealing against a decision not to allow a project to be voted on; 4. the rules of voting, determining the results and making them public, taking into account that the rules must ensure equality and direct voting (Dz.U. z 2018 r. poz. 130).

It can be presumed that the decision on the compulsory preparation of a civic budget in large cities will have a notable impact on the development of budgeting in the future. This is quite a significant change, and it has only been several years since a civic budget was prepared in Poland for the first time (in the city of Sopot, in 2011).

[1] Due to the fact that the Act uses the phrase "civic budget," this expression is more common in Poland than "participatory budgeting."

[2] There are 66 units of this type in Poland.

The situation will be somewhat different in the years 2022–2023 because of art. 112 of the Act of 12 March 2022 on Assistance to Ukrainian Citizens in Connection with an Armed Conflict in the Territory of that State (Ustawa z dnia 12 marca 2022 roku o pomocy obywatelom Ukrainy w związku z konfliktem zbrojnym na terytorium tego państwa, Dz.U. z 2022 r. poz. 583). Therefore, as a consequence of the Russian invasion on Ukraine and the influx of refugees to Poland, the Sejm (lower house of Polish parliament) adopted regulations allowing cities with poviat rights to: a) suspend the implementation of the winning projects if their implementation has not started yet as of 2022, b) suspend the edition of the civic budget aimed at selecting projects for implementation in 2023, c) resign from the edition of the civic budget aimed at selecting projects for implementation in 2024.

Table 1. Data on civic budget in Poland as of 2021

Size of the city in thousands of citizens	Number of projects		Cities with civic budget (%)	Money spent	
	submitted	won		in millions of PLN	as % of budget expenditure
small (5–20)	1,260	459	28	26.4	0.27
medium (20–50)	2,037	607	51	58.0	0.36
medium (50–100)	1,909	467	75	71.4	0.46
big (100–200)	2,504	600	100	128.6	0.49
biggest (> 200)	8,884	1,612	100	323.3	0.50
Total	16,594	3,745	—	607.7	—

Source: Martela, Janik and Bubak (2022, 14, 51, 53).

According to data on civic budgeting in Poland as of 2021, presented in Table 1, the bigger the city, the more money spent on civic budget. Small cities spent 26.4 million PLN while the biggest — 323.3 million PLN. The same ratio is seen when we look at the money spent as a percentage of city budget expenditure. On average, civic budgets constitute as much as 0.27% of all budget expenditures in small cities. In contrast, big cities spend around 0.5% of their budget expenditures on civic budgets, so as little as the law forces them to spend on the commune's expenditure included in the last submitted report on the implementation of the budget. This also explains why all big cities offer civic budgets, and only 28% of small cities. In medium cities, depending on their size (medium 20–50 thousand or medium 50–100 thousand), civic budgets are implemented in 51% and 75% respectively.

Table 1 also presents data regarding the number of projects, as well as a breakdown of submitted and won projects. Overall, there were 16,594 submitted and 3,745 won projects. Once again, we can see a relationship between an increasing number of projects and the increase of city size. Small cities submitted only 1,260 projects, while the biggest ones — 8,884 projects. In terms of won projects, there were 459 for small cities and 1,612 for biggest cities.

Table 2. Number (percentage) of projects implemented in buildings as of 2021

Place	Size of the city in thousands					Total
	small 5–20	medium 20–50	medium 50–100	big 100–200	biggest > 200	
schools and kindergartens	29 (25.9)	61 (32.4)	11 (17.7)	52 (38.8)	95 (28.7)	248 (30)
libraries	11 (9.8)	9 (4.8)	9 (14.5)	23 (17.2)	130 (39.3)	182 (22)
fire stations	38 (33.9)	31 (16.5)	14 (22.6)	28 (20.9)	23 (6.9)	134 (16.2)
cultural institutions other than libraries	9 (8)	28 (14.9)	6 (9.7)	15 (11.2)	27 (8.2)	85 (10.3)
sports facilities	9 (8)	15 (8)	8 (12.9)	16 (11.9)	20 (6)	68 (8.2)
animal shelters and clinics	2 (1.8)	3 (1.6)	4 (6.5)	2 (1.5)	9 (2.7)	20 (2.4)
hospitals, clinics, emergency	1 (0.9)	8 (4.3)	1 (1.6)	2 (1.5)	4 (1.2)	16 (1.9)
rescue institutions except fire station	0 (0)	7 (3.7)	2 (3.2)	3 (2.2)	2 (0.6)	14 (1.7)
sacral	0 (0)	3 (1.6)	1 (1.6)	4 (3)	4 (1.2)	12 (1.5)
residential	1 (0.9)	1 (0.5)	2 (3.2)	0 (0)	8 (2.4)	12 (1.5)
other buildings	18 (16.1)	34 (18.1)	8 (12.9)	8 (6)	25 (7.6)	93 (11.2)
Number of winning indoor projects	112 (100)	188 (100)	62 (100)	134 (100)	331 (100)	827 (100)

Source: Martela, Janik and Bubak (2022, 59).

Table 2 presents data on the number and percentage of projects implemented in buildings as of 2021. As one can see, in 2021, there were 827 projects implemented in buildings, which represents around 22% of all won projects. From all of them, 248 (30%) were implemented in schools and kindergartens, 182 (22%) in libraries, 134 (16.2%) in fire stations, 85 (10.3%) in cultural institutions other than libraries, 68 (8.2%) in sport facilities. These are the most important indoor investments overall. We can also see that in biggest cities, most of the projects — 130 (39.3%) — involved libraries; schools and kindergartens are in second place, at 95 (28.7%). Medium and big cities spend most on schools and kindergartens — 52 (38.8%) and 61 (32.4%) respectively — and fire stations — 31 (16.5%) and 28 (20.9%) respectively. Fire stations are the most popular in small cities — 38 (33.9%) — and medium cities – 14 (22.6%). In second place are schools and kindergartens.

Table 3. Number (percentage) of projects implemented outside as of 2021

Place	Size of the city in thousands					Total
	small 5–20	medium 20–50	medium 50–100	big 100–200	big > 200	
green and recreation areas	118 (34.4)	174 (43.4)	135 (35.3)	178 (39.8)	533 (46.6)	1138 (41.9)
streets, lanes and yards	95 (27.7)	96 (23.9)	136 (35.6)	131 (29.3)	471 (41.1)	929 (34.2)
around kindergartens and schools	65 (19)	62 (15.5)	74 (19.4)	99 (22.1)	125 (10.9)	425 (15.6)
outdoor sports areas	51 (14.9)	55 (13.7)	25 (6.5)	36 (8.1)	38 (3.3)	205 (7.5)
municipal squares	9 (2.6)	3 (0.7)	7 (1.8)	10 (2.2)	20 (1.7)	49 (1.8)
at a cultural institution	5 (1.5)	10 (2.5)	2 (0.5)	6 (1.3)	10 (0.9)	33 (1.2)
fire station areas	4 (1.2)	5 (1.2)	2 (0.5)	3 (0.7)	2 (0.2)	16 (0.6)
cemeteries	2 (0.6)	3 (0.7)	1 (0.3)	1 (0.2)	4 (0.3)	11 (0.4)
other outdoor areas	12 (3.5)	9 (2.2)	15 (3.9)	6 (1.3)	5 (0.4)	47 (1.7)
Number of outdoor winning projects	343 (100)	401 (100)	382 (100)	447 (100)	1145 (100)	2718 (100)

Source: Martela, Janik and Bubak (2022, 58).

Table 3 presents data on the number and percentage of projects implemented outside as of 2021. Altogether there were 2718 projects which represented around 72% of all projects. From all of them, 1,138 (41.9%) were allocated to green and recreational areas, 929 (34.2%) — streets, lanes and yards, 425 (15.6%) — kindergartens and schools, 205 (7.5%) — outdoor sports areas. These are the most important outdoor places overall. Regarding the city size breakdown, one can notice that — with the exception of medium-size cities (50–100) — money was spend mostly on green and recreational areas, and secondly, on streets, lanes, and kindergartens. Altogether, these were responsible for 62.1% of all projects implemented outside in small cities, and around 87.7% in biggest cities.

For comparative purposes, data on participatory budgets in Europe has been provided in Table 4, according to which in 2019, 5,113 participatory budgets were implemented in selected European countries. Poland offered 2,014 participatory budgets, Portugal — 1,666, Spain — 334, Ukraine — 238, France — 195, Czech Republic — 163, Germany — 140, Italy — 116. These are only the countries with over 100 participatory budgets. At the same time, countries such as Norway, Croatia, or Ireland offered only one participatory budget.

Table 4. The number of participatory budgets by country and as percentage of total for Europe as of 2019

Country	Number of participatory budgets	Participatory budgeting as a percentage of total for Europe
Poland	2014	39.11%
Portugal	1666	32.58%
Spain	334	6.53%
Ukraine	238	4.65%
France	195	3.81%
Czech Republic	163	3.19%
Germany	140	2.74%
Italy	116	2.27%
Albania	54	1.06%
Scotland	33	0.65%
Finland	31	0.61%
Romania	26	0.51%
Estonia	21	0.49%
Slovenia	18	0.35%
England and Wales	15	0.29%
Slovakia	12	0.23%
Belgium	9	0.18%
Northern Ireland	8	0.16%
Sweden	5	0.10%
Bosnia and Herzegovina	4	0.08%
Moldova	4	0.08%
Iceland	4	0.08%
Ireland	1	0.02%
Croatia	1	0.02%
Norway	1	0.02%
Total	5113	100%

Source: Dias et al. (2021, 190–191).

Table 4 also presents the participatory budgeting data of countries as a percentage of the total for Europe. Poland had a 39.11% share, while Portugal — 32.58%. The two countries are responsible for 71.69% of all mentioned projects. Behind them, there is a significant gap, because in third place is Spain, with a 6.53% share. Then, there are six countries with a 1–5% share, and sixteen countries with 0–1%. One may wonder if there is a reason for such a disproportion. Well, the answer is clear. It is worth noting that in Poland and Portugal, participatory budgets are obligatory for some institutions, while in other countries they are voluntary.

Although participatory budgeting tends to be successful in some countries, it should be said that it is not an easy tool to use. Based on international experience and several examples from Polish cities, the following barriers to project implementation can be identified:

1. The need to ensure widespread participation of the local or regional community — proper implementation of the participatory budget must take into account the voice of all social groups interested in the project. No group can be excluded, nor can the public debate be dominated by any one of them.

2. The implementation of participatory budgeting requires the involvement of local politicians, local government officials, and the local/regional community. Different assessment perspectives and levels of knowledge about the financial capabilities of local government units require negotiation skills as well as good will on both sides.

3. Politicians' fear of losing their influence on the shape of the budget — it results from the belief that councilors are losing their monopoly on making decisions regarding the local budget. However, it should be remembered that maintaining constant contact with the local/regional community is among the duties of the representatives. Therefore, the councilor should be perceived not only as a decision-maker, but also as a moderator of the local debate regarding the priorities of a given local government unit.

4. The need to prepare a plan for passing the local government budget in advance. Therefore, it is necessary to prepare information materials for residents, conduct social consultations, and then make choices on the basis of which decisions regarding expenditure are made.

5. Growing expectations of the local community, which may be difficult to meet at the level of local authorities (Budżety obywatelskie, 2022).

Table 5. The number of participatory budgets by continent and as percentage of total as of 2018

Continent	Number of participatory budgets	Participatory budgeting as a percentage of total
Europe	3452	48.9%
Latin America and the Caribbean	2438	34.5%
Asia	734	10.4%
Africa	350	4.9%
North America	75	1.1%
Worldwide	7059	100%

Source: Dias (2018, 20).

Table 5 presents other comparative issues regarding participatory budgeting. This time the data has been presented by the continent breakdown. In 2018, there were 7,059 participatory budgeting projects. Among them, 3,452 have been implemented in Europe, 2,438 in Latin America and the Caribbean, 734 in Asia,

350 in Africa, and 75 in North America. Percentage-wise, Europe was responsible for 48.9% participatory budgeting projects, Latin America and the Caribbean — 34.5%, Asia — 10.4%, Africa — 4.9%, and North America — 1.1%.

As can be seen, both Europe and Latin America and the Caribbean were responsible for 83.4% of participatory budgeting in 2018. What is the reason? Well, in the case of Europe, it is due to the compulsory nature of civil budgeting in Poland and Portugal. Similarly, in the Latin America and the Caribbean, participatory budgeting is obligatory in Peru, the Dominican Republic, Panama, and Ecuador. Moreover, the first participatory budget was implemented in 1989 in the Brazilian city of Port Alegre, and afterwards spread all over the Latin America (Marquetti, Schonerwald da Silva and Campbell, 2012).

On the basis of international experience related to the functioning of participatory budgeting, a certain standard of its functioning can be identified. Its use makes it possible to achieve the benefits mentioned above as well as to avoid the barriers that naturally arise when preparing a project. The standard of participatory budget implementation is as follows:

— the selection of investments prepared for implementation within the budget should concern the level as close as possible to the inhabitants (e.g., district);

— the process of preparing a participatory budget should be planned in detail and start well in advance so as to avoid working under time pressure;

— it is necessary to involve a representative local group in the process of preparing the participatory budget;

— it is necessary to systematically monitor the representativeness of groups within the local government unit (LGU) involved in the implementation of the participatory budget. If there is an overrepresentation or underrepresentation of any of the groups, care should be taken to amend it;

— it is necessary to include the substantive part in the preparation of the budget, so as to provide people who will participate in the decision-making process with an optimal amount of knowledge about the financial realities of local government units;

— councilors and civil servants should participate in the process of preparing the participatory budget from the very beginning, starting with the preparation of a work plan;

— the success of the project largely depends on the involvement of councilors, which is why it is important to engage them personally as moderators of the debate within districts or housing estates;

— each decision regarding the preparation of the participatory budget is made public along with its justification. In particular, a justification is necessary if there is a change in the previously-made arrangements. Decision-making transparency is a prerequisite for trust and cooperation within the project;

— in the prepared materials intended for residents, care should be taken to use accessible language and avoid specialist wording which may make understanding the problem more difficult;

— the composition of the team dealing with the preparation of the participatory budget, the division of tasks, and contact details of these people should be made public, so that interested parties can submit their comments/suggestions on the project on an ongoing basis;

— any disputes or discrepancies related to the determination of the implemented investments/priorities should be made public;

— the time allowed for decision making and the resources that will be used to prepare the draft budget should be specified from the outset;

— from the very beginning, one should work on evaluating the project in order to summarize it at the end and use the knowledge in subsequent editions (Budżety obywatelskie, 2022).

Conclusions

The research aim of the paper was to check whether participatory budgeting fulfills the concept of co-creating public services in Poland. It has been revealed that in 2021, participatory budgeting was the most popular in big cities, where it is required by the law. Only 28% of small cities implemented participatory budgets, and 51–75% of medium ones. On average, 22% of budgets are spend on indoor, while 72% on outdoor projects. According to the data, around 70% of indoor projects involve schools, kindergartens, libraries, and fire stations. As to outdoor projects, around 90% of them involve green and recreation areas, streets, lanes, and yards around kindergartens and schools.

In 2019, Poland (with 2014 participatory budget projects) together with Portugal (1,666 projects) were responsible for 71,69% of all implemented participatory budgets in Europe. In 2018, Europe constituted 48,9% of all such projects worldwide, mostly because of their compulsory nature in Poland and Portugal.

Participatory budgeting might be successful when implemented, but needs: involvement from the local community — devoting time, exchanging ideas, willingness to cooperate are crucial for the success of the project; leadership — i.e., taking action, not only by representatives of local government units, but also by councilors, whose participation as moderators and informants in the process of preparing the budget is necessary; planning of preparatory activities; appointment of a team that will coordinate work on the preparation of the participatory budget; communication between all entities involved in the project — due to the large number of entities, the diverse levels of their knowledge and aspirations, this is a particularly important element, the functioning of which may be decisive for achieving the ultimate success.

According to the research, participatory budgeting is a platform for social activation as well as for providing services better suited to the needs of the inhabitants. Moreover, on the basis of the presented data, it should be stated that participatory budgeting is a certain form of co-creation of public services, as the inhabitants create projects and decide on allocating the funds for the implementation of public services. Nevertheless, it is a limited version of co-creation, since residents are not involved in all parts of the process.

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Wydawnictwo Uniwersytetu Wrocławskiego sp. z o.o.

pl. Uniwersytecki 15
50-137 Wrocław
sekretariat@wuwr.com.pl

wuwr.eu
Facebook/wydawnictwouwr

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