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ASSESSING THE EFFECTIVENESS OF THE IMPLICATIONS OF SELECTED SOCIAL POLICY INSTRUMENTS IN THE MANAGEMENT OF THE ELECTROMOBILITY DEVELOPMENT PROCESS IN POLAND

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Purpose: The aim of the article is to try to answer the question which of the social policy instruments can convince the society to adopt transport solutions based on the concept of electromobility to the greatest extent.
Design/methodology/approach: The considerations are social research, a research experiment in the form of a method (CAWI) was used, which was used to verify the role of selected instruments in the process of the announced transformation of social mobility. In the research area, the focus was on the assessment of possible changes in shopping preferences and transport mobility in terms of selected social policy instruments. Economic, legal and informational instruments were analysed.
Findings: The author indicates that the process of managing the development of electromobility should be implemented with the help of properly selected social policy instruments and go hand in hand with the changes taking place within an increasingly aware society.
Research limitations/implications: The presented survey research was carried out on a specific research sample of approximately 1,000 respondents. Certainly, in the near future there will be a need for much broader analyzes and research, in particular with regard to changes in the income of citizens, planned reforms of social programs and projected increases in the prices of energy resources.
Practical implications: The research results are the first approach to indicate to the government administration which social policy tools have the greatest impact on the process of managing the development of electromobility in Poland.
Social implications: Research shows that there are links between economic, social and environmental issues in the management of the electromobility development process in Poland.
Originality/value: The experimental research approach may be helpful in assessing the effectiveness of the implications of selected social policy instruments in the management of the electromobility development process in Poland.

Keywords: management, instruments, social policy, electromobility, development, market research.

Category of the paper: Research paper.

1. Introduction

As the available literature indicates, the key impulse for the development of electromobility was the document adopted by the European Commission called the European Economic Recovery Plan. The basic assumption of the project was to redefine pan-European standards in the field of social mobility, as well as to create the basis for the use of electric vehicles and the infrastructure supporting them in practice within 12 selected European countries. Although Poland was not among this group, the conclusions of the summary report were optimistic and prompted the Polish authorities to treat the topic of electromobility as the transport of the future seriously (Tucki et al., 2019). The idea of developing electromobility was included in February 2017 in the so-called Strategy for Responsible Development (Drożdż, 2019). However, the government's comprehensive strategy in this area was included in the Electromobility Development Program adopted a month later (Electromobility, 2017).

In most cases, electromobility is associated with reducing noise and CO2 emissions into the atmosphere, and thus improving the living conditions and health of the society (Chudy, Mazurek, 2019; Shi et al., 2019; Hajian, Kashani, 2021). Considering that in the available literature, social policy is defined as the purposeful activity of the state, local government entities, trade unions and other organizations, aimed at improving the general working and living conditions of wide strata of the population, as well as socio-cultural relations that lead to the optimal satisfaction of social and individual populations (Auleytner, 2012; Firlit-Fesnak, Szylko-Skoczny, 2017; Kurzynowski, 2011). Observations of the market reality indicate that the discussion on electromobility omit aspects related to the role of social policy instruments in the process of transformation of current transport preferences. The very instruments of social policy are all tools and means that influence the behavior of citizens to whom it addresses its programs, as well as those who are performers or create the social environment in which given programs are implemented (Rysz-Kowalczyk et al., 2002).

The typology of social policy instruments referred to in the available literature refers to i.a. to the resources available to various social policy entities (Firlit-Fesnak, Szylko-Skoczny, 2017). With regard to the idea of developing electromobility in Poland, it is defined by appropriate instruments, e.g. of an economic nature, e.g. subsidies for the purchase of a new electric car, legal, e.g. the possibility of driving a vehicle into zones excluded from traffic, or information campaigns promoting the purchase and operation of electric vehicles. Observations of the mobility transformation processes in other countries indicate that these instruments have a significant impact on the decisions made by the demand side, i.e. potential consumers. The author shares the opinion of other researchers (Cansino, Sánchez-Braza, Sanz-Díaz, 2018; Barbarossa et al., 2015) that their proper selection, especially in the current period of socio-economic uncertainty in the form of, for example, high prices of energy resources, may significantly influence purchasing decisions. On the one hand, we can expect further

reduction of unnecessary expenses in the opinion of the society and focusing on maintaining the current liquidity of households, i.e. repayment of basic liabilities and not the purchase of an electric vehicle. On the other hand, individual social groups and individuals may attach even greater importance to the relationship between ecological and economic issues. Adhering to the principle that in order to protect the environment, costs must be incurred in order for the benefits to appear later (Sofi et al., 2020).

Modern researchers emphasize that generating demand for electromobility goes hand in hand with changes taking place within society (Liao et al., 2016; Jochem et al., 2018; Larson et al., 2014). The main stream of social policy are social issues, i.e. phenomena and circumstances that create a state of social tension, threatening the wider community and causing deformations in the entire social development (Auleytner, 2012). In the scientific discussion on the behavior of society, there is therefore a noticeable increase in interest in the issues of electromobility, especially in the context of contemporary disputes regarding the possible benefits and risks associated with the development of electromobility in relation to individual countries, regions or even cities (Rezvani et al., 2015; Axsen, 2012; Barbarossa et al., 2015).

The analysis of the available literature on the subject showed that there is a lack of research on the impact of social policy instruments on the development of electromobility. In particular, publications relating to the demand side and societies of Central and Eastern Europe. Where plans for the development of electromobility encountered a serious problem in the form of lack of social acceptance. In addition, the presented research may be helpful in identifying the benefits and threats perceived by the society, related to the implementation of the Electromobility Development Plan in Poland. At the same time, constituting the basis for the verification of the current adopted strategy in the field of applied social policy instruments in this area.

Therefore, this article has many important practical implications, both political and economic. Considering that the aim of the research is to gain extensive knowledge on the impact of social policy instruments on the development of electromobility in Poland. The article was organized as follows. Chapter 2 contains a detailed description of the purpose, scope and research method used in response to the research questions. Chapter 3 describes the results of experimental studies and their interpretation. In turn, Chapter 4 discusses the results and presents conclusions - pointing to their limitations in the perspective of the research conducted so far, and indicates future directions of research in relation to the issue of the impact of social policy on the development of electromobility in Poland.

2. Materials and methods

2.1. Conceptual assumption

The aim of the entire research project was to obtain knowledge on the impact of social policy instruments on the development of electromobility in Poland. The description of the selected issue refers only to the recipients of social policy, i.e. the demand side. In the research area, the focus was on the assessment of possible changes in shopping preferences and transport mobility in terms of selected social policy instruments. Economic, legal and informational instruments were analysed. The questions focused on issues relating to, among others: to the possible benefits and threats related to the development of electromobility and the instruments used in the area of social policy. Following this line of reflection, an attempt was made to answer the following research questions:

- What benefits and threats does the development of electromobility bring to society in the opinion of the respondent?
- Which of the economic instruments in the area of social policy can have the greatest impact on the development of electromobility in Poland?
- Which of the legal instruments in the area of social policy can have the greatest impact on the development of electromobility?
- Which of the information instruments in the area of social policy can have the greatest impact on the development of electromobility in Poland?

2.2. Sampling method

In the context of the changing nature of the electromobility processes taking place in Poland and all the social effects of these changes that are still undetermined, affirmative actions have been taken in the field of the correct selection of people for research. The survey was addressed only to citizens who correctly verified the essence of electromobility and the nature of social policy. Therefore, the criterion of awareness was the main factor determining the participation of a given person in the study - potential respondents were initially verified if they met this condition. During the survey, the vast majority of respondents confirmed such a role and gave the correct answer to the first two questions asked for this purpose.

The selection of respondents for the study was carried out among the communities of citizens living in metropolitan areas. Where the effects of the development of electromobility processes are most noticeable. So is the awareness of the social policy instruments used in this regard. There was no division based on: age, occupation, education or gender. With one proviso that the respondents were only people who already owned a conventionally powered vehicle. Due to the diversity of respondents, one research course was conducted using one communication channel - the Internet. The time frame of the research was defined in the period

from January to December 2021. The research sample included 1341 respondents. Therefore, the adopted strategy involved recognizing a sample of 1000 interviews as sufficient for the adopted analysis scheme and made it possible to answer the research questions posed.

2.3. Description of the tool

The CAWI method (interviews conducted over the Internet) was used as part of the study. The questionnaire form enabling its completion was sent electronically and was made available on the appropriate website of the university. The survey was anonymous, which allowed the respondents to freely express their opinions. The layout of the presented results is reflected in the completed questionnaires. A group of survey questions was devoted to the issues of public awareness of the processes related to the development of electromobility and the impact of social policy instruments on this process.

2.4. Analysis scheme

During the research, 1389 completed answer sheets were obtained (1000 were accepted for analysis) in electronic form through a questionnaire sent via the Internet. The survey contained 10 questions related to the plans for the development of electromobility in Poland (an analysis of the answers to 4 of them is included in the article below). In the adopted scheme, the questions asked concerned noticeable changes in min. in terms of benefits and risks related to the development of electromobility and the assessment of the instruments used to increase interest in solutions based on the idea of electromobility, including the perception of electric vehicles. In the further part, the study consists of substantive notes and charts containing the results of answers to the questions contained in the form sheets. After entering the answers into a spreadsheet, the obtained data was subjected to statistical and substantive analysis. In order to increase the readability of the answers obtained, the results were presented in the simplest form (percentage values) in individual figures from 1 to 4. Due to the fact that all questions were single-choice, the percentage distribution always added up to 100%.

Technical notes on the method of data presentation are placed in the titles and footers of figures. Since respondents were not required to answer all questions in the survey, the number of valid answers varied from question to question, which did not affect the final result, as numerical and percentage losses were not significant. The layout of all analyzes was subordinated to the objectives of the study.

3. Results

At the first stage of the research, what benefits and threats, in the opinion of the respondent, does the development of electromobility bring to the Polish society?

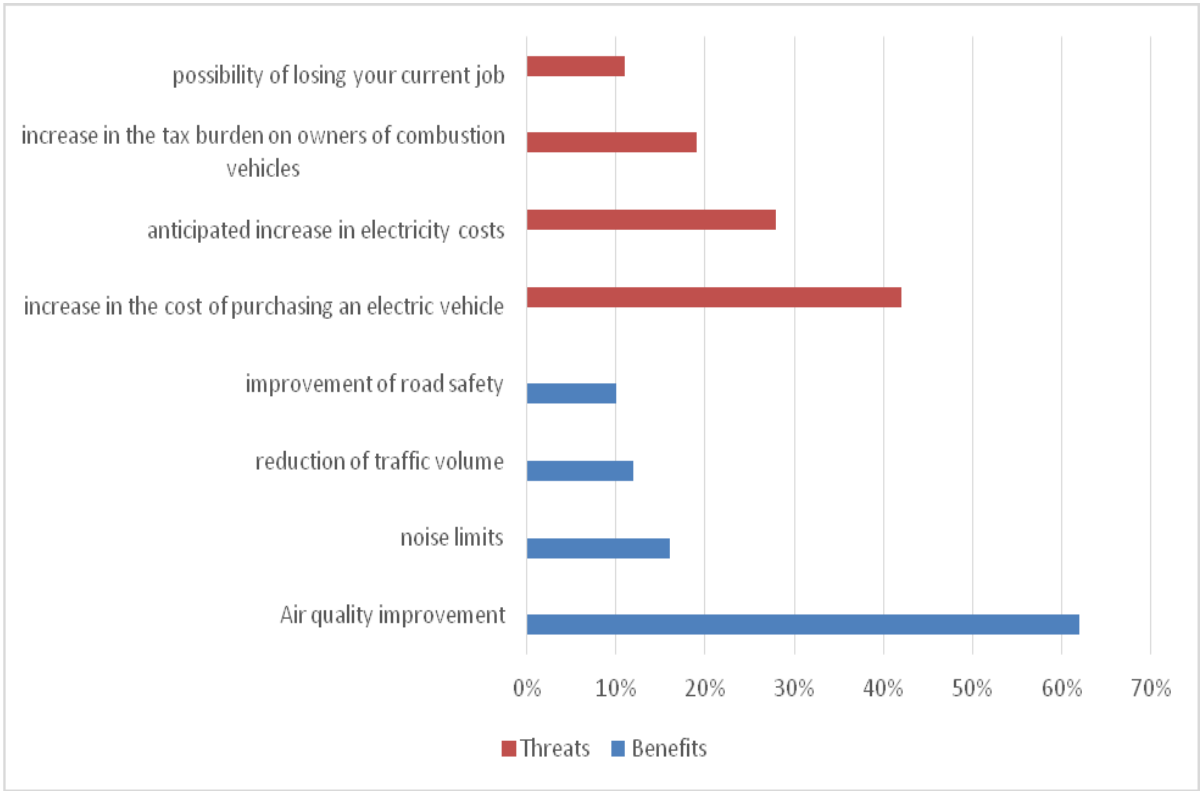

Figure 1. Benefits and threats to the development of electromobility for society.
Source: own study.

The analysis of the obtained response results shows that over 62% of respondents see benefits in the form of improved air quality in the development of electromobility. 16% indicate noise reduction. Another 12% for reducing traffic congestion and 10% for improving road safety. However, in the case of threats, over 42% indicated the fear of an increase in the cost of purchasing an electric vehicle, and thus the effect of transport exclusion. Another 28% for the expected increase in electricity costs. 19% for an increase in tax burdens on owners of internal combustion vehicles. 11% to the possibility of losing your current job.

At the next stage, the respondents were asked to indicate which of the economic instruments in the area of social policy may have the greatest impact on the development of electromobility in Poland?

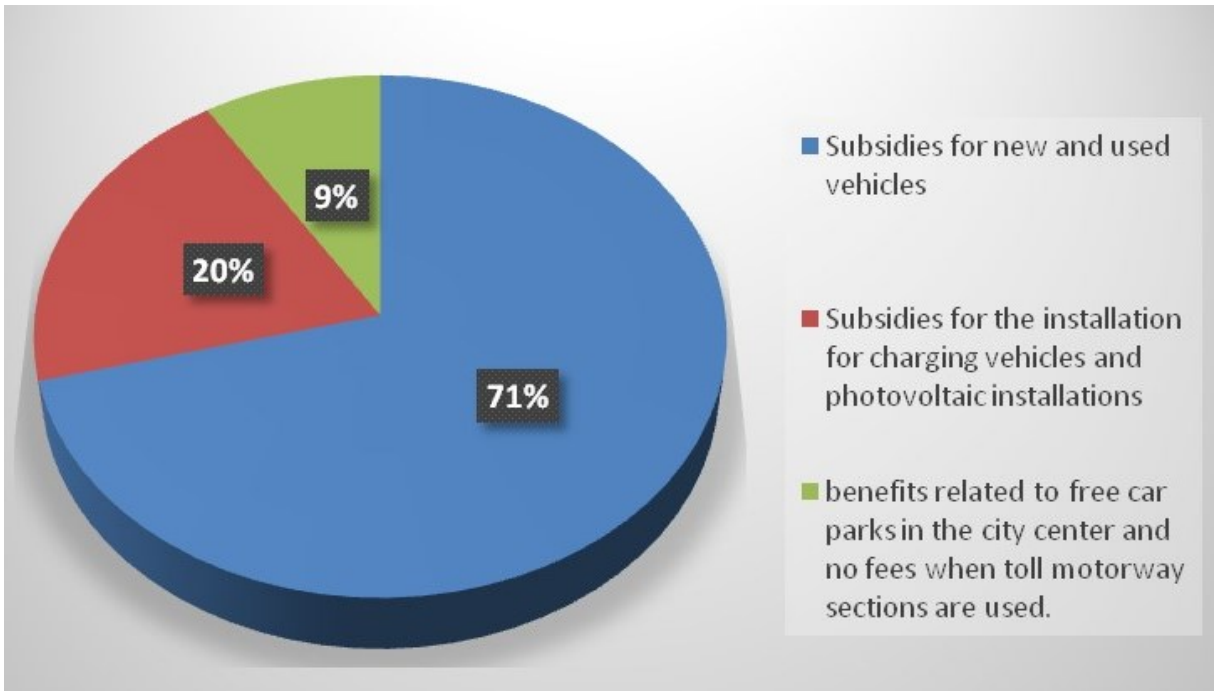

Figure 2. Which of the economic instruments in the area of social policy can have the greatest impact on the development of electromobility in Poland?

Source: own study.

The research shows that, according to 71% of respondents, the most effective tool is direct subsidies for the purchase of a new and used electric vehicle. Another 20% indicated direct subsidies to the installation for charging vehicles and photovoltaic installations. On the other hand, 9% of respondents pointed to the benefits of free parking in the city center and no fees when using toll motorway sections.

At the next stage of the research, respondents were asked to indicate which of the legal instruments in the area of social policy, in their opinion, may have the greatest impact on the development of electromobility processes.

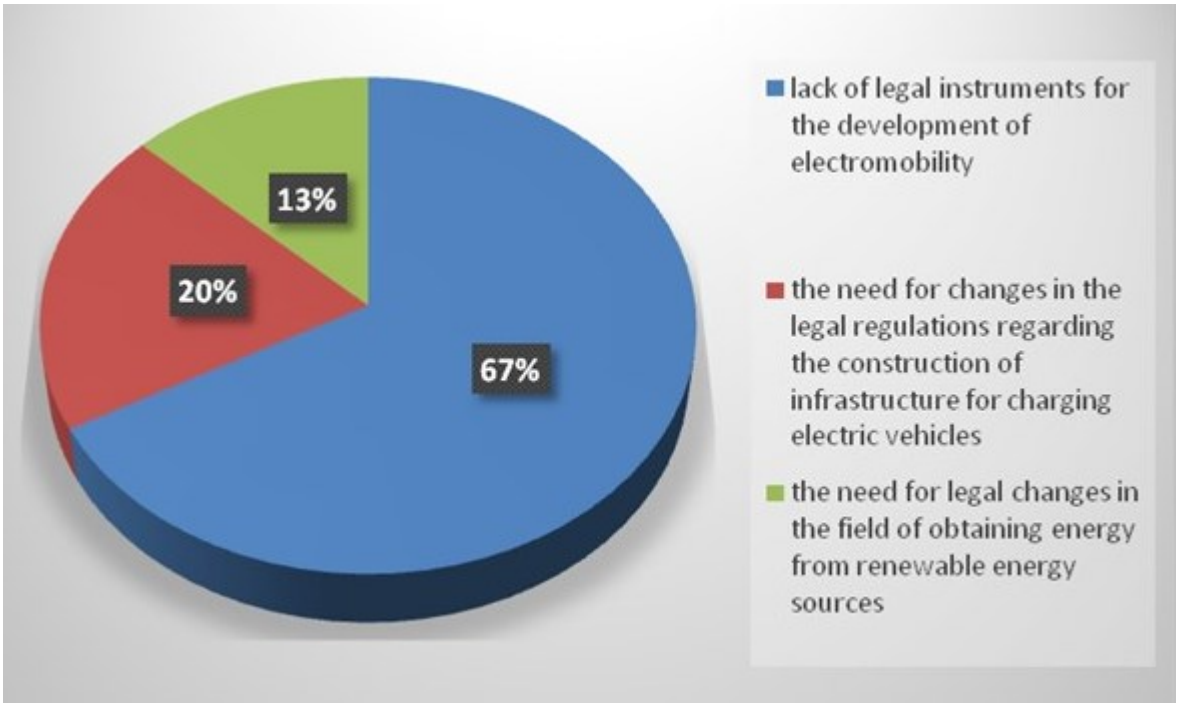

Figure 3. Which of the legal instruments in the area of social policy can have the greatest impact on the development of electromobility processes?

Source: own study.

The results of the answers obtained showed that 67% of the respondents pointed to the lack of legal instruments in the field of electromobility development. On the other hand, 20% emphasized the need for changes in the legal regulations regarding the construction of infrastructure for charging electric vehicles. The remaining 13% indicated the need for legal changes in the field of obtaining energy from renewable energy sources. At the last stage of the research, the respondents were asked to verify which of the information instruments in the area of social policy could have the greatest impact on the development of electromobility in Poland?

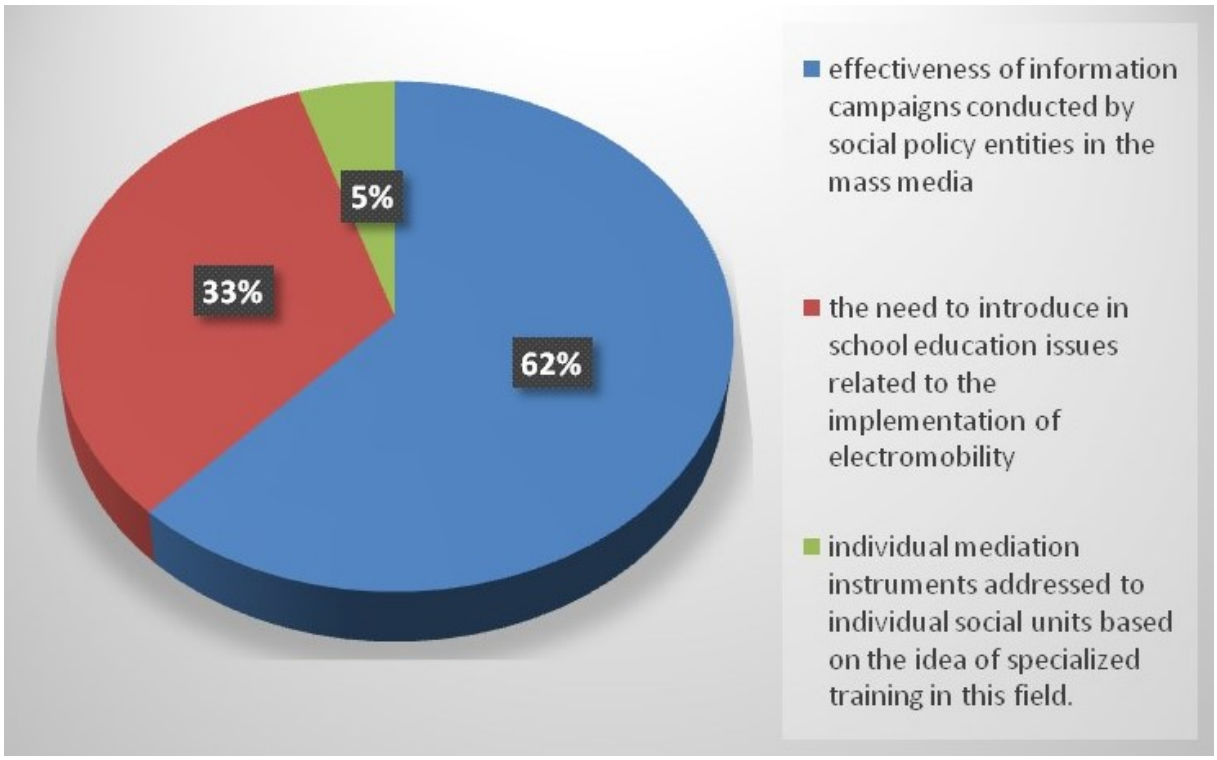

Figure 4. Which of the information instruments in the area of social policy can have the greatest impact on the development of electromobility in Poland?

Source: own study.

The analysis of the results of the responses shows that, in the opinion of 62% of the respondents, the most effective tool is information campaigns conducted by social policy entities in the mass media. In addition, 33% of respondents indicated the need to introduce issues related to the implementation of electromobility in school education. Only 5% pointed to instruments of individual mediation addressed to individual social units, based on the idea of specialized training in this area.

4. Discussion and Conclusions

As the literature on the subject indicates, the fundamental idea of sustainable development is such economic growth that increases social cohesion by limiting the undesirable impact of production and consumption, while not leading to the degradation of the natural environment (Wackernagel, Hanscom, Lin, 2017). Care for the natural environment should be manifested primarily by changing the consumption model, which will be more environmentally friendly, as well as by adopting a method of resource management in which the impact on the environment does not exceed its capacity for self-realization (Vasin, Gamidullaeva, Rostovskaya, 2017). One of these areas and challenges in social policy are changes in social mobility (Williams, 2020) through the gradual replacement of internal combustion engines with

electric ones (Attias, 2017). According to many researchers, maintaining climate neutrality in this area is an extremely important goal for the future of economic development, environmental protection and improving the quality of life (Małek et al., 2020; Brückmann, Bernauer, 2020). The available literature emphasizes that electric vehicles are primarily a smart social choice consisting in a compromise in terms of the idea of sustainable road transport and environmental protection (Barbarossa et al., 2017).

However, as the observations of the market reality indicate, the pace of development of electromobility processes in Poland is not fully satisfactory. Achieving the assumed plan of 1 million electric cars by 2025 seems unrealistic. In practice, the implementation of this plan through social policy instruments is associated with a number of challenges related to changes in social awareness and a socially and ecologically just transformation of preferences in the field of transport mobility. The author of the research believes that several important factors contributed to the apparent lack of change in society. It should be emphasized that, as other researchers indicate, in the era of uncertainty regarding one's own financial situation, the phenomenon of greater control of household expenses is noticeable (Sofi et al., 2020). Thus, the purchase of a new car is postponed in time. Even if such a decision is made, the current import of vehicles with conventional drive from the European Union makes the purchase of a new electric vehicle unprofitable or highly cost-intensive, despite the instruments used in the form of subsidies. Considering that the value for money ratio is the most important factor influencing the purchasing decision (Kotler, 2011). In addition, as one of the researchers emphasizes, the purchasing decision is influenced by a parameter in the form of product usability (Edvardsson et al., 2013). Currently, when using a fully electric car, you still need to plan your route carefully in advance, as the availability of the charging network is significantly limited. This is another of the challenges in the field of social policy - relating to, inter alia, to the idea of common goods (Hantrais, 2017). According to the researcher, it is not without significance that the information instruments of social policy focus on the benefits associated with the purchase of an electric vehicle in the form of the possibility of receiving subsidies or no fees for using city car parks and road infrastructure in the form of motorways. Leaving aside, however, the issues of promoting public transport and cycling, or promoting walking travel.

In terms of benefits and threats to society in terms of the development of electromobility, the author's research showed that, in the opinion of the respondents, the greatest benefit is the improvement of air quality. This fact was indicated by over 62% of respondents. Available reports and studies on electromobility research confirm this thinking trend (ICCT, 2020), which is associated with the belief that electric vehicles do not emit substances harmful to the environment. However, in the case of threats, as many as 42% pointed to the risk of an increase in the purchase price of an electric vehicle and the phenomenon of transport exclusion. According to the author of the research, this state of affairs is influenced by a noticeable increase in the purchase prices of new and used vehicles. According to experts, an average increase of 13% compared to previous years. Therefore, in the opinion of the respondents, the introduction

of the new technology paradoxically contributed to the increase in the prices of new vehicles. In addition, an important concern in the opinion of the respondents, indicated by 28%, is the expected increase in electricity prices. In this matter, the author shares the opinion of other researchers (Della Porta, Portos, 2020) that generating demand for electromobility should be implemented with the help of properly selected social policy instruments and go hand in hand with changes taking place within an increasingly aware society.

With regard to economic instruments in the area of social policy, which may have the greatest impact on the development of electromobility in Poland, the demand side pointed to direct subsidies for the purchase of a new as well as a used electric vehicle. The role of this instrument was indicated by as many as 71% of the respondents. As recent publications indicate, this problem has been noticed by the entities responsible for social policy and advanced work is underway on changes to the My Electrician program to include subsidies for used vehicles. Another postulate put forward by 20% of respondents is direct subsidies to the installation for charging vehicles and photovoltaic installations. In this matter, legislative changes are also underway on the program supporting the launch of an economic instrument for the development of charging stations for electric vehicles. Based on the results presented above, the author agrees with the thesis promoted by other researchers (Kley et al., 2011) that not only the purchase of a vehicle at an attractive price can convince to change transport habits, but also low costs of charging and operating the vehicle.

As far as information instruments in the area of social policy are concerned, 82% of respondents consider social campaigns to be the most effective. Another important element indicated by the respondents is the need to introduce the basics of knowledge about electromobility to school education. The author of the research puts forward the thesis that the implementation of this solution may lead to a change in shopping preferences and transformation of mobility, in particular with regard to the young generation.

On the other hand, the issue of the influence of legal instruments remains in dispute with other authors. According to other researchers, despite many barriers and the economic crisis, in their opinion, electromobility is developing dynamically and will continue to develop, as its expansion has been based on very solid foundations, such as EU, national and regional legal standards (Tucki et al., 2019, 2020). The author of the research, however, is of a different opinion, which is partly indicated by the presented research results. Over 67% of respondents pointed to the lack of legal instruments for the development of electromobility. Therefore, in the author's opinion, an important step should be the introduction of appropriate legal regulations in the area of road transport based on the polluter pays principle.

In conclusion, the author supports the postulate of other researchers that the popularization of zero-emission transport depends on the quick and decisive actions of the state authorities, among others. active social policy (Rietmann, Lieven, 2019). However, the selection of economic, legal or informational instruments must be supported by a thorough analysis and an approach that takes into account the current socio-economic situation. The approach of

countries such as the Netherlands or Sweden, which in the process of developing electromobility, has applied four models of social policy based on the idea of anticipation, distribution, integration, ad hoc intervention, seems to be right. Taking such well-thought-out actions proves a firm approach to social policy and the development of electromobility. The consequence of activity in this matter was a change in social preferences in the form of resignation from the purchase of a vehicle with a conventional drive in favor of a vehicle with an electric drive. In 2021, in these countries, 25% of all newly registered vehicles had an electric or hybrid drive (ACEA 2022). However, these changes would not be possible without increasing public awareness of the links between economic, social and environmental issues.

The presented research focused on assessing the impact of social policy instruments on the development of electromobility in Poland. Against the background of academic considerations, the question should be answered whether the current economic, legal or information instruments have contributed to the increased interest of the public in electromobility. In the opinion of the researcher, yes. However, in today's market reality they are insufficient and it is necessary to redefine them to meet the real needs of society. Awareness of this state of affairs can help both the authorities and environmental circles in creating a coherent vision of changes in the field of transport needs, where social and ecological justice will actually - and not only declared - go hand in hand. However, the question remains which of the social policy instruments has the greatest impact on the development of electromobility in Poland.

This document uses data from a survey on a specific research sample of approximately 1000 respondents. Certainly, in the near future there will be a need for much broader analyzes and research, in particular with regard to changes in the income of citizens, planned reforms of social programs and projected increases in the prices of energy resources. In addition, further research on this topic should focus on aspects related to the analysis of potential benefits and risks related to changes in the field of electromobility in relation to an individual social unit. The future element of further research in this matter should also be the forecast and analysis of the expected changes in the labor market, resulting from the resignation from conventional engines in favor of low-emission ones.

Summing up the presented research on the impact of social policy instruments on the development of electromobility in Poland, by trying to answer which of the instruments has the greatest impact on the increase in interest in transport solutions based on the idea of electromobility, they do not fully exhaust the essence of the issue. They are only an incentive for further research in this matter. Certainly, this topic requires further analysis. In order to understand both the essence of the impact of social policy on the electromobility development plan and the role that individual social policy instruments play in this process. Therefore, such analyzes will be the subject of future work in order to determine and identify key factors for the implementation of the Electromobility Development Plan in Poland.

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