



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

**Mechanisms and impulses
influencing development
of agriculture
and rural areas
(2)**



INSTITUTE OF AGRICULTURAL
AND FOOD ECONOMICS
NATIONAL RESEARCH INSTITUTE

Mechanisms and impulses influencing development of agriculture and rural areas (2)

Authors:

dr Barbara Wieliczko

dr Agnieszka Kurdyś-Kujawska, Koszalin University of Technology

mgr inż. Justyna Herda-Kopańska



**THE POLISH AND THE EU AGRICULTURES 2020+
CHALLENGES, CHANCES, THREATS, PROPOSALS**

Warsaw 2016

Agnieszka Kurdyś-Kujawska is an employee of the Koszalin University of Technology

Other authors are researchers from the Institute of Agricultural and Food Economics
– National Research Institute

The paper was prepared under the research subject **Financial and fiscal factors in the improvement of efficiency, sustainability and competitiveness of the Polish agriculture**, in the task: *Fiscal mechanisms and stimuli having their influence on the rural development, returnable financing and quasi-marketable instruments for internalization of external effects in agriculture, the provision of public goods.*

The paper is to present the results obtained in 2016 under the task *Fiscal mechanisms and stimuli having their influence on the rural development, returnable financing and quasi-marketable instruments for internalization of external effects in agriculture, the provision of public goods.* The research was focused on the following issues: fiscal multipliers, “cap and trade” system versus greenhouse gas emissions in agriculture, rural development programmes for 2014-2020 in the EU Member States, and credit guarantees and warranties in the development of rural areas and agriculture.

Reviewers:

dr hab. Anna Matuszczak, professor at the Poznań University of Economics and Business
dr hab. Wawrzyniec Czubak, Poznań University of Life Sciences

Proofreader

Katarzyna Mikulska

Translated by

Summa Linguae S.A.

Cover project

IERiGŻ-PIB

ISBN 978-83-7658-653-3

Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej

– Państwowy Instytut Badawczy

ul. Świętokrzyska 20, 00-002 Warszawa

tel.: (22) 50 54 444

fax: (22) 50 54 757

e-mail: dw@ierigz.waw.pl

<http://www.ierigz.waw.pl>

CONTENTS

Introduction	7
1. Assessment of the usability of emissions trading system as an instrument for internalization of externalities in agriculture	9
2. Credit guarantee system and its significance in rural and agriculture development	29
3. Implementation of the second pillar of the CAP in the 2014-2020 programming period	64
4. Fiscal multipliers	119
Summary	149
Literature	151

Introduction

This publication is the second monograph¹ presenting the results of the work carried out under the task entitled “Fiscal mechanisms and stimuli having their influence on the rural development, returnable financing and quasi-marketable instruments for internalization of external effects in agriculture, the provision of public goods” which is one of the three tasks under the research topic „Financial and fiscal factors in the improvement of efficiency, sustainability and competitiveness of the Polish agriculture” that is part of the Multi-Annual Programme entitled “The Polish and the EU agricultures 2020+. Challenges, chances, threats, proposals” implemented in 2015-2019 by the Institute of Agricultural and Food Economics – National Research Institute.

The monograph is a multi-threaded attempt at combination of both the general objectives of the task carried out, as well as specific objectives for 2016. Based on these objectives the prepared study includes the following issues:

1. Assessment of the usability of emissions trading system as an instrument for internalization of externalities in agriculture.
2. Credit guarantee system and its significance in rural and agriculture development.
3. Implementation of the instruments of the second pillar of the CAP in the programming period 2014-2020.
4. Fiscal multipliers.

The first chapter focuses on the problem of greenhouse gas emissions in European Union’s agriculture. This chapter presents directions of works undertaken by the European Commission aimed at inclusion of the EU agriculture into the effort of reducing greenhouse gas emissions and the EU policy aimed at reducing emissions in other sectors of the EU economy. The chapter also presents an overview of the results of scientific research on the efficiency and effectiveness of different environmental policy instruments aimed at reducing negative externalities.

The second chapter of the monograph presents the problem of loan guarantees. Loan guarantees are an instrument frequently used in the policy of the state aimed at reducing the problem of limited access of small and medium-sized enterprises to credit. This instrument has a different meaning from country to country, but it seems that its potential in most countries is not fully utilized. The first part of this chapter focuses on the presentation of the concept of loan guarantees and their characteristics. In the following section we discuss the operation

¹ B. Wieliczko, A. Kurdyś-Kujawska (2015), *Mechanisms and impulses influencing development of agriculture and rural areas (I)*, Monographs of Multi-Annual Programme 2015-2019 no. 3.1, IAFE-NRI, Warsaw.

of the loan guarantee as a financial instrument used by the European Union in its policy to support the development and competitiveness of the EU economy. The last part of the chapter focuses on the presentation of the system of guarantees and credit guarantees functioning in Poland.

The third chapter is devoted to the implementation of the instruments of the second pillar of the Common Agricultural Policy (CAP) in the programming period 2014-2020. The aim of this chapter is to describe the differences and similarities in approach of individual Member States and regions to the use of the instruments of the EU's rural development policy. This chapter presents the structure of the budget of the various rural development programmes implemented in the EU Member States and an analysis of the nature of the adopted programmes based on their focus on the implementation of the selected priorities and measures of the EU's rural development policy. This chapter is based on the analysis of documents and data collected by the European Commission on the rural development programmes.

The fourth chapter of the monograph refers to the fiscal multipliers. Assessment of fiscal multipliers is a way for a synthetic presentation of the scale of impact of the state policy on the value of aggregate production. This chapter discusses the broad concept of the fiscal multipliers and the methods of its estimation. The text presents the results of various studies on the size of fiscal multipliers and shows the determinants of the value of such multipliers and the sustainability of their impact.

1. Assessment of the usability of emissions trading system as an instrument for internalization of externalities in agriculture

1.1. Agriculture and greenhouse gas emissions in the EU

The level of greenhouse gas emissions² in the European Union in the period 1990-2013 decreased by 26% – from 11.8 t/person in 1990 to 8.9 t/person in 2013³. At the same time in this period, GDP grew by 45%, while emissions fell by 20%⁴, which indicates that the EU development is not connected to the growth of emissions. In recent years, an increase in the EU's engagement in supporting activities protecting the environment was observed. Spending of the EU budget on climate action in the programming period 2007-2013 accounted for 6.8% of the funds, while in the programming period 2014-2020 it is expected to reach at least 20%⁵.

The structure of greenhouse gas emissions by sector shows that consistently in the period 1990-2013 the largest polluter was the energy sector (Table 1.1). In 1990, the EU agriculture was responsible for 569 million tonnes of greenhouse gas emissions in CO₂ equivalent, and in 2013 the emissions decreased to 441 million tonnes. It is worth noting that agriculture is a bigger emitter of greenhouse gases than the industry. It should, however, be clarified that according to the nomenclature defined by the Intergovernmental Panel for Climate Change, greenhouse gases emitted by machinery and equipment used in agriculture are not included as emissions from agriculture, but are included in the category “energy”, and the production of animal feed and fertilizers for agriculture to the category “industrial processes”⁶. Agricultural sector is also related to land use, land use change and forests (LULUCF). The LULUCF reduces overall GHG emissions in the economy.

² The term “greenhouse gases” includes a number of different substances. Depending on the policy implemented by the State it may cover them all or just some of them. The EU's approach to this problem is presented later in this chapter when discussing EU policy. Generally, the most important greenhouse gas is carbon dioxide (CO₂) and therefore greenhouse gas emissions are customarily expressed in its equivalent.

³ European Commission (2015e), COM(2015)642 – Report from the Commission – Second Biennial Report of the European Union under the UN Framework Convention on Climate Change (required under Article 18(1) of Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC and Decision 2/CP.17 of the Conference of Parties of the UNFCCC), p. I.

⁴ Ibidem.

⁵ Ibidem, p. II.

⁶ IPCC (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Available at: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html> (10.05.2016).

Table 1.1. Emissions of GHGs in CO₂ equivalent (million t)

GHGs' emission sources	1990	1995	2000	2005	2010	2013
Energy	4,356	4,080	4,018	4,115	3,798	3,524
Industry	511	491	443	449	376	360
Agriculture	569	495	481	455	442	441
LULUCF	-260	-282	-311	-321	-314	-318
Waste	244	248	235	205	170	152

Source: European Commission (2015b), Table 1-3.

As shown in the European Commission forecast, in a scenario of no change in the current policy on greenhouse gas emissions, the volume generated by all sectors except agriculture will decrease in 2015-2030 (Table 1.2). This result clearly demonstrates the need to introduce instruments that will reduce, or at least not increase, emissions of greenhouse gases generated by the agricultural sector.

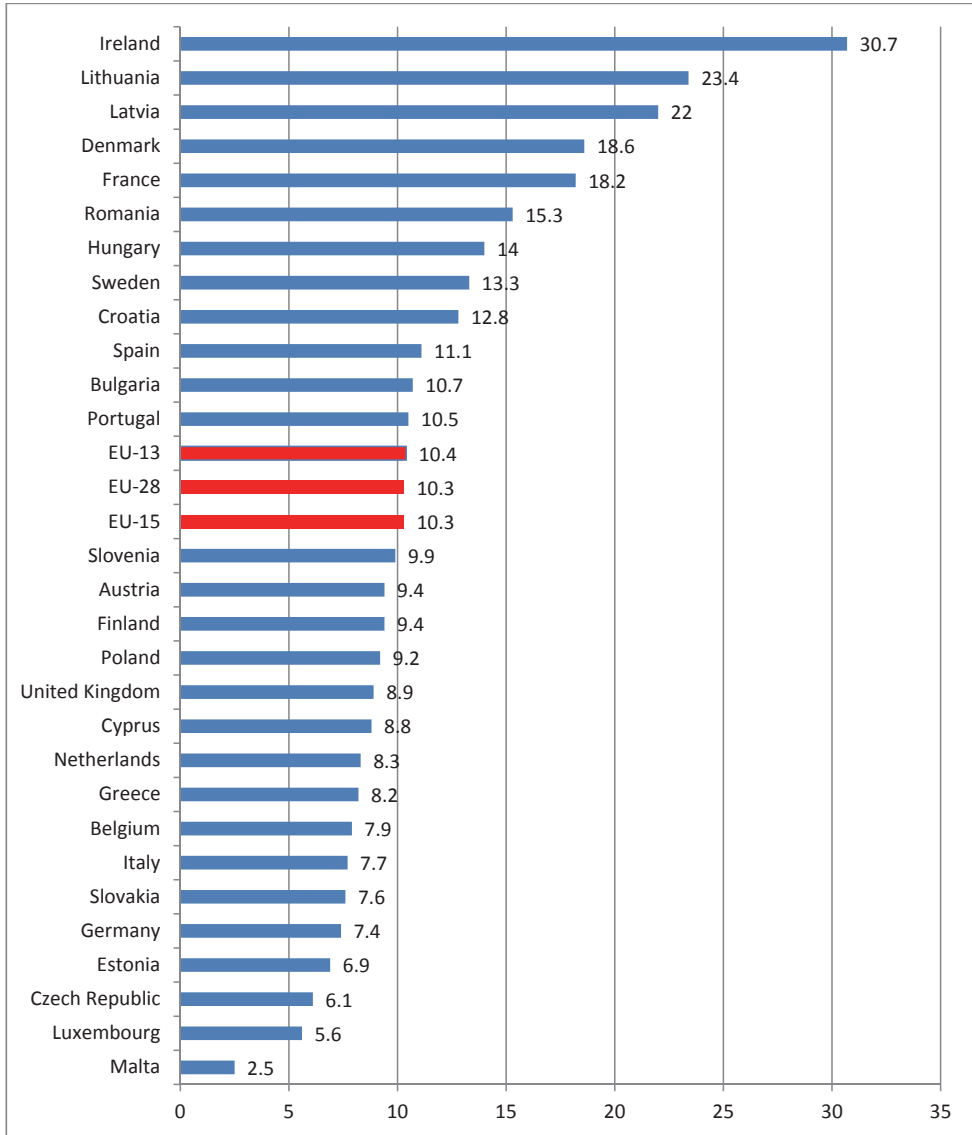
Table 1.2. GHG emissions in CO₂ equivalent (million t) – forecast assuming the continuation of the current regime

GHGs' emission sources	2015	2020	2025	2030
Energy	2,594	2,400	2,299	2,224
Transportation	895	885	878	889
Industry	364	363	356	348
Agriculture	445	449	453	458
Waste	146	132	121	115

Source: European Commission (2015b), Table 4-1.

It should be noted that the problem of greenhouse gas emissions from the agricultural sector is diverse in terms of the share of overall greenhouse gases in the EU Member States (Fig. 1.1). At the level of the EU-28, agricultural emissions account for 10.3% of pollutants emitted. Slightly larger share is observed in the new Member States. The largest share of agricultural emissions in total GHG emissions was recorded in Ireland. In this country the share of agriculture is almost 1/3 of the total greenhouse gas emissions, which is a challenge for the country from the point of view of the need to reduce overall emissions. The smallest share of agricultural emissions is noted in Malta, where this sector accounts for only 2.5% of GHGs. As for Poland, it is below the EU average of the share of agriculture in greenhouse gas emissions with 9.2% of emissions. Generally, it can be said that the share of agriculture in greenhouse gas emissions is determined by the scale of agricultural livestock, especially cattle, and the structure of the economy, and especially the scale and characteristics of the energy sector.

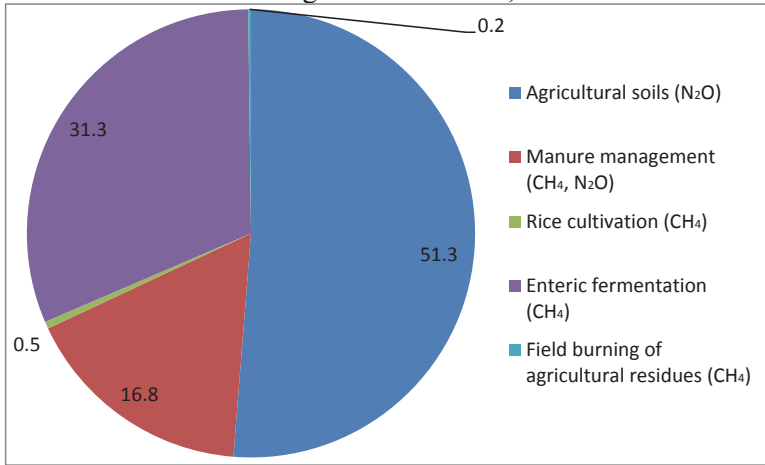
Figure 1.1. The share of agriculture in greenhouse gas emissions in EU Member States, 2012



Source: Perez Domingues et al., 2016, Fig. 2.

Greenhouse gas emissions in the EU agriculture include five primary sources (Fig. 1.2). The most important of them is the soil, and especially the manner and scale of its fertilization. No less important are the gases associated with the animal production generated in the enteric fermentation and those present in the animal faeces. Slight importance has rice cultivation and the burning of agricultural residues.

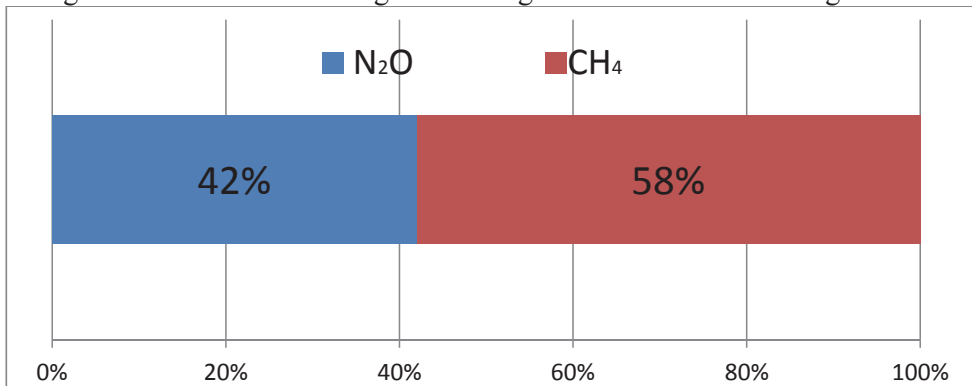
Figure 1.2. The structure of greenhouse gas emissions in the EU agriculture according to their sources, 2012



Source: Perez Domingues et al., 2016, Fig. 8.

As for the structure of the types of greenhouse gas emissions in the EU agriculture, agriculture generates two greenhouse gases. Methane (CH₄) accounts for as much as 58% of the emissions in agriculture and nitrous oxide (N₂O) accounts for the rest (Fig. 1.3).

Figure 1.3. The structure of greenhouse gas emissions in the EU agriculture

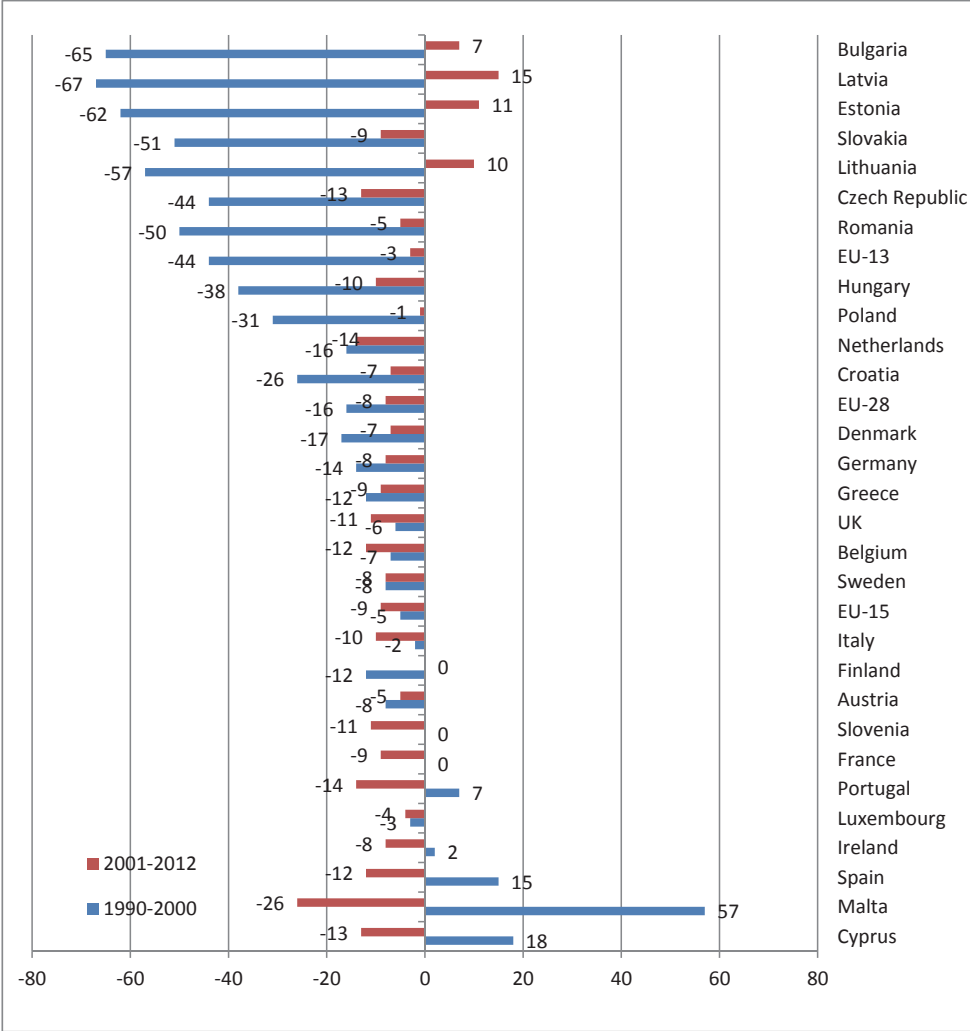


Source: T. Fellmann, B. Van Doorslaer, P. Witzke, I. Huck, F. Weiss, G. Salputra, T. Jansson, D. Drabik, A. Leip (2015). *An economic assessment of GHG mitigation policy options for EU agriculture*. Luxembourg: Publications Office of the European Commission.

It should be noted that in the EU agriculture we can observe changes in the level of greenhouse gas emissions. These changes vary greatly between Member States (Fig. 1.4). At the level of the entire EU-28, emissions from farming dropped by 16% in 1990-2000, and by 8% in 2001-2012. In Poland, the emissions from agriculture fell in the first of the periods studied as much as by

31%, which was mainly due to the impact of changes in the economic system on agriculture in the first period of the Polish transformation process. In the second period, the decline was slight and amounted to only 1%. Many countries of the Central and Eastern Europe in 1990-2000 reduced their greenhouse gas emissions from farming by more than half for the same reason as in the case of Poland. In the second period, some of them recorded an increase in emissions, which resulted from the development of agriculture in comparison with the previous period. The drop in emissions in the EU-15 was generally much lower in the first period than the EU average.

Figure 1.4. Changes in the level of greenhouse gas emissions in agriculture of the EU Member States in 1990-2000 and 2001-2012



Source: Perez Domingues et al., 2016, Fig. 7.

1.2. The current EU policy to reduce emissions and planned policy relating to agriculture

The EU policy concerning emissions' reduction up to 2020 is based on the division of economic entities into two categories subject to different regulations:

1. The sectors included in the EU ETS (Emissions Emissions Trading System) – responsible for <45% of emissions.
2. The non-ETS sectors, which are subject to the decision on the Effort Sharing (Effort Sharing Decision – ESD) – account for > 55% of emissions.

The EU targets for reducing greenhouse gas emissions by 2030 envisage:

- at least a 40% reduction by 2030 of greenhouse gas emissions across the whole economy compared to 1990;
- sectors covered by the EU ETS to reduce greenhouse gas emissions by 43%;
- non-ETS sectors to reduce emission by 30%.

The ETS is the first and the largest regional emissions trading system. It was created in order to implement the commitments made by the EU in relation to the Kyoto Protocol, which came into force in 2005. The ETS individual participants can trade in emissions among themselves and can also use actions for this purpose. It is also the keep the unused allowances for the later use. The system now includes more than 11 thousand entities that are emitters of greenhouse gases.

Implementation of the ETS was carried out stepwise with each of the phases characterized by different solutions, gases, and the sectors covered by the scheme (Table 1.3).

The ETS individual participants can trade among themselves in emission allowances, and can use for this purpose the mediation auction. It is also the behaviour of the unused entitlement later use.

The results of the studies⁷ show that this system affects the covered entities in different ways. The original allocation of emission allowances was too large, which – combined with the decline in energy commodity prices – led to a significant decrease in the price of emission allowances⁸. Analysis of the current functioning of the ETS indicates that an important challenge for the system was the recession associated with the financial and economic crisis, which had its apogee in the period 2008-2009. The ETS sectors reduced emissions as a result of the crisis, which together with a significant room for manoeuvre as to the possibility of replacing other emission reduction measures, led to a drop in CO₂ prices and even greater reduction of incentives for permanent reduction of emissions, which forced the introduction of the reduction of the number of allowanc-

⁷ A vast review of studies concerning first years of functioning of the EU ETS include, *inter alia*, the papers: Y-J. Zhang, Y-M. Wei (2010), *An overview of current research on EU ETS: Evidence from its operating mechanism and economic effect*, Applied Energy, no. 87, pp. 1804-1814 and F. Venmans (2012), *A literature-based multi-criteria evaluation of the EU ETS*, Renewable and Sustainable Energy Reviews, no. 16, pp. 5493-5510.

⁸ L.M. Brown, A. Hanafi, A. Petsonk (2012), *The EU Emissions Trading System. Results and Lessons Learned*, Environmental Defense Fund.

es. As of 2013 the number of allowances decreases annually by 1.74%⁹, but this does not mean an actual reduction, as these rights will be re-introduced into the system in the action carried out in 2019-2020¹⁰.

Table 1.3. Characteristics of the ETS in subsequent phases of its development

Key features	Phase 1 (2005-2007)	Phase 2 (2008-2012)	Phase 3 (2013-2020)
Geography	EU27	EU27 + Norway, Iceland and Liechtenstein	EU27 + Norway, Iceland, Liechtenstein and Croatia
Sectors	Power stations and other combustion plants ≥ 20 MW Oil refineries Coke ovens Iron and steel plants Cement clinker Glass Lime Bricks Ceramics Pulp Paper and board	Same as phase 1 plus aviation (from 2012)	Same as phase 1 plus Aluminium Petrochemicals Aviation from 1.1.2014 Ammonia Nitric, adipic and glyoxylic acid production CO ₂ capture, transport in pipelines and geological storage of CO ₂
Limit	2,058 million t of CO ₂	1,859 million t of CO ₂	2,084 million t of CO ₂ in 2013, decreasing in a linear way by 38 million t of CO ₂ per year
Eligible trading units	EUAs	EUAs, CERs, ERUs Not eligible: credits from forestry, and large hydropower projects.	EUAs, CERs, ERUs Not eligible: CERs and ERUs from forestry, HFC, N ₂ O or large hydropower projects. Note: CERs from projects registered after 2012 must be from Least Developed Countries
GHGs	CO ₂	CO ₂ , N ₂ O – opt-in option	CO ₂ , N ₂ O, PFC from aluminium production

Source: European Commission (2015b), *EU ETS Handbook*.

The biggest problem so far in the functioning of the ETS was a sharp fall in prices of emission allowances associated with an excessive number of free allowances initially allocated. As was shown in numerous studies, a significant impact on the price level of emission allowances were energy prices and prices

⁹ European Commission (2015b), *EU ETS Handbook*, European Commission, Brussels.

¹⁰ Ch. Perthuis, R. Trotignon (2013), *Governance of CO₂ markets: Lessons from the EU ETS*, Les Cahiers de la Chaire Economie du Climat, Working Paper Series, no. 2013/07.

of energy resources, which was also associated with the policy pursued by the EU and individual countries in relation to renewable energy. It should also be emphasized that the risk of a decline in market prices for emission allowances is higher than their growth¹¹, which seems to be a natural consequence of policies to systematically reduce greenhouse gas emissions. The possible measures restricting considerable volatility in prices include, e.g., price spreads on the emission allowances¹², use of stabilization reserve¹³ or board designed on the basis of various boards for monetary policy in order to increase the predictability of market of greenhouse gas emissions¹⁴.

It should also be noted that the impact of the ETS on the level of investment in technology with lower emissions is estimated to be small. No in-depth quantitative research in this area has been done so far and studies based on surveys indicate only the implementation of short-term investments of negligible scale¹⁵. This applies not only to investment but also other aspects of economic activity of the economic entities included in this system¹⁶. This shows that the ETS does not fully fulfil its goals, because it was also supposed to lead to an increase in innovation and implementation of modern solutions for the development of low-carbon economy.

As already mentioned, the second part of the policy of reducing greenhouse gas emissions in the EU covers the non-ETS sectors. According to the Decision 2009/406/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, each Member State has a set minimum contribution to the implementation of the Community's reduction commitments in 2013-2020. This decision covers the following greenhouse gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆). It introduced an element of flexibility of the annual emission limit, consisting in the possibility to move from the next year's limit up to 5% of one's annual emission limit in the period between 2013 and 2019.

¹¹ Z-H. Feng, Y-M. Wei, K. Wang (2012), *Estimating risk for the carbon market via extreme value theory: An empirical analysis of the EU ETS*, Applied Energy 99 (2012), pp. 97-108.

¹² Branger F., Lecuyer O., Quirion Ph. (2015), *The European Union Emissions Trading Scheme: should we throw the flagship out with the bathwater?*, WIREs Climate Change, no. 6 (1), pp. 9-16.

¹³ European Commission (2015), op. cit.

¹⁴ Ch. Perthuis, R. Trotignon (2013), op. cit.

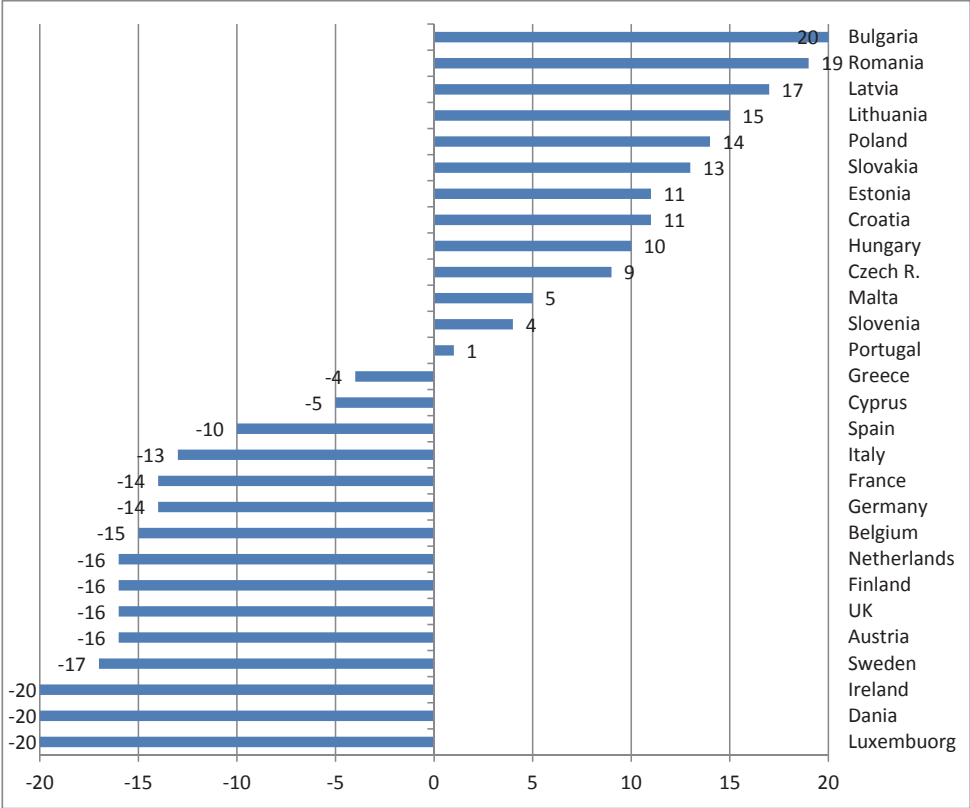
¹⁵ T. Laying , M. Sato, M. Grubb, C. Comberti (2014), *The effects and side-effects of the EU emissions trading scheme*, Wiley Interdisciplinary Reviews: Climate Change, vol. 5, no. 4, pp. 509-19.

¹⁶ J. Abrell, A.N. Faye, G. Zachmann (2011), *Assessing the Impact of the EU ETS Using Firm Level Data*, Bruegel Working Paper, no. 2011/08.

As in the case of ETS, it is possible to use various types of emission reduction units. In this case these can be the ones that are strictly defined in the decisions types of certified emission reductions (CERs) and emission reduction units (ERUs).

The decision imposes a reduction in emissions compared to 2005 only in fifteen Member States of the European Union (Fig. 1.5). Most of them are EU-15 countries, the only exception is Cyprus with a minimum reduction of greenhouse gases of 5%. In contrast, the only country in the EU-15 with the possibility of raising the GHG emissions is Portugal. Its limit, however, is slight and it gives Portugal the right to increase its emissions by only 1%. Poland gained the ability to increase emissions by up to 14%. All limits are in the range $-20\% \pm 20\%$ of the emissions recorded in each country in 2005.

Figure 1.5. ESD emissions limits for the EU Member States; reduction in relation to 2005, in per cent

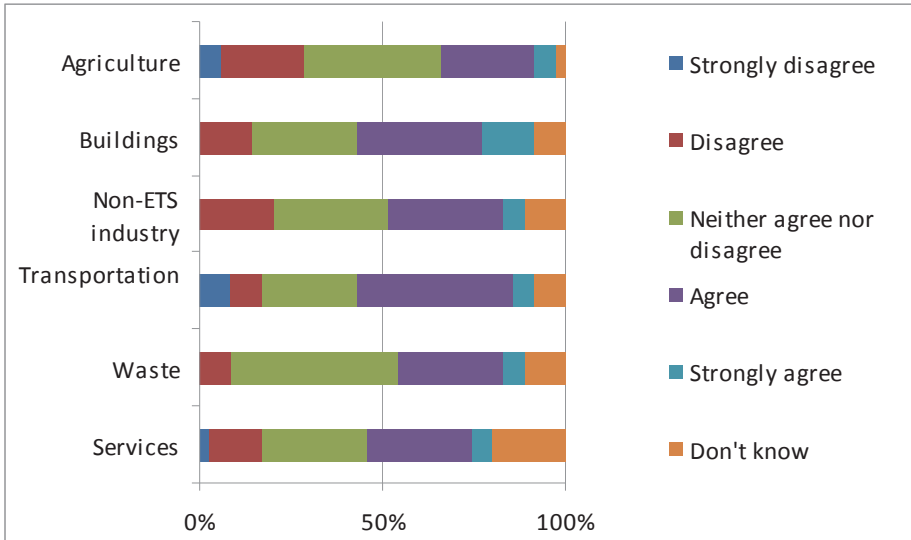


Source: EU Decision No 406/2009/EC.

Bearing in mind the need to define policies to reduce emissions in the non-ETS sectors for the period after 2020, as the current regulations are in force only to this date, the European Commission commissioned a study on the func-

tioning of the existing regulations concerning the reduction of emissions in the non-ETS sectors. As the results of this study show¹⁷, the assessment of current solutions indicates that they are not fully effective regulations (Fig. 1.6). At the same time, it is apparent that diversity of opinions depending on the area of operation of current solutions. The current regulations are the least positively rated in the case of agriculture, which indicates a need for change.

Figure 1.6. Assessment of the effectiveness of current regulations in reducing non-ETS emissions



Source: European Commission (2016e), Supporting study for the Evaluation of Decision No 406/2009/EC (Effort Sharing Decision). Final report, p. 100.

On the basis of the cited studies carried out for the European Commission¹⁸ it can also be concluded that the key determinants of the current effects of the EU policies include:

- The economic crisis – its impact on the level of emission of each country; it made it easier to achieve the target of the emission reduction, but the lack of investment affects their level in the long term.
- Policies at the national level – depending on the Member State; supporting or hindering the implementation of the reduction targets.
- Policy at the EU level – the adoption in recent years of a number of directives and regulations aimed at reducing emissions, including i.e.: Directive on energy efficiency (2012/27/EU), Directive on Energy Performance of

¹⁷ European Commission (2016e), Supporting study for the Evaluation of Decision No 406/2009/EC (Effort Sharing Decision). Final report, p. 9.

¹⁸ European Commission (2016), op. cit, p. 9.

Buildings (2010/31/EU), Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006.

- Restrictiveness of targets for reducing emissions – these targets are in many EU member states not sufficiently ambitious and do not force the implementation of significant changes in the field of applied technology and practices.

The problem of determining effective policies to reduce emissions in non-ETS sectors is also difficult due to issues of estimating emissions. As indicated by A. Kagan (2016, p. 25), “based on the agreement and the Kyoto Protocol, individual countries have (...) different levels of baseline emission/absorption for the sector of land use, and thus the reference point, in relation to which its impact on the balance of greenhouse gas emissions of the country is fixed. (...) But it is not included in the framework of the EU climate policy (...). Thus, in a situation where the fixed balance of emissions of a country showed an absorption of CO₂ (all Member States except Denmark), only an increase sequestration through LULUCF sector reduces greenhouse gas emissions of a country. One can also make simple comparisons emission/absorption of CO₂ from the sector of land use by listing the FAO and baseline levels within the framework of the Kyoto Protocol. This is due to the use of different methods of calculating each balance sheet.”

The work programme of the European Commission (EC) for 2016 included a problem of widening group of entities included in the joint effort of reducing greenhouse gas emissions by expanding it to non-ETS sectors, including agriculture (COM(2015)610). As part of the draft regulations COM(2016)479 and COM(2015)482 Commission submitted its proposals in this regard.

The Proposal for a Regulation of the European Parliament and of the Council on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry into the 2030 climate and energy framework and amending Regulation No 525/2013 of the European Parliament and the Council on a mechanism for monitoring and reporting greenhouse gas emissions and other information relevant to climate change (COM(2016)479) is to determine how to incorporate forest areas and agricultural land and other land the use of which has changed (LULUCF) for the EU framework for climate policy, starting in 2021. Up to the year 2020, Kyoto Protocol imposes restrictions on the EU and each Member State. Within these limits, states must ensure that the LULUCF sector does not bring additional emissions.

The project reflects the scope of the existing EU legislation for Member States under the Kyoto Protocol (529/2013/EU). This includes areas of forest and agricultural land and land, the use of which has changed (LULUCF). The project rejects parallel reporting framework of the Kyoto Protocol and improved system using “based on the use of land” reporting framework United Nations Framework Convention on Climate Change (UNFCCC). The project refers to the Member States, rather than individual administrators of LULUCF areas.

Each state has to ensure that the LULUCF sector has zero net emissions on its territory (i.e. “rule of no-debit”). The solutions contained in the draft relate to the three greenhouse gases: CO₂, CH₄, and N₂O.

The second European Commission’s proposal is a Proposal for a Regulation of the European Parliament and of the Council on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 for a resilient Energy Union and to meet commitments under the Paris Agreement and amending Regulation No 525/2013 of the European Parliament and the Council on a mechanism for monitoring and reporting greenhouse gas emissions and other information relevant to climate change (COM(2016)482). This proposal takes into account the EU’s commitments under the Paris Agreement on climate change. The Commission’s proposal covers the following sectors: energy, industrial processes and use of products, agriculture and waste, and concerns following gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF₃) and sulfur hexafluoride (SF₆). The project provides for the introduction of annual emissions for 2021-2030 for the Member States. The proposal envisages setting flexibility for Member States in achieving annual limits (flexibility in time with preserving and lending annual emission allowances in the reporting period and flexibility among Member States consisting in the transmission of annual emission allowances). The solutions included in the proposal allows Member States to use the limited size of the net absorption (the limit specified in the proposal).

1.3. How to include agriculture in the effort of reducing greenhouse gas emissions?

Agriculture is responsible for one quarter of greenhouse gas emissions from human activity. Bennetzen et al. (2016) examined the change in the level of greenhouse gas emissions in agriculture in nine regions of the world during the period 1970-2007. The researchers found that emissions per unit of production (equivalent in kg CO₂ per GJ production) indicate that, in general, the most intensive and industrialized production systems are characterised by the lowest emissions per unit of agricultural production (Table 1.4).

The problem of leakage of greenhouse gas emissions (popularly called carbon leakage) is a very important phenomenon, the occurrence of which exerts a negative impact on the effectiveness of policies to reduce emissions. The phenomenon of carbon leakage appears in connection with the introduction of policies to reduce greenhouse gas emissions and it involves a transfer of production to areas that are not subject to this policy. This phenomenon also occurs when imports from areas not covered by the policy of reducing emissions push out of the market local production subject to emission restrictions due to the fact that the imported products are cheaper.

Table 1.4. Change in the intensity of greenhouse gas emissions in agriculture of different regions during the period 1970-2007, in per cent

Specification	Plant production	Animal production
Central and Eastern Asia	-78	-82
Central and South America	-57	-61
Eastern Europe and Russia	-52	-45
Europe, excluding former Soviet countries	-56	-14
Middle-East and Northern Africa	-10	-27
North America	4	-28
Oceania	-94	-58
South and South-East Asia	-8	-55
Sub-Saharan Africa	-27	-24
World	-39	-44

Source: Bennezen et al. (2016).

As indicated by R. Martin et al. (2014)¹⁹ to prevent the change of location of entities which are the biggest emitters of pollutants, policymakers apply in their case different kinds of softer policies (lower reduction limits), limiting the burden on these entities resulting from the policy of reducing emissions. Within the EU ETS problem of carbon leakage, or rather its limitation is supposed to be solved by granting free emission allowances. This issue is defined by the so-called carbon leakage decision²⁰. The problem of carbon leakage is all the more complex due to the fact that free emission allowances are essentially a sort of the production subsidy, as shown *inter alia* by the studies by C. Fischer and A.K. Fox (2007)²¹ and by M. Fowlie and J.M. Perloff (2013)²², and the imposition of duties on imported goods corresponding to the costs incurred by companies subject to the need to reduce emissions could violate trade rules laid down in the WTO²³.

Carbon leakage may have a different character. Matthes (2008)²⁴ distinguishes two categories of carbon leakage:

¹⁹ Martin R., Muûls M., de Preux L.B. Wagner U.J., 2014, *On the empirical content of carbon leakage criteria in the EU Emissions Trading Scheme*, Ecological Economics, no. 105, pp. 78-88.

²⁰ Commission Decision 2010/2/EU determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage (2010) OJ L 1/10 (Carbon Leakage Decision).

²¹ C. Fischer, A.K. Fox (2007), *Output-based allocation of emissions permits for mitigating tax and trade interactions*, "Land Economics", vol. 83 (4), pp. 575-599.

²² M. Fowlie, J.M. Perloff (2013), *Distributing pollution rights in cap-and-trade programs: are outcomes independent of allocation?*, "The Review of Economics and Statistics", vol. 95 (5), pp. 1640-1652.

²³ J. Jouré , G. Houssein, S. Monjon (2013), *Border carbon adjustment in Europe and trade retaliation: what would be the cost for the European Union*, Working Paper 2013-34, CEPII.

²⁴ Matthes, F.C., 2008, *What makes a sector with significant cost increase subject to leakage?* [in:] Neuhoff, K., Matthes, F.C. (Eds.), *The Role of Auctions for Emissions Trading*. Climate Strategies, pp. 29-35.

- Operational leakage – activities undertaken in the short term, including production cuts in the area of emissions reductions, and an increase in production outside of the area under emission limits;
- Investment leakage – activities undertaken in the medium and long term, consisting in making investments outside the area covered by the emission reduction or lack of replacement investments in entities subject to emission limits.

An important issue is the determination of sectors particularly vulnerable to the risk of carbon leakage. As indicated by S. Clo²⁵, the level of risk of carbon leakage depends on two factors – the level of intensity of trade and the level of intensity of the use of coal (Table 1.5).

Table 1.5. Carbon leakage determinants

Specification	Low carbon intensity	High carbon intensity
Low trade intensity	No risk of carbon leakage	Low risk of carbon leakage
High trade intensity	Low risk of carbon leakage	High risk of carbon leakage

Source: Clo (2010), Table 2.

The European Union seeks to address the issue of leakage in the ETS through the designation of sensitive sectors (these sectors are determined based on the intensity of international trade in their products and the carbon intensity of the sector, i.e. production of CO₂ per unit of product). Current regulations distinguish:

- sectors not exposed to carbon leakage received 80% of the allowances free of charge in 2013; the number of these allowances shall decrease each year until it reaches the level of 30% in 2020 and 0% in 2027;
- sectors deemed to be exposed to carbon leakage receive 100% of allowances free of charge each year up to 2020.

When trying to introduce instruments for reducing emissions policymakers should evaluate them based on a comprehensive method of analysis. A good example of such a method is discussed by F. Venmans²⁶ and it takes into account the following criteria:

- Environmental performance – to what extent can the policy achieve its environmental objectives?
- Cost effectiveness – to what extent can policy achieve its targets at minimal cost to the society?
- Distribution – what are the costs and benefits of the policy, its fairness and adequacy?
- Institutional conditions – can the policy instruments gain legitimacy, be accepted and implemented?

²⁵ S. Clo (2010), *Grandfathering, auctioning and Carbon Leakage: Assessing the inconsistencies of the new ETS Directive*, Energy Policy, vol. 38(2010), pp. 2420-2430.

²⁶ F. Venmans (2012), op. cit.

The literature on environmental policy instruments distinguishes three basic categories of instruments: legal rules, information and economic instruments (Table 1.6). From the point of view of the cost of introducing a policy instrument the most preferred solution seems to be the introduction of legislation, but the costs of controls of compliance with regulations are a burden to this approach. Information activities are particularly useful in order to build public awareness of an environmental problem and the possibility of reducing the negative impact of a given activity on the environment. However, information activities can be effective only for popularizing the introduction of solutions economically beneficial to farmers. While the tax on greenhouse gases is one of the most cost-effective ways to reduce greenhouse gas emissions²⁷.

Table 1.6. Classification of environmental policy instruments

Legal rules		Information	Economic instruments	
Public provisioning: e.g., rules regarding use/protection on public land	Legal protection -Prohibitions -Mandated solutions -Protection -National parks -Nature reserves	Information -Technical -Normative Education/ development of skills	Pure public instruments -Taxes and fees -Subsidies -Fiscal transfers	Markets: -Contract-based payments -Public auctions -Cap-and-trade systems

Source: Vatn et al. (2014), Table 1.

In economic theory and practice of environmental policy more and more market or quasi-market instruments are being developed. We can distinguish several categories of instruments characterized by different role of the state and the market as well as differences in the actors involved (Table 1.7).

²⁷ K. Zhang, Q. Wang, Q-M. Liang, H. Chen (2016), *A bibliometric analysis of research on carbon tax from 1989 to 2014*, Renewable and Sustainable Energy Reviews vol. 58(2016), pp. 297-310.

Table 1.7. Market-based instruments of environmental policy

Category	Exclusive characteristics	Specificities	Relation to markets
Direct markets	A market where an environmental product can be directly traded between producers and consumers (or processors)	Can be framed at the international level with specific rules for each country and a great variety of deals (genetic resources), or as a more classical market with more or less processed products (NTPP)	Close to the market definition depending on to what extent a given characteristic underwent commodification
Tradable permits	An <i>ad-hoc</i> market where users of an environmental resource need to purchase “permits” that can be further exchanged among resource users, thereby creating artificial scarcity	Designed to either serve a clear environmental objective (with biophysical indicators) or based on acceptable social costs (market price for carbon)	Creation of a specific market for a given environmental objective, information are expected to be revealed
Reverse auctions	A mechanism whereby candidates to service provision set the level of payment (if accepted) in response to a call by public authorities to remunerate landholders	Aimed at revealing prices and avoiding free riding and rent seeking	Creates an auction-based market that favours competition among bidders for achieving cost-efficiency
Coasean-type agreements	Ideally spontaneous transactions (free of public intervention) for an exchange of rights in response to a common interest of the beneficiary and the provider	Requires clear allocation of property rights, highly site-specific and difficult to replicate on a large-scale	Usually not following market rules, more of a contractual nature
Regulatory price changes	Consists in regulatory measures that lead to higher or lower relative prices	Part of a fiscal policy (including subsidies) with environmental objectives and complete control by public authorities	Based on an existing market
Voluntary price signals	Consists in schemes whereby producers send a signal to consumers that environmental impacts are positive (in relative terms) and consequently gain a premium on the market price	Still limited as an incentive for action due to relatively low willingness to pay by consumers	Uses existing markets to identify and promote virtuous activities

Source: Pirard, Lapeyre (2014), Table 1.

Different types of instruments are also characterized by different levels of the key features of the state policy – coerciveness, visibility, automaticity and directness. Coerciveness is understood as the ability of exerting real impact on the behaviour of operators covered by a policy instrument. Automaticity is the ability of existing institutions to perform a given task. While the directness means that the institution responsible for authorizing and funding is also engaged in providing the instrument (Table 1.8). However, according to Kemkes et al. (2010), policymakers should determine the choice of policy instrument based on the nature of the environmental service to be delivered.

Table 1.8. Characteristics of environmental policy instruments

Instruments	Coerciveness	Visibility	Automaticity	Directness
<u>Prescription</u>				
Regulations	High	Low	Low	Medium
<u>Property rights</u>				
Land use moratorium	High	Low	Low	High
Tradable permits	Medium	Medium	Medium	Medium
<u>Payments</u>				
Tax	Low	Medium	High	Medium
Expenditures	Medium	High	High	Low
Grants	Low	Medium	Low	Medium
Easements	Low	High	Low	High
<u>Public information</u>	Low	Medium	Low	Low to high

Source: own elaboration based on Kemkes et al. (2010), Table 1.

The “cap and trade” is considered appropriate for measurable environmental problems, such as greenhouse gas emissions and water consumption²⁸. However, this system is better suited for the use in sectors with a small number of large companies because of the costs of administering it. This system compared to the inflexible approach to regulation of pollution control (no trading system) turns out to be less costly to the entities covered by it – such conclusions come from the study by A.W. Milt and P.R. Armsworth (2017) concerning reducing the environmental impact of the extraction of shale gas.

An extremely important issue in the assessment of emission reduction instruments is taking into account the fact that individual instruments to reduce greenhouse gas emissions are characterized by different levels of the cost of their implementation. Education and popularization activities should be used to promote low or negative cost of implementation, such as: optimization of fertilizing with nitrogen fertilizers, control of soil fertility, reducing production of CH₄ in the animal digestive process through the selection of appropriate breeds and method of feeding animals.

²⁸ S. Lockie (2013), *Market instruments, ecosystem services, and property rights: Assumptions and conditions for sustained social and ecological benefits*, “Land Use Policy”, vol. 31, pp. 90-98.

In the case of actions that are characterized by a slight level of costs, but bring social benefits (cost of implementation is lower than the social cost of emissions), it would be reasonable to implement them in a form of instruments based on incentives (e.g. creation of markets, tradable emission allowances, subsidies). Such actions include: reduction in fertilization with nitrogen fertilizers which reduces yields, reducing the plow growing agricultural practice. There are also expensive actions, the implementation of which must be properly planned, so that the implementation costs do not exceed the benefits associated with the reduction of greenhouse gas emissions.

When analysing the possibility of implementing various instruments for reducing greenhouse gas emissions by the EU agriculture, we should also analyse possible scenarios for emission reduction policies at the level of the whole world. In the literature concerning shared socioeconomic pathways, there are five basic scenarios:

- Sustainable development.
- Regional competition.
- Inequality.
- The development based on fossil fuels.
- Middle of the road development scenario.

Depending on how quickly the implementation of restrictions on greenhouse gas emissions will progress, we will have to deal with different efficiency and scale of emission reductions (Table 1.9). Now it seems that despite the climate summit, which took place in December 2015 in Paris and the declarations made there, the world will fail to realize the scenario involving the early and global participation in reducing greenhouse gas emissions.

Table 1.9. The pace of implementation of emission limits and their scope

Policy stringency in the near term and the timing of regional participation	Coverage of land use emissions
Early accession with global collaboration as of 2020	Effective coverage (at the level of emissions control in the energy and industrial sectors)
Some delays in establishing global action with regions transitioning to global cooperation between 2020-2040	Intermediately effective coverage (limited REDD, but effective coverage of agricultural emissions)
Late accession – higher income regions join global regime between 2020-2040, while lower income regions follow between 2030 and 2050	Very limited coverage (implementation failures and high transaction costs)

Source: Riahi et al. (2016), Table 3.

Depending on the strength of pro-environmental policies we will observe diverse policy objectives and different scale of their impact on development of innovative technologies (Table 1.10). A weak environmental policy would be the most detrimental to the environment and human health as well as to the economy, as it could lead to fragmentation of the world economy and deepening inequalities.

Table 1.10. Characteristics of implementation of emission reduction policies depending on its strength

Policy strength	Policy targets		Technological innovation	Key policy characteristics
	High Income countries	Medium and Low income countries		
Strong	Policies over the 21 st century aim for much lower pollutant levels than current targets in order to minimize adverse effects on population, vulnerable groups, and ecosystems.	Comparatively quick catch-up with the developed world (relative to income).	Pollution control technology costs drop substantially with control performance increasing.	Sustainability driven; rapid development of human capital, economic growth and technological progress; prioritized health concerns.
Medium	Lower than current targets.	Catch-up with the developed world at income levels lower than when OECD countries began controls (but not as quick as in the strong control case).	Continued modest technology advances.	Middle of the road scenario.
Weak	Regionally varied policies.	Trade barriers and/or institutional limitations substantially slow progress in pollution control.	Lower levels of technological advance overall.	Fragmentation, inequalities.

Source: Rao et al. (2016), Table 2.

To summarize the considerations presented in this chapter, it can be said that the future, the scope and the instruments for reducing greenhouse gas emissions in the EU in the coming years will be influenced by actions taken by other countries of the world and the assessment of the impact of actions taken by the EU on the competitiveness of its economy. Introducing a trading scheme for greenhouse gases generated by the EU agriculture would be difficult because of the number of entities operating in the sector and the difficulty in estimating the

scale of emissions of individual entities²⁹. Taxation of emissions, although considered in the literature as the most effective mechanism to reduce emissions, is also practically impossible to implement due to political reasons. Therefore, it is necessary to search for other instruments. The mechanism of reduction of greenhouse gas emissions must take into account the scale of emissions of individual farms and costs of reducing emissions, including transaction costs. When designing an instrument for emission reduction we should also bear in mind the uncertainty as to the actual effects of the implementation of a given instrument, and especially the scale of carbon leakage and shifting emissions to countries not covered by emission reduction policy, which would be particularly dangerous for the development of the EU agriculture.

It seems that, at the moment, the best solution at the EU level would be to link the reduction of emissions with the CAP direct payments based on the model of the so-called greening. It should, however, be borne in mind that uniform payments are the least efficient form of payment³⁰. The implementation of the instruments limiting emissions must be preceded by an estimate of the costs of the action and their combination in various types of farms. Agricultural sector seems particularly strongly exposed to the problem of carbon leakage, hence the need to include this issue in the proposals for inclusion of this sector in reducing greenhouse gas emissions. It is necessary to take into account the behavioural factors that influence farmers' willingness to undertake various new actions (innovations or a decision to participate in the voluntary instruments of agricultural policy).

²⁹ The controversies related to the implementation of the EU ETS are described in e.g. I. Pérez-Domínguez, W. Britz, K. Holm-Müller (2009), *Trading schemes for greenhouse gas emissions from European agriculture: A comparative analysis based on different implementation options*, "Review of Agricultural and Environmental Studies", vol. 90(3), pp. 287-308.

³⁰ J. Lankoski (2016), *Alternative Payment Approaches for Biodiversity Conservation in Agriculture*, OECD Food, Agriculture and Fisheries Papers, No. 93, OECD Publishing, Paris.

2. Credit guarantee system and its significance in rural and agriculture development

2.1. Introduction

Limited access of enterprises to the bank credits affects reduction of short- and long-term tangible investments. It directly impacts the decrease of company's productivity and development. The sector most exposed to the problem of the inadequate access to credits is the SMEs sector and the agriculture³¹. In the EU countries, 22% of farmers and 49% of small rural entrepreneurs has no access to a bank credit or may obtain it on worse conditions in comparison with other entities. Credit rationing by the banks results, *inter alia*, from very demanding requirements concerning credit securities³², which value exceeds double the amount of the credit³³. For this reason, a well-developed credit guarantee scheme should play an important role in the increase of the access of enterprises to the bank credits.

The importance of credit guarantee scheme in economies of individual countries is diverse. In these emerging economies where financial gap in the sector of small and medium-sized enterprises is generally greater than in the developed countries, the credit guarantee scheme plays the role of the catalyst³⁴. In the industrialized countries it is most often seen as a reviser of the credit market³⁵. In turn, in the developing countries, the credit guarantee scheme is focused on supporting the agriculture and the development of rural areas. Its operation is associated with the improvement of the food security, welfare growth of agricultural families and of rural communities, as well as the reduction of poverty³⁶. The guarantee scheme also performs an important role in times of financial crises. Then, the credit guarantee may become a part of acyclic package of public policy instruments for facilitating credits for SMEs³⁷.

³¹ R. Kata, *Korzystanie przez rolników i przedsiębiorców wiejskich z usług bankowych – analiza preferencji i ograniczeń*, Zagadnienia Ekonomiki Rolnej No 1 (322) 2010, pp. 154.

³² R. Kata, A. Walenia, *Wykluczenie finansowe rolników i przedsiębiorców wiejskich*, Journal of Agribusiness and Rural Development 2 (36) 2015, p. 9.

³³ R. Kata, *Korzystanie przez rolników i przedsiębiorców wiejskich z usług bankowych – analiza preferencji i ograniczeń*, Zagadnienia Ekonomiki Rolnej No 1 (322) 2010, p. 158.

³⁴ EBCI (2014), *Credit Guarantee Schemes for SME lending in Central, Eastern and South-Eastern Europe, A report by the Vienna Initiative Working Group on Credit Guarantee Schemes*.

³⁵ A. Green (2003), *Credit Guarantee Schemes for Small Enterprises: An Effective Instrument to Promote Private Sector-Led Growth?*, The United Nations Industrial Development Organization (UNIDO) Working Paper No 10, p. 16.

³⁶ C. Miler (ed.), *Case Studies on Credit Guarantee Funds for Agriculture*, FAO, Rome 2013.

³⁷ EBCI (2014), *Credit Guarantee Schemes for SME lending in Central, Eastern and South-Eastern Europe, A report by the Vienna Initiative Working Group on Credit Guarantee Schemes*.

The credit guarantee scheme consists of interrelated institutions. These institutions, when granting the guarantee, are obliged to accept liability for the whole or a part of the debt or oblige a third party to successfully fulfil liabilities in a situation resulting in the enforcement of the guarantee, such as failing to pay off the loan³⁸.

Guarantee may be directly connected with granting a bank credit. Then, the guarantor is responsible for compensating for the possible deficit or for non-payment of the debt by the borrower on the terms specified in the contract concluded between the guarantor, the lender or the borrower³⁹. In this case, guarantee indicates creditworthiness of the borrower and reduces the risk borne by the creditor. It ensures creditor's safety that may be lost in the case of insolvency of the beneficiary. Guarantee involves also a counter-guarantee mechanism. It implies a responsibility to cover the receivables paid by the guarantor to the beneficiary⁴⁰. Counter-guarantee schemes by means of general security may be used as an instrument for instilling confidence of the banks in the funds (counter-guarantee is activated upon the bankruptcy of a guarantee fund). In addition, the schemes can induce the entities granting the guarantee to undertake a greater risk in their operations (in a given, agreed proportion the regulator covers the guarantee amount payable to the crediting institutions)⁴¹. Counter-guarantees are commonly used for minimizing the risk borne mainly by the surety funds. They reduce their incurred losses, and ultimately lead to their ability to grant more sureties, having the same capital as the funds not using this mechanism. Therefore, they can achieve high values of the so-called capital multipliers. Counter-guarantee schemes differ in individual countries in terms of: (a) the entity granting the counter-guarantee; (b) the maximum amount of loss absorption; (c) counter-guarantee validity term; (d) the maximum disbursement amount under the counter-guarantee; and (e) the amount of fees related with granting the counter-guarantee.

Functioning of the credit guarantee scheme provides benefits not just for the entities running business activities, but also for bank institutions or the whole economy. Benefits from the credit guarantee scheme operations for entre-

³⁸ European Commission (2015c), *FI Compass – Financial Instrument products. Loans, guarantees, equity and quasi-equity*, p. 3.

³⁹ European Court of Auditors (2016), *Implementing the EU budget through financial instruments – lessons to be learnt from the 2007-2013 programme period*. Special Report No 19/2016. Publications Office of the European Union, Luxembourg.

⁴⁰ A. Green (2003), *Credit Guarantee Schemes for Small Enterprises: An Effective Instrument to Promote Private Sector-Led Growth?*, United Nations Industrial Development Organization (UNIDO), 2003, p.17.

⁴¹ *Badanie sieci funduszy poręczeniowych pod kątem nowych zasad UE dotyczących kwalifikowania poręczeń i gwarancji jako pomocy publicznej*. Final Report, PAG Uniconsult, Warsaw 2010, p. 15.

preneurs are not limited only to overcoming barriers in access to funding, but also having the possibility of financing of working capital beyond the investment projects, strengthening the positive evaluation of creditworthiness in the assessment of a bank, strengthening a market position, having a possibility of financing in the case of increased/high risk of the project⁴², reduction of debt servicing cost due to the partial coverage of the risk and creation of future opportunities for obtaining support from financial institutions operating on market terms (enables creation of credit history). In the case of bank institutions, the credit guarantee system reduces the size of the risk, reducing the total risk exposure, the system provides additional qualitative information that supplements the financial analysis of the bank, thanks to which further improvement in the risk assessment occurs without the need to incur any additional costs, the bank can rely on highly specialized, supervised and credible financial intermediaries, who have sufficient knowledge about a given sector, which enables further reduction of risk for the bank, guarantees provide first-rate safety, usually available upon a request, and exert a positive impact on the capital requirements for the bank's credit portfolio. In addition, the amount of loan guaranteed by the public authorities is characterized by zero risk, which means that banks can grant credits at lower costs and thus provide leverage effect for the development of bank's own business activity⁴³. Beyond the micro-economic effect on the final beneficiaries, the credit guarantee scheme also provides benefits for the public authorities. For instance, in Germany in the period of 1996-2002, the activity of the bank guarantees resulted in GDP growth on average by EUR 3.2 billion, establishment of 12,900 new workplaces, reduction of the number of the unemployed by 9,100 annually and growth in tax revenues by EUR 720 million⁴⁴. On the contrary, in Poland, the scheme, under operation of which *de minimis* guarantees are provided, from 2013 to the end of September 2016, through Bank Gospodarstwa Krajowego has granted *de minimis* guarantees for the total amount of PLN 32.45 billion. Banks granted credits for a total value amounting to PLN 57.57 billion. Exactly 114,244 entrepreneurs benefited from *de minimis* guarantee schemes. Financing undertaken as a result of *de minimis* guarantees has enabled development of 28,000 new workplaces and maintenance of 26,000 already existing⁴⁵.

⁴² B. Bartkowiak, *Fundusze pożyczkowe i poręczeniowe w finansowaniu małych i średnich przedsiębiorstw w Polsce*, Warsaw 2009, pp. 173-205.

⁴³ www.aecm.eu

⁴⁴ www.aecm.eu

⁴⁵ Efekty "Programu gwarancji *de minimis*" realizowanego przez Bank Gospodarstwa Krajowego, Bank Gospodarstwa Krajowego 2015.

2.2. Types of credit guarantee schemes

More than 2,250 credit guarantee schemes can be distinguished, operating in almost 100 countries⁴⁶. In most guarantee schemes, the SMEs sector constitutes the target group and the programmes generally do not introduce sectoral constraints (unless it is public aid in *de minimis* form), or constraints related to the size of the enterprise or the type and the amount of the credit. They operate mainly on the state level. However, there are more and more cases of regional schemes and/or schemes covering the whole continent (e.g. Proyecto Cambio for Central America). There are also guarantee schemes that include only one region of the national economy (e.g. Serbian Vojvodina Development Fund). Some have even smaller regional scope, and are created by the local authorities to promote micro- and small enterprises and the agribusiness at the district level (e.g. Municipal GFs in Bosnia and Herzegovina)⁴⁷. In some countries e.g. in France or Belgium, several guarantee schemes operate simultaneously (Table 2.1).

Table 2.1. Credit guarantee schemes in the EU countries (EU-25)

Public surety schemes	Schemes at the national level	Denmark, Finland, France, Greece, Lithuania, Malta, Netherlands, Poland, Slovakia, Sweden, UK
	International schemes (e.g. EFI, PHARE)	Most of the EU countries
Surety funds	Mutual sureties	Austria, Belgium, France, Italy, Luxembourg, Portugal, Slovakia, Spain
	Credit surety funds	Czech Republic, Hungary, Germany, Lithuania, Poland
Other systems	Mixed type models, local funds	Belgium, Finland, France, Greece, Hungary, Italy, Ireland, Lithuania, UK

Source: J. Próchniak, *Ocena działalności systemu funduszy poręczeń kredytowych w Polsce*, *Oeconomia Copernicana* 2010 no. 1, p. 124.

Financing of different guarantee schemes may originate from various sources, and may differ due to the manner of granting the support (Table 2.2). This results in a fact that they may be characterised by some restrictions related to the financing of guarantee activity.

⁴⁶ A. Green (2003), *Credit Guarantee Schemes for Small Enterprises: An Effective Instrument to Promote Private Sector-Led Growth?*, The United Nations Industrial Development Organization (UNIDO) Working Paper No 10, p. 23.

⁴⁷ R. Zander, C. Miller, N. Mhlanga, *Credit Guarantee Systems for Agriculture and Rural Enterprise Development*, FAO, Roma 2013, p. 7.

Table 2.2. Sources of guarantee schemes financing

Source of financing	The most popular support model	Benefits	Funding constraints
Government	Non-portfolio scheme	Losses paid directly from the state budget	
Central Bank	Individual and portfolio schemes	Credibility in the banking sector	
Agencies for the development	Individual, portfolio and mutual schemes	An innovative approach possibility	Mainly <i>ad hoc</i> financing
Banks	Individual and portfolio schemes	Experience Larger scope Involvement of banks	Only for bank's customers
Agencies promoting the SMEs sector	Individual programme	Involvement and trade experience	Limited funds for extension
Small entrepreneurs	Mutual programme	Involvement and trade experience	Limited funds for extension

Source: L. Deelen, K. Molenaar, *Guarantee Funds for Small Enterprises*, International Labour Organization, Switzerland 2004, p. 51.

A. Green identifies five major guarantee programmes. These are⁴⁸:

- Public guarantee schemes managed by a private organization or a governmental administrative unit. In case of a failure to repay the loan, the guarantee is paid directly from the state budget.
- Corporate guarantee schemes that are financed and conducted by the private sector (e.g. banks, chambers of commerce), without any support from the public authorities.
- International schemes, being bilateral or multilateral governmental or non-governmental initiatives, e.g. the European Investment Fund (EIF), United Nations Industrial Development Organization and the International Labour Organization). These programmes often combine the guarantee fund with the technical assistance for the enterprises. For instance, the European Investment Fund (EIF) manages sureties for the SMEs sector under the European Commission. Guarantee activity includes *mandate* transactions, when EIF manages and distributes funds from the EU budget for financing of financial instruments and *own risk* transactions where EIF places equity. Most transactions belongs to the *mandate* category. The role of the European Investment

⁴⁸ A. Green (2003), *Credit Guarantee Schemes for Small Enterprises: An Effective Instrument to Promote Private Sector-Led Growth?*, The United Nations Industrial Development Organization (UNIDO) Working Paper No 10, pp. 18-19.

Fund is to provide guarantees directly to the local banks or granting them the counter-guarantee. In 2007-2013, the total value of EIF's guarantee portfolio in the selected European countries was more than EUR 4.9 billion (Table 2.3). The largest share in portfolio value of the guarantee transactions was recorded in Poland and constituted 26.91%. Significantly smaller shares were recorded in Albania, Bosnia and Herzegovina as well as in Macedonia and Serbia.

Table 2.3. The value of the guarantee transactions portfolio of the European Investment Fund in the selected European countries in 2007-2013, [in EUR million]

Country	The value of guarantee transactions portfolio [in EUR million]	Share in the value of the guarantee transactions portfolio [%]
Albania	20	0.41
Bosnia and Herzegovina	20	0.41
Bulgaria	875.4	17.84
Croatia	119.5	2.43
Czech Republic	546.4	11.13
Hungary	522.4	10.64
Kosovo	20	0.41
Macedonia	15	0.31
Poland	1,320.9	26.91
Montenegro	20	0.41
Romania	718.1	14.63
Serbia	16	0.33
Slovakia	501.3	10.21
Slovenia	192.9	3.93
Total	4,907.9	100

Source: EBCI (2014), *Credit Guarantee Schemes for SME lending in Central, Eastern and South-Eastern Europe, A report by the Vienna Initiative Working Group on Credit Guarantee Schemes.*

- Schemes implemented by international non-governmental organizations without specialized financial institutions and are not subjected to the control of the central bank or similar institution, but may prove services related to risk-sharing.
- Mutual guarantee schemes, the so-called mutual guarantee associations, societies/funds. These are private and independent organizations formed and managed by borrowers with limited access to bank credits.

The OECD distinguishes three types of guarantee schemes⁴⁹, namely:

- Mixed with private entities offering guarantees and public entities offering counter-guarantee (typical of the older EU Member States). Such a system operates, for instance, in Portugal. Three institutions operate within it. The first one is formed by the Mutual Guarantee Societies (MGS), which are responsible for granting guarantees for entities from SMEs sector (these are Garval MGS, Lisgarante MGS and Norgarante MGS – connected to the sector of the Ministry of the Economy), and *Agrogarante MGS* operating nationwide in the agricultural and forest sector. These are mostly private credit institutions, involved in professional management and subjected to the supervision and control by the Central Bank. The second entity is the Mutual Counter-Guarantee Fund (FCGM) consisting only of public capital (the Ministry of Economy and the Ministry of Agriculture, Rural Development and Fisheries). Its purpose is the partial coverage of the guarantees granted by the MGS. It is the national “reinsurance” of funds, which covers a part of the risk connected with the MGS’s operations. In turn, the third institution is the *PGM – Sociedade de Investimento*, which is responsible for the management of the FCGM.
- Public guarantee fund (often present in the new EU Member States). Such a system operates, for example, in Lithuania, where the *Invega* fund was created, offering business and investment guarantees. The fund is wholly owned by the state (subject to the Ministry of the Economy), and operates in the form of a limited liability company. It cooperates with commercial banks, leasing companies and SACCOs. It uses counter-guarantee granted by the EIF. Support of the state is present in the form of *de minimis* aid and, therefore, is bound by sectoral constraints (according to the principles stated by the European Commission). The state is responsible for all Invega’s liabilities.
- Private (mutual) guarantee scheme without any support from public authorities (rarely occurring, such institutions try to obtain counter-guarantee at the national or the EU level, e.g. the EIF). An example of this is the *Societes de Cautionnement Mutuel (SOCAMA)* in France. The scheme offers support for small and medium-sized enterprises operating in the form of a limited liability company. It uses own funds and the EIF’s counter-guarantees.

A similar division of the credit guarantee schemes was made by T. Beck, L.F. Klapper and J.C. Mendoza. Authors also indicated functioning of three guarantee schemes, in the form of:

⁴⁹ OECD (2012). *SME and Entrepreneurship Financing: The Role of Credit Guarantee Schemes and Mutual Guarantee Societies in supporting finance for small and medium-sized enterprises*, pp. 11-18.

- The Mutual Guarantee Associations that are formed by the independent enterprises and/or organizations, which provide credit guarantees for credits granted for its members, who are shareholders and/or are on the Board of Directors. These entities may receive support of the government (exist in e.g. Italy).
- Public guarantee schemes that are an initiative of the government and operate at the local, regional or national level. They are mainly created under the public policy towards ensuring financial means for the SMEs or for priority sectors or a demographic group (e.g. women or minorities). This scheme is publicly funded, and may be managed by private entities (exist in e.g. Poland), corporate associations generally financed and used by the private sector (exist in e.g. Greece and Romania)⁵⁰.

2.3. Credit guarantees – financial instrument of the European Union

Financial instruments, including guarantees, are used mainly for the purpose of creation of the so-called European added value. The main advantage of this type of instruments is considered to be the fact that public funds are not disbursed once, but are in a constant circulation, which enables supporting a larger group of beneficiaries (the effect of circulation of funds). Thanks to them it is possible to achieve the so-called multiplier effect, namely involvement of private funds in a given project⁵¹. The multiplier principle enables creation of a substantial monetary flow. Assuming that each entity authorized to grant sureties/guarantees, grants more funds than there are in the entity's possession, and each guarantee applies only to a part of the liability, then PLN one million allocated to sureties may result in granting credits up to several million and more⁵².

It is worth emphasizing that the credit guarantee provides higher effectiveness of disbursement of funds in relation to subsidies. This means that the project conducted by the entrepreneur must be profitable and cost-effective enough that it will guarantee repayment of the obtained funds⁵³.

⁵⁰ T. Beck, L.F. Klapper, J.C. Mendoza, *The Typology of Partial Credit Guarantee Funds around the World*, The World Bank Development Research Group Finance and Private Sector Team & Latin America & Caribbean Region Finance and Private Sector Development Department, November 2008, pp. 11-12.

⁵¹ B. Wieliczko (2016), *Czy warto stosować instrumenty finansowe w programach rozwoju obszarów wiejskich?*, Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie, Problemy Rolnictwa Światowego, vol. 16 (XXXI), issue 31, p. 246 (pp. 245-254).

⁵² *Analiza ex ante instrumentów finansowych w perspektywie finansowej 2014-2020 w województwie warmińsko-mazurskim*, PSDB, Warsaw 2013, pp. 35-36.

⁵³ B. Lepczyński, M. Penczar (2013), *Znaczenie instrumentów zwrotnych w ograniczaniu luki finansowej i podnoszeniu bezpieczeństwa finansowego przedsiębiorstw z sektora MSP*, Journal of Management and Finance 4/4, p. 85 (pp. 83-99).

Financial instruments used within the European Union include both individual products as well as mechanisms or system solutions, enabling the use of various products⁵⁴. The EU regulations allow also for a possibility of operation of financial instruments in a form of independent funds, including guarantee funds. They are managed by the banks or other financial intermediaries from the private or public sector, and not public administration bodies.

At the level of the European Union, guarantee products are granted under the Structural Fund budgets, and they are implemented by the specified operational programmes (OPs)⁵⁵. Credit guarantees are implemented directly by the same management bodies (national, regional, local or public or any other public or private entity, designated by a Member State to manage the operational programme). In this case managing institutions receive repayment of amounts of guarantees allocated to new loans⁵⁶.

The European Investment Fund, which issues guarantees and grants the counter-guarantees, plays an important role in guiding through different financial institutions. In addition, it supports mechanisms allowing for granting guarantees within the framework programmes. In particular periods of programming, the quantity and the budget of these programmes differed. In the financing period of 2007-2013, three framework programmes operated (they should have been implemented by the end of 2015), namely:

- *Competitiveness and Innovation Framework Programme (CIP)* – a framework programme for the competitiveness and innovations. One of its goals was granting guarantees to encourage more substantial crediting of the SMEs sector by the financial institutions. *SME Guarantee Facility* enabled direct guarantees for financial intermediaries. The programme covered guarantees for debt financing in the form of loans and leasing, guarantees for microcredits (guarantees for credits in the amount from EUR 25,000 for microenterprises employing up to 9 people, especially for entities starting its activities), guarantees for capital and quasi-capital coverage and guarantees for support of securitisation structures. In the period of 2007-2013, under the programme, 373,000 entities from the SMEs sector was granted sureties, 72 contracts with 55 intermediaries in 24 countries were signed. The amount of credits generated

⁵⁴ *Innowacyjne Instrumenty Finansowe w politykach UE. Dotychczasowe doświadczenia i wnioski dla projektowania PROW 2014-2020*, Fundacja Programów Pomocy dla Rolnictwa, Warsaw 2012, p. 8.

⁵⁵ Council Regulation (EC) No 1083/2006 of 11 July 2006 laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund and repealing Regulation (EC) No 1260/1999.

⁵⁶ http://ec.europa.eu/regional_policy/what/future/publication/index_pl.cfm

by the programme for SMEs constituted EUR 19.9 billion, with the capital equal to EUR 0.5 billion (more than forty times the leverage effect).

- *Progress Microfinance* – the programme for employment and social inclusion. The programme enabled, *inter alia*, support in the form of a guarantee for selected entities (i.e. public and private entities, including banks and institutions not being banks) offering microcredits. Total budget of the EU intended for guarantees amounted to EUR 23.8 million EUR. The European Commission, which is the only entity financing this instrument, grants guarantee up to the 75% of losses incurred by the microcredits portfolio of the creditors. According to the data, in 2013, 54 guarantee agreements were signed under the programme. The number of intermediaries who received support in the form of a guarantee amounted to 22 (12 intermediaries received support in 2012), and the amount of the support for their benefit constituted EUR 19,170,000 (14.23% of all the support). In 2013, the net amount of the activated guarantees amounted to EUR 1.34 million. By means of granted guarantees leverage ratio at the level of 11.6 was reached⁵⁷.
- *Risk Sharing Instrument (RSI)*. According to the data of the European Commission, under the programme, 47 applications were submitted, including 44 related to direct guarantees and 3 to the counter-guarantees. The programme allowed for the support of 4,760 SMEs (Table 4) and employment of 245,820 people. The total amount of the support was EUR 2,344 million⁵⁸. The largest number of end recipients of the programme was recorded in France (1,245) and Italy (1,056), and the lowest in Slovakia (1). The end recipients of the instrument were mostly enterprises undertaking other manufacturing activities (18%), wholesale and retail sale (11%) the production of metal structures and metal products (10%), production of machines and equipment (9.5%), and operating in the IT and communication industry (8.5%). To a small extent the instrument was used by entrepreneurs from the construction industry (2.1%), engaged in electrical equipment production (2.1%), water supply; sewage and waste management and operations connected with reclamation (2.0%) and from the agricultural and forest sector and fisheries (3.1%).

⁵⁷ Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. *Implementation of the European Progress Microfinance Facility – 2013*, European Commission, Brussels 2014 (COM(2014)639 final).

⁵⁸ http://www.eif.org/what_we_do/guarantees/RSI/rsi-implementation-status.pdf.

Table 2.4. Execution of the *Risk Sharing Instrument* programme

Country	The number of end recipients	Amount	
		in EUR million	(%)
Austria	162	165.9	7.1
Bulgaria	22	11.8	0.5
Croatia	4	3.0	0.1
Czech Republic	468	258.2	11
Denmark	23	19.1	0.8
France	1,245	356.0	15.2
Germany	322	256.6	10.9
Hungary	92	25.3	1.1
Ireland	15	10.6	0.5
Italy	1,056	511.7	21.8
Netherlands	72	99.0	4.2
Poland	230	42.3	1.8
Portugal	441	313.0	13.4
Slovakia	1	0.9	0.0
Spain	558	217.2	9.3
Turkey	49	53.4	2.3
Total	4760	2,344.0	100

Source: European Commission (2016d), *Risk Sharing Instrument for Innovative Research and oriented SMEs small and Mid-Caps, Implementation Update, EFI, Reporting: 30/06/2016*.

In the new financial perspective of 2014-2020 the following programmes were launched:

- *COSME (Programme for the Competitiveness of enterprises and SMEs)*. It replaced the *Competitiveness and Innovation Framework Programme (CIP)*, operating in the period of 2007-2013. Its purpose is the comprehensive support of the SMEs sector. The financial instruments anchored under the programme are the following: (1) *loan guarantee facility* and (2) *InnovFin* guarantee. The *loan guarantee facility* offers guarantees and counter-guarantees for financial intermediaries (e.g. for guarantee organizations, banks, leasing companies, guarantee companies). The guarantees can only include newly concluded transactions (excluding refinancing of liabilities in other financial institutions). Amount of subsidy is EUR 150,000. The *InnovFin* guarantee instrument applies to granting sureties to the SMEs sector. The European Investment Fund covers a part of losses incurred by the financial intermediaries under credits, leasing, and guarantees from EUR 25,000 up to EUR 7.5 million. Authorized applicants include guarantee facilities, surety institutions or other credit and financial institutions authorized to issue guarantees for the SMEs in accordance with the valid regulations. The amount of the guarantee (counter-guarantee) is EUR 200 million for a financial intermediary (EUR 500 million per group). It is envisaged that *COSME* will enable access to capital for 330,000 entities, and the amount of funds acquired by them will

be around EUR 21 billion. Furthermore, because of the leverage effect, it is expected that each Euro invested in the credit guarantee will allow for release of EUR 30 from the external funding⁵⁹. According to the data from 2016, under the *loan guarantee facility*, 88 applications were submitted, including 54 related directly to the guarantees and 34 to the counter-guarantees. Forty seven contracts were signed in 21 countries for the total amount of EUR 385 million. It is estimated that it will provide more than EUR 11,477 million of funding, and 94,372 entities of the SMEs sector and 329,123 workplaces will benefit from it. There were 103,113 entities, which benefited from the *loan guarantee facility* financial instrument by the end of June 30, 2016, and the amount disbursed constituted EUR 3,031.9 million (Table 5). The largest amounts transferred to the final recipients were recorded among entities employing less than 10 employees (EUR 2,409.7 million, i.e. 79.5%). This instrument was used to the greatest extent by businesses operating in commerce (24.8%) and production industry (17.5%), construction industry (10.6%), the hotel industry and gastronomy (8.5%), transport industry (6.5%), professional, scientific and technical activities (6.3%), and agricultural and forest activities and fisheries (5.5%). The highest number of beneficiaries was recorded in France (37,222) and in Italy (18,820). In those countries the amount paid constituted more than a half of all spent funds.

Table 2.5. Implementation of the *loan guarantee facility*

Country	The number of end recipients	Amount	
		in EUR million	(%)
Austria	1,186	154.1	5.1
Belgium	295	43.4	1.4
Bulgaria	328	56.7	1.9
Czech Republic	1,124	108.7	3.6
Denmark	68	4.7	0.2
Estonia	91	34.7	1.1
France	37,222	810.6	26.7
Germany	6,755	384.3	12.7
Hungary	672	21.4	0.7
Italy	18,820	747.2	24.6
Montenegro	466	8.8	0.3
Netherlands	266	10.6	0.3
Poland	1,293	44.7	1.5
Romania	544	27.4	0.9
Slovenia	143	36.0	1.2
Spain	30,943	475.9	15.7
UK	2,897	62.8	2.1
Total	103,113	3,031.9	100

Source: *Competitiveness of Enterprises and SMEs – Loan Guarantee Facility, Implementation Update, EFI, Reporting: 30/06/2016, European Commission 2016.*

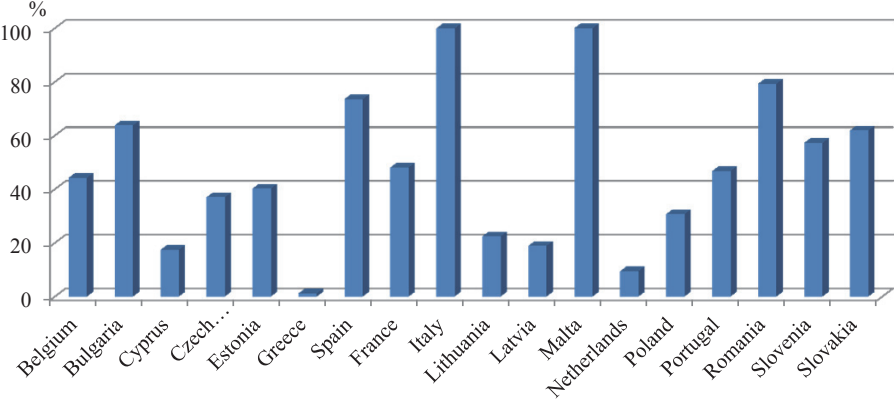
⁵⁹ <http://ec.europa.eu>

- *Horizon 2020 – Framework Programme for Research and Innovation*, a programme continuing the framework programmes from the previous funding period (i.e. Risk Sharing Instrument and Risk Sharing Finance Facility), and the CIF programme. The financial instruments of the *Horizon 2020* programme is complementary with the instruments of the *COSME*. Two financial instruments operate under the programme, namely: (1) *InnovFin SME Guarantee*, which provides access to funding for innovative enterprises from the SMEs sector, employing less than 500 persons, and indicating rapid development (i.e. >20% growth, or increasing employment in the last 3 years), and looking for credits or other forms of debt financing in the amount ranging from EUR 25,000 million to EUR 7.5 million. The funds are made available by the selected intermediaries, using guarantees or the counter-guarantees granted by the EIF, and (2) *InnovFin MidCap Guarantee*, which constitutes a support for innovative companies, employing up to 3,000 persons, and looking for access to debt funding in the amount from EUR 1 million to EUR 50 million. The EIF guarantees are designed for the financial intermediaries, namely for banks and other institutions operating markets of the EU Member States and associated states to the *Horizon 2020* programme.
- *Cultural and Creative Sectors Facility* – the programme provides guarantees for intermediaries offering loans for entrepreneurs from the SMEs sector and for organizations from cultural and creative sectors. The guarantee has a portfolio character and is free. It covers 70% of the value of the granted loan and 25% of the portfolio (not up to 25%). Under the programme, there is a possibility for an indirect or a direct counter-guarantee. The targeted value of the surety-guarantee portfolio may exceed EUR 10 billion. The value of preferential financing of the SMEs sector. The EIF guarantee amounts to EUR 2 million. The value of sureties is estimated at EUR 210 million > up to EUR 1 billion of debt financing. The whole budget of the programme amounts to EUR 121 million, and its purpose is to launch EUR 700 million of preferential financing (5.7 multiplier).

Credit guarantees are mostly financed from the Structural Funds budget (i.e. the European Regional Development Fund and from the European Social Fund), and different operational programmes. In the financing period of 2007-2013, more than 53 million financial instruments supported by the operational programmes and Structural Funds budget were used. Guarantee products constituted a substantial part of these instruments (in the form of holding funds or special funds without a trust fund) (Fig. 2.1). The highest number of guarantee products offered by the fund to the final recipients was recorded in Italy. It constituted more than 99% of all financial instruments used in this country. High

share (more than 50%) of guarantee products in the total number of financial instruments used was also recorded in Bulgaria, Spain, Romania, Slovenia and Slovakia. The guarantees were not used in Austria, Germany, Denmark, Finland, Sweden and Slovakia. In turn, in Malta, apart from the guaranties, no other financial instruments were used. The degree of financial instruments usage, including also guarantee products, may result from differences in operational programmes prepared by different Member States. Some of them are too small, so that it would be possible to establish a specific financial instrument within a given operational programme. In addition, the diversity of financial instruments usage can also be a consequence of the adopted national policy, according to which the assets from the Structural Funds are allocated for specific projects that do not require application of guarantees. The operation of various surety funds, or the state policy with regard to support in the form of the counter-guarantee is also not without importance.

Figure 2.1. The share of credit guarantees in the total number of financial instruments financed by the budgets of the operational programmes and the Structural Funds in the 2007-2013 programming period [in %]

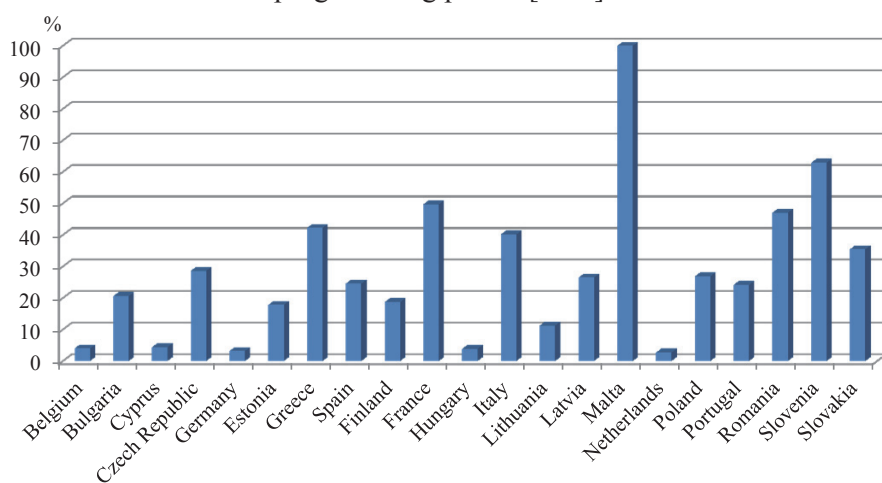


Source: own study on the basis of European Commission (2015d), Summary report on the progress made in financing and implementing financial engineering instruments. Reported by managing authorities in accordance with Article 67(2)(j) of Council Regulation (EC) No 1083/2006. Programming period 2007-2013, Situation as at 31 December 2014.

The total contribution of the operational programmes and the Structural Funds in the financing of the end recipients in the 2007-2013 programming period amounted to EUR 15,307.71 million, of which EUR 3,222.90 million (21.05%) constituted amount intended for the guarantees (Fig. 2.2). Malta and

Slovenia were characterized by the largest share of the value of the guarantees paid in the total amount of the support of the financial instruments. France, Greece, Italy and Romania constituted the second group with a similarly high share (more than 40%). It should be noted that in Italy the share of the amount of support in the guarantee schemes was relatively low as compared to the number of the guarantees. On the other hand, in Greece, the number of the guarantees was relatively small in comparison to the amount of the support.

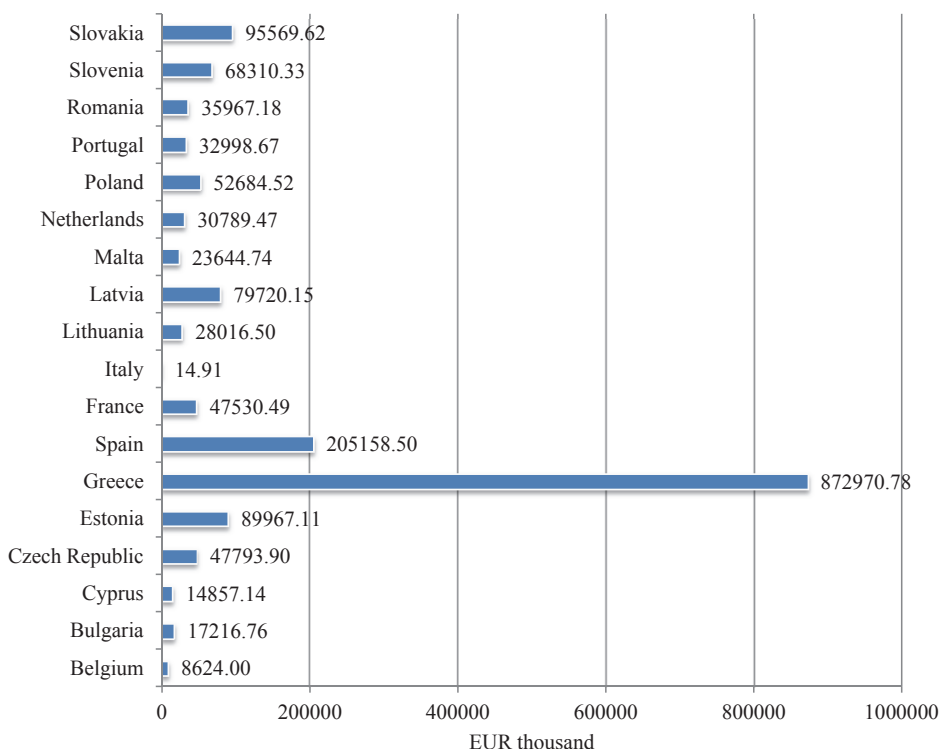
Figure 2.2. The share of the value of credit guarantees granted in the total amount allocated for the financing of financial instruments financed by budgets of the operational programme and the Structural Funds in the 2007-2013 programming period [in %]



Source: own study on the basis of European Commission (2015d), Summary report on the progress made in financing and implementing financial engineering instruments. Reported by managing authorities in accordance with Article 67(2)(j) of Council Regulation (EC) No 1083/2006. Programming period 2007-2013, Situation as at 31 December 2014.

The average amount of subsidy from the budget of the operational programmes and the Structural Funds in financing of guarantees for the final recipient in the 2007-2013 programming period in different Member States was characterized by a large diversity. The average amount of the support was approximately EUR 97,000. The largest support for a single final recipient was recorded in Greece. It constituted more than EUR 872,000, while the smallest support was recorded in Italy (EUR 14,091). In the majority of countries the average amount of the support ranged from EUR 20,000 to EUR 50,000 (Fig. 2.3).

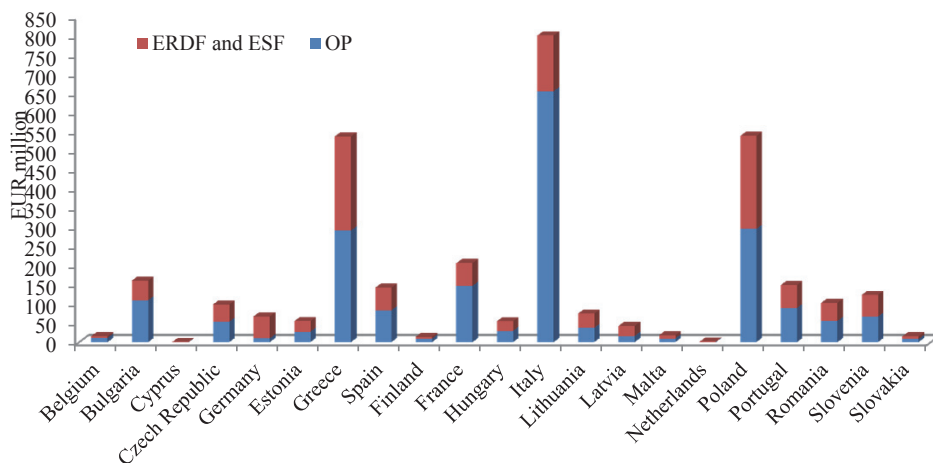
Figure 2.3. The average value from the budget of the operational programmes and the Structural Funds in financing of the guarantees in the 2007-2013 programming period [in EUR thousand]



Source: own study on the basis of European Commission (2015d), Summary report on the progress made in financing and implementing financial engineering instruments. Reported by managing authorities in accordance with Article 67(2) (j) of Council Regulation (EC) No 1083/2006. Programming period 2007-2013, Situation as at 31 December 2014.

The contribution of the operational programmes in the financing of the guarantee products in the 2007-2013 programming period amounted to more than EUR 2 billion, which constituted 62.36% of all funds for the guarantees (Fig. 2.4). On the other hand, the amount of support from the Structural Funds was half smaller and amounted to more than EUR 1.2 billion (37.64%). Amounts paid under the operational programmes and the Structural Funds for activation of mechanism of financial instruments, including the guarantees, significantly differed in individual countries. Differences in the amount of the support between countries result, first of all, from the size of the country and from general scale of cohesion policy funding (it makes it difficult to enable a direct comparison). In addition, they are also a reflection of the selected policies and the existing national practices.

Figure 2.4. The amount of the funds paid from the budget of the operational programmes and the Structural Funds for the guarantees in the 2007-2013 programming period [in EUR million]

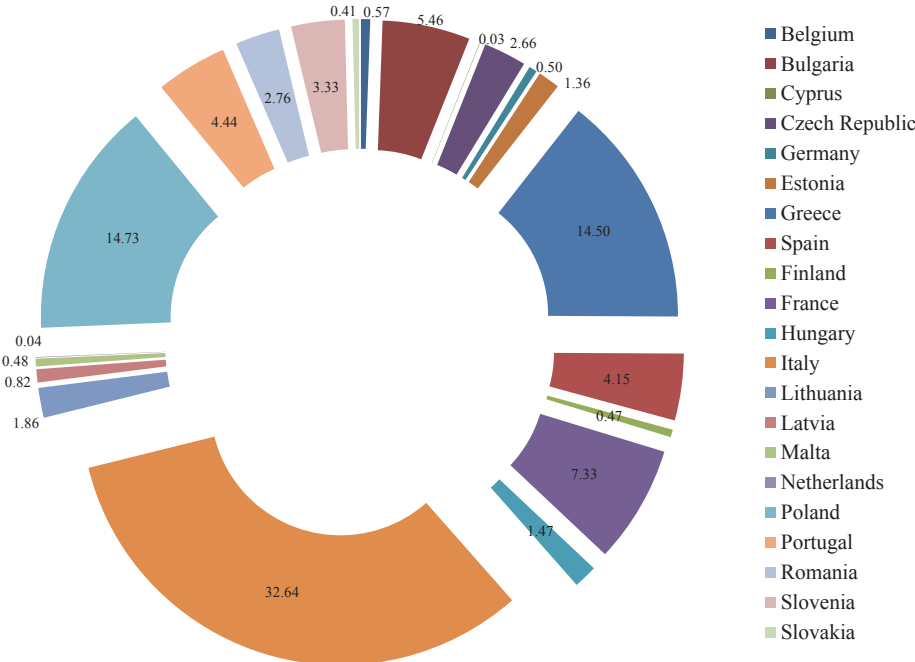


Source: own study on the basis of European Commission (2015d), Summary report on the progress made in financing and implementing financial engineering instruments. Reported by managing authorities in accordance with Article 67(2) (j) of Council Regulation (EC) No 1083/2006. Programming period 2007-2013, Situation as at 31 December 2014.

The share of financial support under different policies of structural instruments of the EU in individual countries was similar. The exception constituted a group of countries, namely Germany, Latvia and the Netherlands, where the guarantees were funded mainly under the budget of the Structural Funds. The largest disproportions in the structure of guarantees funding was recorded in Italy. More than 81.83% of the support of the guarantee products in this country came from the operational programmes. Large disproportions between share of contribution in the operational programmes and the Structural Funds were characteristic for a group of countries, namely Belgium, Bulgaria, Finland and France. In those countries only one third of the amount paid under the guarantee instruments originated from the budget of the Structural Fund.

Out of the total contribution in the operational programmes for financing of the guarantees, the greatest share constituted the value of guarantees granted to the final recipients in Italy. It amounted to more than one third of all funds allocated to the guarantees. A relatively high share of support of the guarantee from the operational programmes as compared to other states was recorded in Poland (14.73%) and in Greece (14.50%). In turn, it was marginal in such countries as Cyprus and the Netherlands (Fig. 2.5).

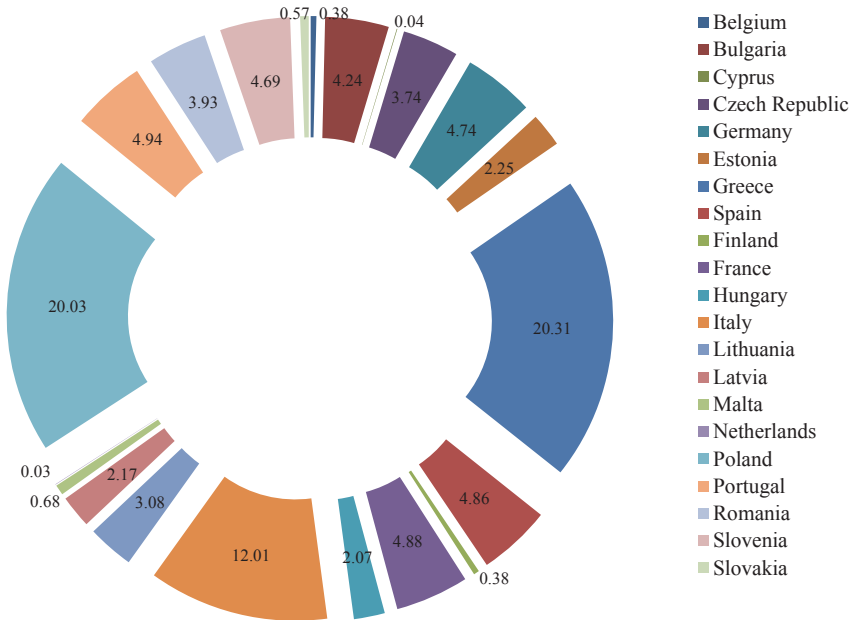
Figure 2.5. The value of the guarantees granted as part of the support from the budget of the operational programmes in the 2007-2013 programming period by Member States of the EU [%]



Source: own study on the basis of European Commission (2015d), Summary report on the progress made in financing and implementing financial engineering instruments. Reported by managing authorities in accordance with Article 67(2) (j) of Council Regulation (EC) No 1083/2006. Programming period 2007-2013, Situation as at 31 December 2014.

Countries that were characterized by a high share of financial support from the operational programmes for the guarantees, were, at the same time, marked by a high share of support of financial instruments in the form of guarantees from the Structural Funds (Fig. 2.6). Italy, where the share of the guarantee support from the operational programmes was the highest, was distinguished by 12% of the total share of the guarantee support from the Structural Funds. In turn, Poland (20.03%) and Greece (20.31%) were characterized by the largest share of the guarantee support from the Structural Funds. In those countries, at the same time, the share of the guarantee support from the operational programmes was high. In Cyprus and the Netherlands, the share of guarantee support was similar as in the case of the support from the operational programmes.

Figure 2.6. The value of the guarantees granted as part of the support from the budget of the Structural Funds in the 2007-2013 programming period by Member States of the EU [%]



Source: own study on the basis of European Commission (2015d), Summary report on the progress made in financing and implementing financial engineering instruments. Reported by managing authorities in accordance with Article 67(2) (j) of Council Regulation (EC) No 1083/2006. Programming period 2007-2013, Situation as at 31 December 2014.

2.4. Credit guarantees as a tool for the development of rural areas

The financial instruments in the form of a guarantee may be implemented as part of rural development programmes (RDP) within Axis 1 – improvement of the competitiveness of the agricultural and forest sector and Axis 3 – quality of life in rural areas and diversification of rural economy. They were not, however, implemented to the same degree as the financial instruments used in the area of cohesion. The reason for low absorption of the guarantee instruments was, for the most part, lack of demand for these financial instruments. The potential beneficiaries did not have sufficient knowledge about them and were used to funding their projects by means of subsidies. In the 2007-2013 programming period, guarantee funds were used in the rural area development programmes of Romania, Bulgaria, Italy (8 regions) and France (only Corsica). For comparison, 171 surety funds were supported under the European Regional De-

velopment Fund, and 7 within the European Social Fund⁶⁰. In spite of the fact that guarantee funds provide the possibility to enhance the impact of the available capital thanks to the multiplier effect, the circulation effect in the case of the 11 existing guarantee funds amounted to 0.53 in 2013 (Table 2.6). Under only three funds, guarantees were granted for the amount exceeding their capital, achieving a small revolving effect. The multiplier effect was not achieved in the case of any operating funds. This means that capital contributed to the guarantee fund exceed the amount of guarantees granted to the final recipients. In addition, the leverage effect was recorded only in France (Corsica), Italy (Apulia region) and in Romania. It amounted to 1.47, 2.24 and 1.41, respectively.

Table 2.6. Revolving effect in the guarantee funds

Member State	Maximum amount contributed to the fund [in EUR million]	The total amount of guarantees granted to the final recipients [in EUR million]	Revolving effect	Maximum target multiplier
Bulgaria	171.29	50	0.29	5
France (Corsica)	0.60	0.40	0.67	3
Italy				
• Sicily	37.63	5.48	0.15	3
• Apulia	5	6.58	1.32	12.5
• Lazio	2.5	0.92	0.37	12.5
• Campaign	2.25	3.26	1.45	12.5
• Umbria	4.8	0	0	3
• Molise	2.45	2.45	1	3
• Basilicata	14.86	1.70	0.11	3
• Calabria	10	1.68	0.17	2
Romania	220	177.17	0.81	5
Total	473.80	249.64	0.53	-

Source: European Court of Auditors (2015). *Are financial instruments a successful and promising tool in the rural development area? Special Report No 5/2015*. Publications Office of the European Union, Luxembourg.

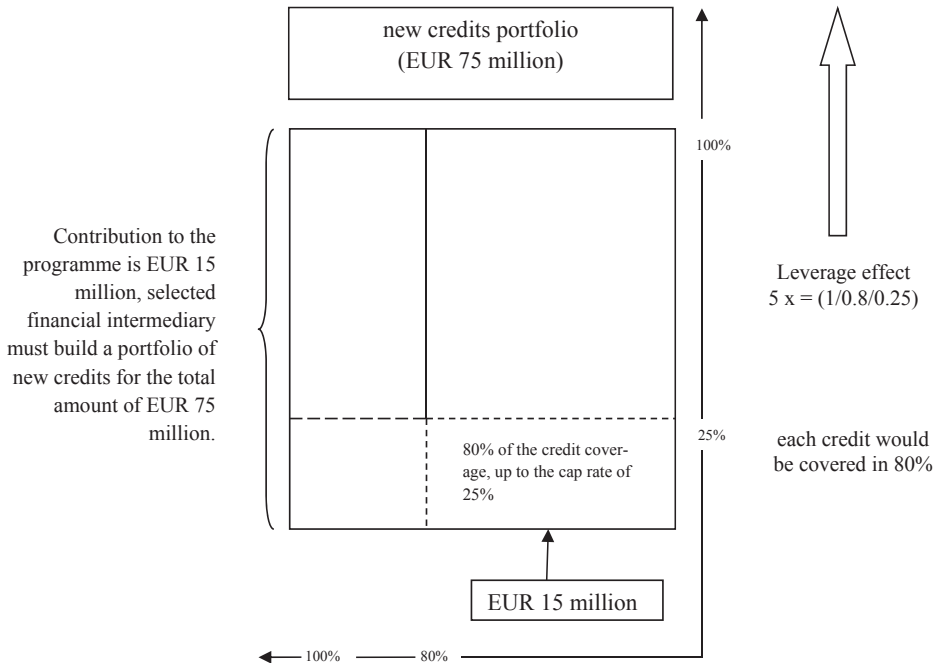
The above data indicate that the financial instruments operating in the form of guarantee funds did not effectively support the rural areas development in the period of 2007-2013.

⁶⁰ European Court of Auditors (2016), *Implementing the EU budget through financial instruments – lessons to be learnt from the 2007-2013 programme period*. Special Report No 19/2016. Publications Office of the European Union, Luxembourg.

It should be expected that in 2014-2020 programming period, agriculture guarantees will be used more commonly. It will be possible due to a new initiative of the European Investment Fund. The *AGRI Guarantee* project was established within the framework of the support of the rural areas development. The instrument is supposed to provide high leverage, creating greater impact on the market of the European Agricultural Fund for Rural Development and national funds. This project was created in order to support the agricultural sector development and to provide a better access to financing for farmers, agricultural enterprises, cooperatives, micro- and small rural enterprises, and entities operating in the forest industry. In addition, it supports developmental investments related to processing and introduction of the agricultural products to the market, the development of non-agricultural entrepreneurship in rural areas and forest technology. The guarantees of the AGRI are supported within the framework of the European Agricultural Fund for Rural Development (EAFRD). The European Investment Fund is the guarantor.

The AGRI guarantees the “first loss portfolio”, which enables financial intermediaries granting loans on more favourable terms (reduction of interest rate and/or requirements for securities) for target groups of final recipients in the agricultural sector. Access to the project is possible after prior selection of financial intermediaries by the EFI. The financial intermediary, within the framework of the AGRI guarantee, may be guarantee institutions, surety funds, financial or credit institutions, leasing companies and loan funds, as well as entities authorized to grant credits or conducting leasing activities or issuing guarantees according to the binding law and regulations operating in the participating country. The guarantee enables financial intermediaries to offer credits to a greater number of companies through the coverage of credit risk. The guarantees within the credit portfolio covers a maximum of 25% of the losses incurred by the financial intermediaries (Fig. 2.7). As part of this initiative, financial intermediaries create portfolio of credits in the period from 3 to 5 years.

Figure 2.7. The AGRI guarantee granting scheme



Source: *The new EFI AGRI guarantee facility: How it works and who can benefit. European Investment Fund, p. 6. http://www.efi.org/news_centre/publications/EIF_AGRI_guarantee_facility*

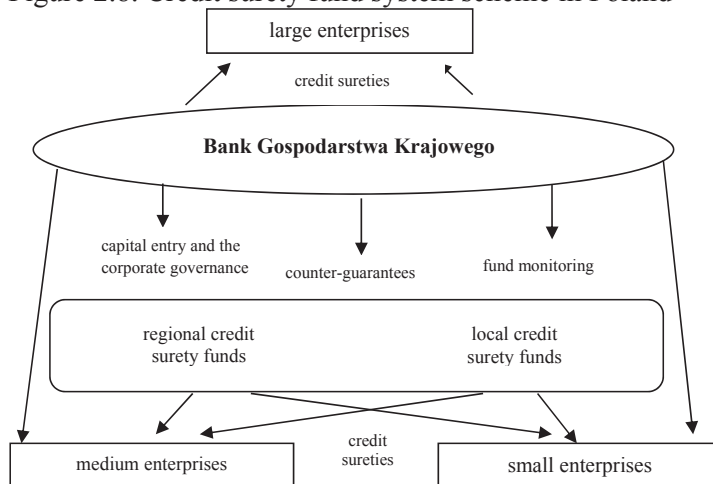
The first project under the *AGRI Guarantee* was submitted in cooperation of the Managing Authority of French region Languedoc Roussillon – Midi Pyrenees and the Commission Directorate-General for Agriculture and Rural Development. Its purpose is to support the agricultural sector in the Languedoc Roussillon – Midi Pyrenees region (France)⁶¹.

⁶¹ The agri-food sector in Languedoc-Roussillon employs 9,600 people, and includes 19% of small and medium operating enterprises from the region and approximately 350 cooperatives. In addition, the operations are run there by 29,400 farmers, production covers, above all: cultivation of grapevine, fruit and vegetables, breeding of animals, as well as plant production (mainly wheat) and forestry. About 1,200 entrepreneurs (mainly from SMEs sector) achieve EUR 8.6 billion of annual turnover.

2.5. Surety and credit guarantee system in Poland

Surety and credit guarantee system in Poland is a public system. Bank Gospodarstwa Krajowego is an institution that plays an important role in the system. Bank Gospodarstwa Krajowego may give sureties and guarantees on market terms and in the form of public aid or *de minimis* aid (Fig. 2.8). The issue of granting sureties and guarantees in Poland is regulated by the Act on sureties and guarantees granted by the State Treasury and by certain legal persons⁶² and the Act on Bank Gospodarstwa Krajowego⁶³. Surety operations in Poland are also conducted by the Agency for Restructuring and Modernization of Agriculture (ARMiR) within the national aid. Whereas these operations are limited only to entities from the agricultural sector.

Figure 2.8. Credit surety fund system scheme in Poland



Source: J. Próchniak, *Ocena działalności systemu funduszy poręczeń kredytowych w Polsce*, *Oeconomia Copernicana* No. 1, 2010, p. 128.

Bank Gospodarstwa Krajowego performs surety-guarantee operations within government projects, including “*Supporting Private Enterprises Using Sureties and Guarantees of the Bank Gospodarstwa Krajowego*”⁶⁴ and by the means of self-governance and regional development projects, which include pro-

⁶² Act of 8 May 1997 on Sureties and Guarantees granted by the State Treasury and Certain Legal Persons, as amended (Journal of Laws 2003, no. 174 item 1689).

⁶³ Act of 14 March 2003 on Bank Gospodarstwa Krajowego (Journal of Laws 2003, no. 65 item 594).

⁶⁴ Programme adopted by the Council of Ministers on 19 May 2009 and amended by the Council of Ministers on: 25 November 2011, 14 February 2013, 21 October 2013 and 12 June 2015.

jects implemented with the use of assets provided by the European Union, as well as, infrastructural funds and those related to the small and medium-sized enterprises sector development. Bank Gospodarstwa Krajowego implements surety operations with the use of the following guarantee instruments⁶⁵:

- Portfolio guarantee lines – are related to granting banks credit portfolio guarantees. Including investment and working capital credits for micro-entrepreneurs, small and medium-sized entrepreneurs, with the possibility to use the counter-guarantee granted by the European Investment Fund. In the period of 2014-2020 surety will be implemented within the agreement concluded between the Bank Gospodarstwa Krajowego and the EFI under the COSME programme and the European Fund for Strategic Investment. The guarantees are addressed to the entities from all sectors, which means there are no sectoral exclusions⁶⁶.
- Guarantees in the form of public aid or *de minimis* aid⁶⁷, including *de minimis* portfolio guarantee line (PLD). Bank Gospodarstwa Krajowego grants *de minimis* guarantee for working capital and investment credits for entities from SMEs sector and for credit portfolio guarantee. The *de minimis* guarantee may be received only by an entity operating in all sectors, excluding: fishery and aquaculture sector, the agricultural sector (applies to entities operating in the field of basic agricultural products production, as well as processing and introduction of agricultural products on the market and those conducting activities in the scope of road transport of goods. The *de minimis* guarantee programme was introduced in 2013 as a temporary anti-crisis instrument. Initially, the programme was supposed to be valid until the end of 2015, it has, however, been prolonged to the end of 2017. It is estimated that the prolongation of the programme will enable granting guarantees for the amount of more than PLN 40 billion (including about PLN 7.5 billion in 2017)⁶⁸.
- Guarantees with the use of funds provided by the European Union, consisting of granting banks individual guarantees and credit portfolio guarantees as part of tasks entrusted by a relevant institution managing the operational programme with regard to the implementation of the support instruments for micro-entrepreneurs, small and medium-sized entrepreneurs.

⁶⁵ Program rządowy “Wspieranie przedsiębiorczości z wykorzystaniem poręczeń i gwarancji BGK” z 2015 roku.

⁶⁶ <http://www.bgk.pl>

⁶⁷ Act of 8 May 1997 on Sureties and Guarantees granted by the State Treasury and Certain Legal Persons (Journal of Laws 2015, item 1052, 1854).

⁶⁸ <http://www.bgk.pl>

- Individual sureties/guarantees, apply in particular to granting sureties or guarantees for repayment of the investment and working capital credits. These are sureties/guarantees granted maximum up to 80% of the credit amount. The minimum amount of a guarantee or a surety must not be lower or equal to PLN 3.5 million, and the maximum amount must not be higher than the equivalent of EUR 10 million in PLN. Bank Gospodarstwa Krajowego collects a commission on the account of granting surety/guarantee for the credit repayment. Rates for the annual period of surety in the case of micro-entrepreneurs, small or medium-sized entrepreneurs amounts to 3.8%, while in the case of larger companies rates are agreed individually, depending on the risk class and for surety they amount from 0.95% to 3.80% and for guarantee from 1.15% to 4%.
- Counter-guarantees associated with granting guarantee for the benefit of the surety funds, ensuring the repayment of the liabilities resulting from sureties for liabilities of micro-entrepreneurs, small and medium-sized entrepreneurs, including a possibility to use funds provided by the European Union within tasks entrusted by a relevant institution managing the operational programme with regard to implementation of the support instruments for micro-entrepreneurs, small and medium-sized entrepreneurs. Maximum amount of the surety limit amounts to PLN 20 million. The amount of a single surety can be maximum 50% of the amount of surety granted by a fund and it is identical for all sureties entered into the portfolio. Maximum period of surety cannot be longer than 68 months. This is a period not longer than the period of credit surety extended by 8 months. Bank Gospodarstwa Krajowego collects a commission for surety that cannot be lower than 1.6% of the amount covered by single counter-surety⁶⁹.

Surety operations in Poland are also conducted by local and regional surety funds. Shareholder in these funds is the Bank Gospodarstwa Krajowego. In Poland, guarantee funds are mostly not specialized, which means that their offer is directed to a broad group of enterprises. They are characterized by a large fragmentation (operations are conducted by approximately 45 local and regional surety funds). However, these are not entities with substantial capital, which due to the achieved scale of operations could be a partner for the European Investment Fund⁷⁰.

⁶⁹ <http://www.bgk.pl>

⁷⁰ M. Gajewski, J. Szucki, Ekspertyza nt. dobrych praktyk w zakresie rozwiązania problemów w dostępie do finansowania zwrotnego w wybranych krajach Europy, w tym w państwach regionu Europy Środkowo-Wschodniej, Warsaw 2013.

According to the data of the National Association of Guarantee Funds⁷¹ in 2014 the capital of surety funds amounted to more than PLN 1.17 billion, which amounts on average to PLN 26 million per single fund. However, only 17 entities hold capital in such or higher amount. In most of surety funds operating in Poland the assets are smaller. In the studied period, guarantee funds granted in total 5,578,000 guarantees in the amount of PLN 833.3 million (for comparison, in the same period the BGK granted guarantees for the amount of PLN 9.7 billion). On average, 124 agreements for the amount of PLN 18.5 million were granted per one fund. In turn, the average value of the granted sureties amounted to PLN 149,000. The largest number of sureties was granted for banks (72%). Sureties were mostly related to working capital debt financing. More than 60% of the value of surety funding was related to the current operations of the entity, while 29.27% was related to the security of credits for investment purposes. Among entities using sureties, enterprises involved in service activities and transportation (46%) dominated. The use of sureties in the agricultural sector constituted a small percentage (0.02% of all granted sureties and 0.04% of their value).

2.6. Surety operations in the agricultural sector

In recent years, surety operations of the Agency for Restructuring and Modernization of Agriculture are conducted in parallel to assistance programmes with partial financing provided by the European Union and constitute their supplement. Since the first years of operation, the Agency can grant credit guarantees and sureties for bank credits repayment granted for financing of a part of the investment costs for agricultural farms, special departments of agricultural production or for the agricultural products processing. The Agency may also grant sureties and guarantees for repayment of disaster loans and sureties for student credits granted for students from rural areas⁷².

Guarantees and sureties may be granted under cooperation contracts concluded with crediting banks, governing, in the first place, conditions of application of contributions to interest rates of bank credits.

In recent years, the scope of surety operation of the Agency has changed, which to large extent resulted from the need to adjust national legislation to the Community requirements (Table 2.7).

⁷¹ Raport o stanie funduszy poręczeniowych w Polsce – stan na dzień 31.12.2014 r., Krajowe Stowarzyszenie Funduszy Poręczeniowych, Warsaw 2015.

⁷² Ordinance of the Council of Ministers of 30 January 1996 on detailed directions of activities of ARMA and methods of their implementation (Journal of Laws No. 1, item 82, as amended).

Table 2.7. Principles of granting guarantees and sureties by ARMA for repayment of the investment credits in the period of 1996-2014

Aid beneficiary	- a borrower who does not have a credit security with full collateralization required by the bank's procedures; - from 2007 a surety support could be also granted to entities running a farm, being a small or medium-sized enterprise as defined by the regulations of the EC ⁷³ ;
Subject of sureties and guarantees	up to 30.04.2007: - sureties and guarantees for repayment of the investment credits; - sureties for repayment of student credits; - sureties and guarantees for repayment of disaster loans; after 30.04.2007: - sureties and guarantees for repayment of investment credits and disaster loans; - sureties for repayment of student credits; and in the period from 2010 to 2014, sureties and guarantees for repayment of credits for purchase of shares or stocks of companies running operations related to agricultural products processing or processing of fish, shellfish and molluscs, as well as credits for purchase of companies fully owned by the Treasury created for the purpose of conducting activities in the field of artificial insemination ⁷⁴
The amount of the support	- the surety for investment credit repayment up to 60% of the amount actually used of the granted credit and not more than up to PLN 1 million; - guarantee of investment credit repayment up to 80% of the amount actually used of the granted credit and not more than up to PLN 1 million;
Commission	dependent on the period for which a guarantee or a surety is supposed to be granted and amounting to: - up to 5 years – 0.3% of the surety amount or 0.5% of the guarantee amount; - over 5 years up to 10 years – 0.4% of the surety amount or 0.7% of the guarantee amount; - over 10 years – 0.5% of the surety amount or 1% of the guarantee;
Additional securities	ARMA may request the Borrower to establish for ARMA securities for the granted guarantee or surety
The procedure for examination of applications	(1) Simplified, in which sureties are granted for repayment of the investment credits. Its amount does not exceed 50% of the credit amount actually used and the amount of PLN 500,000. Granted sureties are of contingent nature, which means that the bank will primarily satisfy its claims and claims of others and then the Agency's surety for securities of the credit and the borrower's assets. Entities applying for the surety must submit a certificate confirming no arrears with payment of taxes and social security contributions, as well as an analysis of credit capacity. The Agency examines the applications within 15 days from the date of submission of the documents. Conclusion of the contract occurs directly in the crediting bank. (2) Normal, in which other sureties and guarantees are granted for repayment of the investment credits, the amount of which exceeds 50% of the amount actually used of the credit amount or the amount of PLN 500,000. The basis for applying for the granting of a surety or a guarantee is the submission by the Agency through the crediting bank of an application along with a complete set of documents necessary for evaluation of economic, financial and assets situation and legal position of the borrower. Then, within maximum 30 days from the submission of the documents, the Agency notifies the bank and the borrower about the decision as to whether or not it granted a surety or a guarantee.

Source: prepared by the author on the basis of the ARMA data.

⁷³ Commission Regulation (EC) No 70/2001 of 12 January 2001 on the application of Articles 87 and 88 of the EC Treaty to State aid to small and medium-sized enterprises (Official Journal of EC L 10, 13.01.2001, p. 33, as amended; Official Journal EU Polish special edition, chapter 8, vol. 2, p. 141).

⁷⁴ Ordinance of the Council of Ministers of 22 January 2009 on implementation of ARMA's objectives (Journal of Laws No. 22, item 121, as amended).

Table 2.8. Principles of granting guarantees and sureties by ARMA for repayment of the investment credits in 2015

The beneficiary of aid	<ul style="list-style-type: none"> - the borrower that meets the conditions for obtaining the credit with interest subsidies provided by the Agency for RR, PR, K01 and K02 lines (respectively, credit for investment in agriculture and inland fishery, credit for investment in the processing of agricultural, fish shellfish and molluscs products, credit for purchase of shares or stocks, credit for resuming production in agricultural farms and special section of agricultural production, in which damages caused by specific natural calamities occurred), - the borrower who does not have a credit security with full collateralization required by the bank's procedures - has, according to the bank's evaluation, ability to repay the credit secured by the Agency along with interest within the dates specified in the contract, - has no arrears with payments under taxes and social security contributions and does not have payable liabilities towards the Agency and under the aid granted, - is not an enterprise being in a difficult situation according to the Regulation of the EC⁷⁵
Subject of sureties and guarantees	<ul style="list-style-type: none"> - sureties and guarantees for repayment of the investment credits, - sureties for repayment of student credits, - sureties and guarantees for repayment of disaster loans
The amount of the support	<ul style="list-style-type: none"> - surety for investment credit repayment up to 60% of the amount actually used of the granted credit and not more than up to PLN 1.5 million; - guarantee of investment credit repayment up to 80% of the amount actually used of the granted credit and not more than up to PLN 2 million
Commission	<ul style="list-style-type: none"> - 2% of the bank credit guaranteed amount, - 1% of the bank credit surety amount
Additional collaterals	ARMA may request the Borrower to establish for ARMA securities for the granted guarantee or surety
Deadline for a guarantee or a surety	guarantees or sureties are granted for the maximum of the period covered by the credit agreement, extended by 3 months and up to 5 years in the case of sureties and guarantees granted under <i>de minimis</i> aid
The procedure for examination of applications	<p>(1) Simplified, in which sureties are granted for repayment of the investment credits. Its amount does not exceed 60% of the credit amount actually used and the amount of PLN 750,000. Granted sureties are of contingent nature, which means that the bank will primarily satisfy its claims and claims of others and then the Agency's surety for securities of the credit and the borrower's assets. The Agency examines the applications within 15 days from the date of submission of the documents. Conclusion of the contract occurs directly in the crediting bank.</p> <p>(2) Normal, in which other sureties and guarantees are granted for repayment of the investment credits, which do not meet the conditions for simplified granting procedure. The basis for applying for the granting of a surety or a guarantee is the submission by the Agency through the crediting bank of an application along with a complete set of documents necessary for evaluation of economic, financial and assets situation and legal position of the borrower. Then, within maximum 30 days from the submission of the documents, the Agency notifies the bank and the borrower about the decision as to whether or not it granted a surety or a guarantee.</p>

Source: prepared by the author on the basis of the ARMA data.

⁷⁵ Commission Regulation (EU) No 702/2014 of 25 June 2014 declaring certain categories of aid in the agricultural and forestry sectors and in rural areas compatible with the internal market in application of Articles 107 and 108 of the Treaty on the Functioning of the European Union (Official Journal of EU L 193, 1.07.2014, p. 1).

Principles of granting sureties and guarantees by the Agency for bank credits repayment changed in 2015⁷⁶. As compared to the previous years, granting of sureties and guarantees was limited to selected credit lines, the surety for investment credit repayment was increased up to PLN 1.5 million (previously PLN 1 million) and for guarantees for the investment credit repayment up to PLN 2 million (previously PLN 1.5 million). The procedure for examination of applications has not changed (except for changes in simplified procedure, in which the amount of actually used credit was increased from 50% and PLN 500,000 to 60% and PLN 750,000) (Table 2.8). Provision has been introduced, according to which credit may be granted, if support of the Agency in the form of a guarantee or a surety results in the incentive effect. It is deemed that the support results in the incentive effect, if works on the given project or appropriate actions begun not earlier than on the day of the submission of the application for a guarantee or a surety. This effect is not valid in the case of guarantees or sureties used as *de minimis* aid.

2.7. Implementation of the sureties and guarantees for bank credits repayments granted by ARMA

In the period of 1996-2015, the Agency for Restructuring and Modernization of Agriculture accepted 337 applications for granting sureties with total value of more than PLN 104 million and 75 applications for granting bank credits repayment for the amount of more than PLN 32 million. Over the analysed period, the Agency granted 202 sureties and guarantees for the amount of more than PLN 52 million, including 188 sureties for the amount of more than PLN 4.9 million and 14 guarantees for the amount of PLN 3.7 million (Table 2.9). The largest number of granted sureties and guarantees was recorded in the period of 1994-2000. The ratio of the accepted applications for granting sureties in the period of 1994-2000 amounted to 55%. In turn, the ratio in the period of 2001-2015 was characterized by high volatility. Its value ranged from 0% to 100%. In the period of 2001-2015, the largest number of sureties was granted in 2011, namely 28 sureties in the amount of PLN 8.8 million, including 25 sureties for repayment of credit for purchases of shares granted under *de minimis* aid in the amount of PLN 7.3 million. The average value of granted sureties ranged from PLN 182,000 (2002) up to PLN 5.4 million (2005). In turn, the largest number of guarantees for the credit repayment was granted in the period of 1996-2000. From 2001 to 2015, the Agency did not grant guarantees, mainly due to the lack of applications in this respect (Table 2.12). In the studied period,

⁷⁶ Ordinance of the Council of Ministers of 27 January 2015 on the detailed scope and methods of implementation of certain tasks of ARMA (Journal of Laws No. 187, as amended).

interest in sureties for bank credits repayment decreased on annual average by over 20%. In addition, each year the number of granted sureties for bank credits repayment decreased by 14.97%, with simultaneous average annual decrease of 19.72% of the value of granted sureties (Table 2.10 and Table 2.11). Together with the decreasing number and value of granted sureties, the value of the active sureties also decreased. It is the result of phasing out of a part of sureties granted in the previous years.

When comparing surety operations of ARMA with operations related to granting support in the form of contributions to interest rates of investment credits, it should be noted that it has marginal meaning. In the period of 1996-2014, the Agency granted 202 guarantees and 460,471 preferential investment credits⁷⁷. Therefore, a small percentage of credits has been granted with the use of support in the form of sureties and guarantees for the credit repayment (0.04%). In the examined period, the value of granted sureties and guarantees amounted to PLN 55 million, which accounted for 2.83% of the value of granted preferential investment credits.

⁷⁷ More information on the implementation of national support programmes for agriculture and rural areas have been described in: B. Wieliczko, A. Kurdyś-Kujawska, *Mechanizmy i impulsy fiskalne oddziałujące na rozwój wsi i rolnictwa (1)*, IERiGŻ-PIB, Monografie Programu Wieloletniego, Warsaw 2015, pp. 28-29.

Table 2.9. Implementation of the sureties for investment credits under ARMA's operations

Specification	Years															
	1994-2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
the number of submitted sureties	240	25	18	6	7	0	3	0	1	5	1	29	0	1	1	0
value of submitted sureties [in PLN thousand]	63,580	8,714	9,019	3,345	3,456	0	1,772	0	287	1,947	1,000	9,800	0	231	1,000	0
the value of granted sureties [in PLN thousand]	30,830	3,225	731	3,745	500	541	1,122	0	287	841	1,482	8,800	0	231	0	0
the value of active sureties [in PLN thousand]	no data	no data	no data	no data	no data	no data	12,900	9,700	7,275	7,320	7,421	14,600	13,773	11,602	8,233	5,500
number of active sureties	no data	no data	no data	no data	no data	no data	47	34	31	29	28	53	51	46	34	23
the number of granted sureties	132	7	4	6	1	1	2	0	1	3	2	28	0	1	0	0
the average value of granted sureties [in PLN thousand]	233	460	182	624	5,000	5,410	561	0	287	280	741	314	0	231	0	0
the number of claims under the performance bond	3	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0
the value of claims under the performance bond	338	0	218	95	152	0	243	0	0	0	0	0	0	0	0	0

Source: prepared by the author on the basis of the ARMA data.

Table 2.10. Indexes and the average rate of changes of number and value of submitted sureties for investment credits

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	The number of submitted sureties														
i_{i0}	100	72	24	28	0	12	0	4	20	4	116	0	4	4	0
$i_{i/t-1}$		72	33.3	116.7	0	0	0	500	20	2900	0	0	100	0	0
y_g															
	Value of submitted sureties														
i_{i0}	100	103.5	38.39	39.66	0	20.34	0	3.29	22.34	11.48	112.46	0	2.65	11.48	0
$i_{i/t-1}$		103.5	37.1	103.3	0	0	0	678.4	51.4	980	0	0	432.9	0	0
y_g															
	-21.93														
	-26.1														

Source: prepared by the author on the basis of the ARMA data.

Table 2.11. Indexes and the average rate of changes of number and value of granted sureties for investment credits

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	The number of granted sureties														
i_{i0}	100	57.14	85.71	14.29	14.29	28.57	0	14.29	42.86	28.57	400	0	14.29	0	0
$i_{i/t-1}$		57.14	150	16.67	100	200	0	300	66.67	1400	0	0	0	0	0
y_g															
	-14.97														
	the value of granted sureties														
i_{i0}	100	22.67	116.12	15.5	16.78	34.79	0	8.9	26.08	45.95	272.87	0	7.16	0	0
$i_{i/t-1}$		22.67	512.31	13.35	108.2	207.39	0	293.03	176.22	593.79	0	0	0	0	0
y_g															
	-19.72														

Source: prepared by the author on the basis of the ARMA data.

Table 2.12. Implementation of investment credit guarantees under ARMA's operations

Specification	Years															
	1994-2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
the number of submitted guarantees	71	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0
value of submitted guarantees [in PLN thousand]	30,122	340	0	0	0	0	0	0	383	618	0	717	0	0	0	0
the value of granted guarantees [in PLN thousand]	3,658	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
the number of granted guarantees	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
the average value of granted guarantees [in PLN thousand]	261,29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
the number of claims under the performance bond	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
the value of claims under the performance bond	188	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: prepared by the author on the basis of the ARMA data.

2.8. Summary

Analysis of the current opportunities to obtain sureties and guarantees for bank credit repayment by entities from the agricultural sector, allowed to determine what is the availability and the importance of these support instruments.

Entities from the agricultural sector in Poland are entitled to use sureties and guarantees granted through the Agency for Restructuring and Modernization of Agriculture. Data relating to the farmers' participation in the programme indicate that the demand for sureties and guarantees in the agricultural sector is non-existent. A similar situation occurs with the use of sureties as part of local and regional surety funds operating in Poland. In 2014, the number of sureties granted by these institutions for entities from the agricultural sector amounted to 0.04%.

Poland, being a Member State of the European Union, has also the possibility to use this type of instruments under the Rural Areas Development Programme. Incorporation of financial instruments to the rural development programmes yields many benefits for the institutions involved in the management and implementation of these programmes, *inter alia*:

- larger access to a broader spectrum of financial tools for implementation of policies,
- improvement in the commitment of the private sector, its expert knowledge and financial resources in implementation of policy,
- financial resources leverage, leading to the increased impact of the rural development programmes,
- the effectiveness and efficiency as a result of working capital nature of funds that remain in the field covered by the programme for future use for similar purposes,
- greater involvement of beneficiaries in the implementation of investment projects, since the support must be returned,
- simplified administrative requirements concerning financing of beneficiaries, which minimises the risk of errors⁷⁸.

However, as the analyses conducted in the 2007-2013 programming period demonstrate, the guarantee instruments in the form of surety funds have been introduced only in a few countries. Whereas they have not brought the expected results. Such instruments have not been introduced in Poland. This results from a number of barriers, which include limited accessibility of staff with qualifications for implementation of such instruments, low availability of the financial intermediaries, lack of stimuli ensuring optimization of intermediaries' opera-

⁷⁸ *Financial Instruments: making funding go further 2015, Getting Rural Development Programmes Going*, EU Rural Review, 30-35.

tions, availability of non-refundable support for implementation of the same objectives, unfavourable financial situation of potential beneficiaries and limited knowledge about refundable financing⁷⁹.

Therefore, consideration should be given to whether the presently operating surety schemes are the right solution for preventing irregularities in its functioning of the credit market in the agricultural sector. Currently, there are hardly any information clearly confirming legitimacy of using credit guarantees. There is lack of research clearly indicating that guarantee schemes lead to growth in production, investment and employment in the agricultural sector. Determination of the demand for this financial instrument is a difficult task. Therefore, further analyses are necessary in order to determine whether sureties and guarantees are a necessary instrument enabling access to bank credits, how they affect the behaviour of borrowers and whether they actually bring expected results.

⁷⁹ J. Szucki, M. Gajewski, P. Tamowicz, M. Przybyłowski, R. Kubajek, P. Penszko, *Ocena realizacji instrumentów inżynierii finansowej w ramach NSRO 2007-2013*. Raport końcowy, Warsaw 2013.

3. Implementation of the second pillar of the CAP in the 2014-2020 programming period

The second pillar of the Common Agricultural Policy in 2014-2020 underwent slight changes with regard to support in relation to the period of 2007-2013. Significant changes relate, on the other hand, to the organisation of implementation of particular instruments, as well as monitoring and evaluation of measures performed. Despite more and more commonly proposed implementation of financial instruments, only a few Member States decided to implement them.

Since a key regulation for rural development programmes, namely Regulation (EU) No 1305/2013 of the European Parliament and of the Council⁸⁰ was adopted no sooner than on December 2013, approval of programmes and commencement of their implementation process was significantly delayed in all Member States. One may suspect that the perspective of subsequent launch of programmes has affected their shape. Numerous changes in programmes introduced during their implementation process are also expected, as well as shifts of funds between measures.

Rural development programmes concerning the programming period 2014-2016 are very diverse in terms of the set of introduced measures and the structure of expenses involved⁸¹. This diversity is present both in programmes covering the entire country as well as in regional programmes.

Total amount of expenditures on implementation of rural development programmes for 2014-2020 in the EU countries exceeds EUR 1.5 trillion (Table 3.1), given that EUR 98 billion⁸² is the amount coming from the European Agricultural Fund for Rural Development. The largest pool of funds was allocated for investments in physical assets – nearly 1/4. More than 16.5% of funds were allocated both to agri-environment-climate measures and payments to areas with constraints and other specific limitations.

⁸⁰ Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 (Official Journal of the EU of 20.12.2013, L 347).

⁸¹ Tremendous diversity of decisions also applies to the shape of the direct payment system operating in 2015-2020. This issue was presented in detail, e.g. in the following publications: *Implementation of the First Pillar of the CAP 2014-2020 in the EU Member States*, European Union, 2015 and A. Kurdyś-Kujawska, B. Wieliczko, 2015, op. cit.

⁸² *Research for AGRI Committee – Programmes implementing the 2015-2020 Rural Development Policy*, European Union, 2016, p. 17.

Table 3.1. Total amount of expenditures allocated to the RDP 2014-2020 in the EU countries (amount in EUR million; share in %)

Measure	Amount	Share
M01 - Knowledge transfer and information actions	1,815.9	1.17
M02 - Advisory services	1,398.6	0.90
M03 - Quality systems	614.9	0.40
M04 - Investments in physical assets	35,940.9	23.25
M05 - Damage/restoration/prevention actions	2,192.6	1.42
M06 - Farm and business development	10,337.7	6.69
M07 - Basic services and village renewal	10,859.5	7.02
M08 - Investment in forest areas	6,728.5	4.35
M09 - Producers groups and organisations	665.1	0.43
M10 - Agri-environment-climate	25,933.0	16.77
M11 - Organic farming	9,784.4	6.33
M12 - Natura 2000 and WFD	829.7	0.54
M13 - Areas with constraints	25,697.9	16.62
M14 - Animal welfare	2,220.3	1.44
M15 - Forest-environmental-climate	353.1	0.23
M16 - Cooperation	2,545.6	1.65
M17 - Risk management	2,765.2	1.79
M18 - Complementary payments to Croatia	139.9	0.09
M19 - LEADER/CLLD	9,874.3	6.39
M20 - Technical assistance	2,993.5	1.94
M113 - Early retirement	926.0	0.60
Total	154,616.6	100.00

Source: prepared by the author on the basis of data available at http://enrd.ec.europa.eu/_en.

During this programming period, support priorities were set and planned expenses were allocated to particular priorities. These priorities include:

1. Facilitating the transfer of knowledge and innovations in agriculture, forestry and in rural areas.
2. Improvement in competitiveness of all kinds of agricultural economy and increasing the profitability of agricultural farms.
3. Improvement in organisation of food chain and promotion of risk management in agriculture.
4. Restoration, protection and strengthening of agriculture and forestry dependent ecosystems.
5. Support for effective resource management and shift to low-emission economy resistant to climate change in the sectors: agriculture, food and forestry.
6. Increasing social inclusion, limiting poverty and promoting economic development in rural areas.

The first priority is horizontal and is to be implemented through all the measures of rural development programmes (RDP). As shown by an analysis of expenses planned under the RDP, the largest part of funds at the EU level – more than 2/5 – is to be allocated to the implementation of environmental priority (priority 4) which applies to restoring, protecting and strengthening of agriculture and forestry dependent ecosystems (Table 3.2). The second place in this structure is occupied by the priority relating to competitiveness (priority 2), however, the share of expenses allocated to this purpose is only 1/5 of the budget of all RDPs. Almost 16% of funds were allocated to the effective use of natural resources and adaptation to climate changes (priority 5). Almost 10% of funds were allocated to improvement of food chain organisation and risk management promotion (priority 3). A slightly smaller amount is to be spent on issues related to poverty and social inclusion (priority 6). Technical assistance, that is support for the implementation of programmes, in the current programming period received 2.6% of the budget of the second pillar of the CAP.

The structure of expenses allocated to different priorities of rural development policy in the EU looks differently in different countries, which results from different development needs identified in the course of preparation of rural development programmes, as well as from differences in approach to shaping the support policy.

In the United Kingdom, the highest share of expenses was allocated to restoration and strengthening of ecosystems, which is associated with biodiversity protection issues of this country. This is also true for the structure of RDP expenses in Ireland, which is a country with one of the highest shares of expenses allocated to restoration and strengthening of ecosystems. Ireland notices hazards associated with the loss of biodiversity⁸³. At the same time, however, due to the structure of its agriculture and the entire Irish economy, it is a state with the highest share of agriculture in greenhouse gas emissions of the whole national economy⁸⁴. At the same time, the share of expenses allocated to improvement in competitiveness is almost three times lower than the EU average, and the share of expenses for improving the organisation of food chain is several times lower than the EU-28 average.

⁸³ Department of Agriculture, *Food and the Marine, 2015, Local Roots Global Reach*. Food Wise 2015. A 10-year vision for the Irish agri-food sector, Dublin.

⁸⁴ I. Pérez Domínguez, T. Fellmann, F. Weiss, P. Witzke, J. Barreiro-Hurlé, M. Himics, T. Jansson, G. Salputra, A. Leip, 2016, *An economic assessment of GHG mitigation policy options for EU agriculture (EcAMPA 2)*, JRC Science for Policy Report, fig. 2.

Table 3.2. The structure of expenses of the RDP in the EU Member States allocated to particular priorities of rural development policy

State	P. 2	P. 3	P. 4	P. 5	P. 6	Technical assistance
Austria	10.80	5.90	64.95	3.09	12.36	2.90
Belgium	36.77	2.64	33.99	15.13	9.91	1.56
Bulgaria	13.55	9.84	31.33	14.14	29.55	1.58
Croatia	29.64	11.73	27.69	8.41	19.81	2.71
Cyprus	13.77	5.90	48.11	5.82	17.02	9.38
Czech Republic	17.96	7.81	64.29	0.79	7.52	1.63
Denmark	13.23	0.00	67.90	7.90	6.97	4.00
Estonia	29.79	11.19	34.86	2.49	18.27	3.41
Finland	6.30	9.90	67.25	1.81	13.49	1.26
France	18.69	9.09	55.77	4.64	10.32	1.49
Greece	22.23	9.52	29.20	19.11	18.05	1.89
Spain	23.85	13.22	33.52	12.80	14.35	2.26
Netherlands	28.47	2.42	58.93	0.00	6.60	3.57
Ireland	7.38	1.36	72.60	11.13	7.17	0.37
Lithuania	32.07	8.62	26.73	8.94	15.32	8.31
Luxembourg	26.97	0.00	56.11	10.05	6.06	0.81
Latvia	31.19	5.19	38.41	4.75	14.94	5.53
Malta	13.66	12.22	41.79	18.07	10.27	4.00
Germany	13.55	5.18	48.65	4.66	25.67	2.29
Poland	33.12	12.28	30.79	2.23	15.90	5.69
Portugal	36.56	2.45	28.30	20.41	10.16	2.13
Romania	20.05	10.41	29.43	10.76	27.15	2.19
Slovakia	17.84	19.02	43.42	0.92	15.01	3.80
Slovenia	20.45	9.17	51.58	0.00	15.36	3.45
Sweden	8.26	4.35	60.35	1.77	21.68	3.59
Hungary	17.75	19.25	27.81	14.25	18.47	2.47
Italy	22.71	19.35	32.86	10.12	11.93	3.03
United Kingdom	8.72	1.87	73.10	4.64	10.37	1.29
EU-28	20.38	9.90	43.09	8.02	15.95	2.65

Source: prepared by the author on the basis of data available at http://enrd.ec.europa.eu/_en.

The lowest share of expenses on improvement in competitiveness of agriculture was planned in Finland. Only 6.3% of RDP funds were allocated to this purpose. At the same time, more than 2/3 of funds were allocated to the implementation of priority concerning restoration and strengthening of ecosystems. Furthermore, the share of expenses allocated to the development of low-emission economy in Finland is over four times lower than the EU-28 average. This is also true for the structure of expenses planned under the RDP in Den-

mark, Austria, the Czech Republic and Sweden. However, Denmark does not provide funds on improving the food chain at all. On the contrary, Sweden plans to spend more than 1/5 of funds to support social inclusion.

As regards expenses on technical assistance used for both the promotion of programme, as well as support for the system of its implementation, e.g. by training of operators of particular measures, the lowest expenditures are allocated to this purpose in Ireland – 0.37% of funds, at the EU average of 2.65%. In general, a higher share of expenses on technical assistance is allocated in smaller countries and new Member States, though, e.g. Romania and Hungary plan a smaller share of expenses on technical assistance than the EU-28 average.

Most of the EU Member States implement one rural development programme. This group, comprised of as much as twenty states, includes, e.g., all countries that became Member States in the 21st century. On the other hand, the remaining states included two – France and Italy, which, apart from the regional programmes, implement also a separate programme applying to the entire country.

It is worth to look at how particular states or their regions committed available funds to measures which may be a part of the package of instruments of rural development programmes implemented in the present programming period. The countries implementing one national RDP include Austria. This country implements sixteen out of twenty measures possible to be implemented⁸⁵, and hence an average share of each of them in the programme budget is 6.25% (Table 3.3⁸⁶). The largest number of funds under the Austrian RDP is allocated to the agri-environment-climate measure (M10), which is compatible with the current priority of Austria concerning environmentally sustainable agricultural development. Nearly 28% of the budget of the programme was allocated to this purpose. The second measure in terms of share in the budget are payments to areas with constraints (M13), that is an instrument also related, first of all, to the environmental aspects of conducted agricultural activities. The third measure in terms of its share in the budget of the RDP are investments in physical assets (M04), namely anu measure whose total share in the budget of the EU RDPs is the highest. The total share of expenses on three measures with the highest share

⁸⁵ It should be stressed, however, that one of these twenty measures is funding of the complementary payments to Croatia (marked with symbol M18), which means that in reality the Member State other than Croatia are choosing from the set of nineteen measures only.

⁸⁶ In all tables, from the Table 3.3 to the Table 3.14, the level of share in the total budget of a given RDP of the three measures with the highest planned expenses was marked in red.

in the budget of the Austrian RDP is almost 63%, and the average share of expenses allocated to these activities is 21%, while for other measures it amounts to almost 3%.

Another state with the national RDP is Bulgaria. Similarly to Austria, it implements sixteen measures (Table 3.3). However, only one of the key measures with the largest share of the RDP budget is the same. It is about payments to areas with constraints (M13), for which Bulgaria plans to allocate 9.44% of funds under its rural development programme. The other two measures with the highest share of the programme budget are typical of weaker developed countries and include – investments in physical assets (M04) – almost 29% of the budget of the Bulgarian RDP and investments in basic services and village renewal (M07) – more than 21% of funds. In total, almost 60% of the budget is allocated to three of the most important measures, that is, on average, 20% per measure, while in the case of the thirteen remaining measures the average expenses amount to 3%.

Cyprus also implements only one rural development programme, which is not surprising due to its size. Similarly to those countries already discussed, the Cyprus RDP includes sixteen measures. The largest amount of funds – nearly 25% – was allocated to the implementation of agri-environment-climate measure (M10). The subsequent 22% are allocated to investments in physical assets (M04), and another 16% to payments to areas with constraints. In its RDP, Cyprus envisaged also means for the performance of liabilities related to structural pensions undertaken in the previous programming period. In total, Cyprus plans to allocate to three of the most important measures almost 70% of funds under its RDP, which means, on average, 23% of the programme budget per each of them. But then, the average of 2.3% of funds was allocated to the remaining measures.

The Czech Republic also implements one national rural development programme. The RDP of this country comprises fifteen measures (Table 3.3). Similarly to Austria and Cyprus, the largest pool of funds is to be allocated to the agri-environment-climate measure (M10) – more than 29% of the programme budget. More than 1/5 of funds were allocated to payments to areas with constraints (M13), and another 18% to investments in physical assets (M04). This points to focusing the support on environmental purposes, which is typical, above all, of rural development programmes being implemented in countries of considerable average size of agricultural farms. In total, almost 70% of the budget expenses were allocated to three of the most important measures. The

remaining 30% of funds are distributed into thirteen measures, which means that each of them will receive ca. 2.3% of the programme budget. The Czech Republic RDP provided also for funds for the performance of liabilities incurred in the previous programming period in connection with the implementation of “Early retirement” measure.

Denmark is a state with a completely different focus of rural development programme than the countries discussed before. The Danish RDP includes only eleven measures (Table 3.3). More than half of funds – 54% – were allocated to the implementation of the LEADER measure (M19), namely to the support for their bottom-up development initiatives. More than 17% of funds were allocated to the agri-environment-climate measure (M10), and more than 10% to organic farming (M11). As a result, three of the most important measures are to receive 82% of funds under the Danish RDP, which means that, on average, each of them will receive more than 27% of the budget, whereas each of the remaining eight measures will consume, on average, 2.5% of funds being at the disposal of implementing institution. It is worth adding that the support for investments in physical assets (M04) is an uncommon measure in Denmark, to which only ca. 3% of programme funds were allocated.

The Estonian RDP includes fourteen measures in the present programming period. The most important of them, taking into account the planned share of budget, are investments in physical assets (M04). To this measure more than 29% of funds was allocated. Nearly 1/4 of programme funds are to be spent on the agri-environment-climate measure (M10), and more than 12% on the development of farms and business activities. Estonia, just like the Czech Republic, does not implement the measure for the development of basic services and village renewal. Estonia, similarly to Denmark, does not implement payments to areas with constraints (M13). In total, three of the most important measures were allocated 2/3 of programme funds, that is, on average, more than 22% per each, while the eleven remaining measures were allocated, on average, 3% of the budget funds.

Another state with one national rural development programme is Greece. It provided in its RDP for the implementation of as much as seventeen measures (Table 3.3). From available measures, Greece does not implement the support for forest-environmental-climate services (M15) and risk management (M17). More than 1/4 of the budget was allocated to the support for investments in physical assets (M04). Almost 19% of funds were allocated to payments to areas with constraints (M13), and almost 14% to organic farming (M11). In total,

three of the most important measures were allocated almost 58% of the programme funds, that is, on average, more than 19% per each of them, whereas 3% of funds were allocated to each of the fourteen remaining measures. The Greek RDP provides also funds for the implementation of liabilities related to early retirement granted in the previous programming period.

Croatia implements under its rural development programme seventeen measures, including one which is specifically designed for Croatia as the youngest EU member, namely financing of supplementary national direct payments for Croatia (Table 3.3). The Croatian RDP does not provide for payments to Natura 2000 and water framework directive (M12), support for animal welfare (M14) or forest-environmental-climate services (M15). The most important measure of the Croatian RDP are investments in physical assets (M04) which were allocated almost 28% of programme funds. Another measure are payments to areas with constraints (M13) to which almost 13.5% of funds were allocated. The third measure in terms of share in the total budget of the programme is the support for farm and business development (M06). In total, these three measures were allocated almost 53% of funds, which means that, on average, each of them was allocated 17.5% of funds, while each of the fourteen remaining measures – 3.4% of the RDP budget.

Hungary is a country which planned to implement under the rural development programme all measures which it may implement, which means that it does not implement only the measure planned exclusively for Croatia (Table 3.3). It also planned to allocate a small pool of funds to the implementation of liabilities relating to early retirement incurred in the previous programming period. Such a large number of implemented measures results in a great fragmentation of the RDP budget. More than 1/3 of the programme budget was allocated to the support for implementation of investments in physical assets (M04). The agri-environment-climate measure was allocated more than 15% of funds under the RDP, and almost 8% of funds were allocated to the support for farm and business development (M06). As a result, three of the most important measures were allocated more than 57% of programme funds, that is, on average, 19% for each of them, while each of the sixteen remaining measures received only 2.7% of funds.

The budget of the Irish rural development programme looks completely different. Ireland implements twelve measures under its RDP (Table 3.3). Funds were also provided for the performance of liabilities related to the implementation of early retirement in the previous programming period. The largest share,

more than 2/5 of budget, was allocated to the agri-environment-climate measure (M10). On the other hand, almost 35% were allocated to payments to areas with constraints (M13), and nearly 11% to the support for investments in physical assets (M04). In total, three of the most important measures were allocated more than 86% of the programme budget, thus, on average, each of them was allocated almost 29% of funds, and each of the nine remaining measures – only 1.5 %.

In its rural development programme Lithuania implements as much as eighteen measures (Table 3.4). It only resigned from supporting animal welfare (M14). The budget of the Lithuanian RDP provided also means for the performance of financial liabilities incurred in the previous programming period in connection with the implementation of the “Early retirement” measure. In the present RDP, it plans to allocate as much as 4.6% of funds to this purpose. At the same time, certain measures from among eighteen selected for the implementation in the programming period of 2014-2020 were allocated very small amounts – e.g. forest-environmental-climate services (M15) received only 0.07% of funds under the RDP, producers groups and organisations – only 0.09%. The largest amount of funds was allocated to support investments in physical assets (M04) – more than 31% of programme funds. Payments to areas with constraints (M13) were allocated 14.5% of funds, the support for development of farms and business activities – more than 11%. In total, three of the most important programme measures were allocated 57% of funds, that is, on average, 19% per each of them, while the remaining measures along with liabilities related to early retirement will be allocated, on average, 2.7% of the programme budget.

Table 3.3. Structure of RDP 2014-2020 planned expenditure in division to measures in Austria, Bulgaria, the Czech Republic, Denmark, Estonia, Greece, Croatia, Ireland and Hungary

Measure	Austria	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Greece	Croatia	Hungary	Ireland
M01 - Knowledge transfer and information actions	1.48	0.87	0.82	0.11	2.45	1.22	1.32	0.56	1.28	3.21
M02 - Advisory services	0.28	0.68	0.00	0.15	0.00	0.87	2.76	0.89	1.09	0.20
M03 - Quality schemes	1.70	0.00	1.23	0.00	0.00	0.10	0.88	0.30	0.80	0.00
M04 - Investments in physical assets	11.32	28.82	22.07	18.32	2.95	29.33	25.33	27.99	34.13	10.83
M05 - Damage/restoration/prevention actions	0.00	0.00	0.00	0.00	0.00	0.00	0.88	4.96	0.50	0.00
M06 - Farm and business development	2.25	9.28	2.88	3.90	0.00	12.37	7.45	11.03	7.85	0.00
M07 - Basic services and village renewal	9.64	21.44	6.17	0.00	1.14	0.00	2.13	11.16	6.68	0.15
M08 - Investments in forest areas	1.63	2.18	2.67	2.54	4.37	1.01	5.77	3.90	5.02	0.00
M09 - Producers groups and organisations	0.00	0.27	1.23	0.00	0.00	0.61	0.47	0.37	2.01	0.00
M10 - Agri-environment-climate	28.66	7.65	24.66	29.44	17.53	24.82	8.03	5.82	15.29	40.47
M11 - Organic farming	10.04	5.20	5.75	10.76	10.30	7.87	13.63	5.38	4.97	1.43
M12 - Natura 2000 and WFD	0.04	4.79	1.64	0.14	0.00	3.31	0.17	0.00	3.97	1.87
M13 - Areas with constraints	22.97	9.44	15.62	22.02	0.00	0.00	18.74	13.49	1.83	34.91
M14 - Animal welfare	2.69	1.95	2.88	2.17	0.00	4.12	0.22	0.00	2.82	0.00
M15 - Forest-environmental-climate	0.09	0.30	0.00	0.25	1.98	0.00	0.00	0.00	1.24	0.00
M16 - Cooperation	1.09	1.12	1.23	3.59	2.00	1.89	2.05	0.35	1.23	0.18
M17 - Risk management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.38	2.28	0.00
M18 - Complementary payments to Croatia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.87	0.00	0.00
M19 - LEADER/CLLD	3.15	4.51	5.14	5.00	54.18	9.12	7.56	2.83	4.60	6.37
M20 - Technical assistance	2.96	1.51	1.89	0.98	3.11	3.34	1.20	2.71	2.32	0.15
M113 - Early retirement	0.00	0.00	4.11	0.65	0.00	0.00	1.41	0.00	0.08	0.23
Three main measures in total	62.95	59.71	69.78	69.78	82.00	66.52	57.70	52.64	57.27	86.20
Other measures in total	37.05	40.29	30.22	30.22	18.00	33.48	42.30	47.36	42.73	13.80

Source: own elaboration based on the data available at <http://enrd.ec.europa.eu/en>.

Another country with one rural development programme is Luxembourg. This country selected for its RDP only eight measures (Table 3.4). The largest amount of funds was allocated to payments to areas with constraints (M13), which will receive over 30% of programme funds. On the other hand, nearly 30% of funds were allocated to both the agri-environment-climate measure (M10) and the support for investments in physical assets (M04). As a result, three of the most important measures under the Luxembourgian RDP will be allocated almost 90% of its funds, which means that the five remaining measures will receive ca. 2% of funds each. As it is observed, the RDP in Luxembourg is strongly concentrated on the environmental objectives and objectives related to the competitiveness of agriculture.

The Latvian rural development programme is not as concentrated on a few key measures as in the case of Luxembourg. Three key measures were allocated less than 60% of programme funds (Table 3.4). Latvia entered into its RDP implementation of fifteen measures, as well as the performance of any liabilities resulting from the implementation of “Early retirement” measure in the previous programming period. The most important measure of the Latvian RDP is the support for investments in physical assets (M04), to which almost 32% of funds were allocated. Another measure in terms of the share of budget are payments to areas with constraints (M13), to which more than 17% of the budget was allocated. On the other hand, organic farming was allocated almost 10% of funds. As a result, the average share in the total budget of each of the most important measures is almost 20%, and the share of all the remaining measures, including early retirement, is 2.9% of funds.

Malta implements thirteen measures under the rural development programme (Table 3.4). In the case of Malta, we may observe proportions of the share of three most important measures and other instruments similar to those recorded for Latvia. However, there are as much as two measures which took the third place, therefore, in reality, this budget is slightly different in terms of structure than the Latvian one. The most important measure is the support for investments in physical assets (M04) which are to receive as much as 39% of programme funds. Another measure is cooperation (M16) which was allocated more than 13.6% of funds. This is the largest amount among all the Member States taking into account cumulative expenses of the RDP of each of the EU-28. On the other hand, more than 9% were allocated to two measures: farm and business development (M06) and payments to areas with constraints (M13).

The Netherlands also belong to countries with one national rural development programme. Its RDP includes only eight measures (Table 3.4). A situation completely different from that of Denmark was recorded in the Netherlands, which focused on the support for investments in physical assets (M04). Almost 49% of programme funds were allocated to this purpose. More than 30% of funds were allocated to the agri-environment-climate measure (M10). A measure with the third largest share in the RDP budget is LEADER with more than 6.7% share of funds. In total, three of the most important measures were allocated more than 85% of programme funds, which means, on average, 28.5% for each of them, and 2.9% for each of the five remaining instruments. These five measures include: risk management (M17), cooperation (M16), knowledge transfer and information actions (M01), advisory services (M02) and technical assistance (M20).

Poland chose sixteen measures for its rural development programme (Table 3.4). The following activities are not pursued: payments to Natura 2000 and water framework directive (M12), animal welfare (M14), forest-environmental-climate services (M15), risk management (M16). It should be emphasised that more than 4% of funds under the Polish RDP is to be meant for the performance of liabilities under the previous RDP related to “Early retirement”. The largest share of the Polish RDP budget was allocated to the support for investments in physical assets (M04) – nearly 1/4 of the budget. A measure with the second largest share in the budget is farm and business development (M06), to which more than 16% of funds were allocated. A slightly smaller amount was allocated to payments to areas with constraints (M13). In total, three of the most important measures were allocated more than 57% of programme funds, which means each of them will receive, on average, 19% of funds. On the other hand, the thirteen remaining measures were allocated, on average, 3.3% of the RDP budget.

Romania also implements one national rural development programme. Romania selected as much as eighteen measures for its RDP (Table 3.4). The only measure which was not implemented was damage/restoration/prevention actions (M05) and payments to areas with constraints (M13). The most important measure in the Romanian RDP is the support for investments in physical assets (M04) which was allocated more than 1/4 of funds. Payments to areas with constraints are the next measure in terms of share in the budget of the Romanian RDP, to which more than 14% of funds were allocated. The third measure is the support for development of basic services and village renewal, to

which almost 14% of the RDP budget was allocated. In total, the most important programme measures were allocated more than 53% of funds, which means that the average share of each of them is almost 18% of funds. On the other hand, in the case of the fifteen remaining measures the average share in the programme budget is 3.6%.

Another country with one national rural development programme is Sweden, which selected fourteen measures for its programme (Table 3.4). Considering the share in the RDP budget, the most important measure under the programme are payments to areas with constraints (M13) which were allocated nearly 23% of funds. A slightly smaller amount was allocated to the agri-environment-climate measure, to which more than 22% of the RDP budget was allocated. The third largest measure in terms of the share in total pool of funds under the programme is the support for the implementation of basic services and village renewal (M07), to which almost 13% of the budget were allocated. In total, three of the most important measures are to consume 58% of programme funds, which means each of them was allocated, on average, more than 19%. On the other hand, in the case of the eleven remaining measures the average share in the budget is 4.2% of funds.

Slovenia decided to implement sixteen measures within its rural development programme (Table 3.4). The following measures available for this country were not taken into consideration: payments to Natura 2000 and water framework directive (M12), forest-environmental-climate services (M15) and risk management (M17). Less than 0.3% of programme funds are supposed to be spent on liabilities from the previous programming period related to early retirement. The most important measure of the Slovenian RDP, taking account of the share in the structure of programme budget, are payments to areas with constraints (M13) which were allocated 24% of funds. The second measure in terms of the share in the budget is the support for investments in physical assets (M04) to which nearly 21% of programme funds were allocated. Another important instrument is the agri-environment-climate measure (M10) with the anticipated share in the budget of the Slovenian RDP exceeding 18%. In total, three of the most important measures were allocated more than 63% of funds, which means, on average, 21% of funds per each of the key measures. At the same time, the average expenses on each of the thirteen remaining instruments will amount to ca. 2.8% of the budget.

Table 3.4. Structure of RDP 2014-2020 planned expenditure in division to measures in the Netherlands, Luxembourg, Poland, Romania, Sweden, Slovenia, Slovakia, Lithuania, Latvia and Malta

Measure	Lithuania	Luxembourg	Latvia	Malta	Netherlands	Poland	Romania	Sweden	Slovenia	Slovakia
M01 - Knowledge transfer and information actions	1.18	0.00	2.15	4.24	2.15	0.43	0.71	3.00	1.13	0.69
M02 - Advisory services	0.23	0.00	0.68	1.93	0.00	0.56	0.75	1.99	0.98	0.19
M03 - Quality schemes	0.21	0.00	0.00	3.47	1.82	0.24	0.00	0.00	0.15	0.00
M04 - Investments in physical assets	31.36	29.61	31.99	39.06	48.63	24.66	25.47	7.37	20.64	26.10
M05 - Damage/restoration/prevention actions	0.00	0.00	0.33	0.00	0.00	3.07	0.00	0.00	0.00	3.37
M06 - Farm and business development	11.31	2.28	6.22	9.24	0.00	16.35	11.67	3.05	11.34	5.81
M07 - Basic services and village renewal	3.85	0.00	8.27	0.00	0.00	7.96	13.70	12.98	0.90	5.75
M08 - Investments in forest areas	6.19	0.00	2.41	2.70	0.00	2.23	1.31	0.28	5.38	6.62
M09 - Producers groups and organisations	0.09	0.00	0.18	0.00	0.00	2.98	0.21	0.00	0.20	0.00
M10 - Agri-environment-climate	7.20	29.88	7.29	5.39	30.18	8.76	11.30	22.40	18.43	6.91
M11 - Organic farming	7.62	1.90	9.92	0.15	0.00	5.18	2.50	11.41	5.45	4.33
M12 - Natura 2000 and WFD	0.33	1.90	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.42
M13 - Areas with constraints	14.51	30.43	17.47	9.24	0.00	16.03	14.30	22.67	24.06	23.21
M14 - Animal welfare	0.00	0.00	0.00	0.00	0.00	0.00	5.45	2.94	1.48	5.19
M15 - Forest-environmental-climate	0.07	0.00	0.00	0.00	0.00	0.00	1.24	0.00	0.00	0.24
M16 - Cooperation	1.21	0.00	0.00	13.64	4.53	0.43	0.33	3.62	1.82	2.33
M17 - Risk management	0.88	0.00	0.65	1.93	3.28	0.00	2.11	0.00	0.00	0.00
M19 - LEADER/CLLD	5.76	3.02	5.16	5.01	6.72	5.44	6.71	4.66	4.74	5.04
M20 - Technical assistance	3.41	0.98	4.13	4.01	2.69	1.54	2.21	3.63	3.01	3.80
M113 - Early retirement	4.57	0.00	1.58	0.00	0.00	4.14	0.00	0.00	0.27	0.00
Three main measures in total	57.18	89.92	59.38	61.94	85.52	57.04	53.48	58.05	63.13	56.22
Other measures in total	42.82	10.08	40.62	38.06	14.48	42.96	46.52	41.95	36.87	43.78

Source: own elaboration based on the data available at <http://enrd.ec.europa.eu/en>.

Slovakia also has one national rural development programme. It included sixteen measures (Table 3.4). From among the measures available for this country the RDP did not include the following instruments: quality schemes (M03), producers groups and organisations (M09) and risk management (M17). More than 1/4 of the budget of the Slovak RDP was allocated to the support for investments in physical assets (M04). Slightly less – more than 23% – was allocated to payments to areas with constraints (M13). On the other hand, almost 7% of the budget was allocated to the agri-environment-climate measure (M10). In total, three of the most important measures will be allocated more than 56% of programme funds, which means, on average, almost 19% per each of them, while each of the thirteen remaining measures will receive only 3.4% of the RDP funds.

To summarise the review of Member States implementing one national RDP, it may be concluded that they most often resigned from the implementation of, or allocated a very small part of the budget on the following measures: risk management (M17), damage/restoration/prevention actions (M05), forest-environmental-climate (M15), animal welfare (M14), producers groups and organisations (M09), payments to Natura 2000 and water framework directive (M12) and cooperation (M16).

Another group comprises the EU Member States that provide the financial support under the second pillar of the CAP only on the basis of regional rural development programmes. This group includes five countries: Belgium, Finland, Portugal, Germany and the United Kingdom.

Belgium implements two rural development programmes – the Wallonia programme and the Flanders programme. Twelve measures were selected for the local RDP in Wallonia (Table 3.5). The largest amount of programme funds – almost 24% – was allocated to the support for implementation of investments in physical assets (M04). Slightly less, more than 22.5% of the RDP budget, is planned to be spent on the implementation of agri-environment-climate measures (M10). The third most important measure in the budget of the Walloonian programme is the support for organic farming (M11), to which more than 15% of funds were allocated. In total, three main activities were allocated almost 62% of funds, namely, each of these measures received, on average, over 20.5% of programme budget, whereas each of the nine remaining instruments was allocated, on average, almost 4.3% of funds.

The rural development programme of Flanders contains one measure more than the second Belgian programme. Thirteen measures were selected for the RDP (Table 3.5). As opposite to Wallonia, Flanders implement the support for advisory services (M02), producers groups and organisations (M09) and risk management (M17). On the other hand, Flanders decided not to pursue several measures that were incorporated into the Wallonian RDP. These include: payments to Natura 2000 and water framework directive (M12) and payments to areas with constraints (M13). Other non-implemented measures are common for Wallonia and Flanders. Flanders spent nearly 55% of its RDP budget on the support for investments in physical assets (M04). More than 1/5 of funds were allocated to the agri-environment-climate measure (M10). The third place was occupied by the support for farm and business development (M06). In total, three key measures are to receive 82.5% of programme funds, which means, on average, 27.5% per each of them, and only ca. 4.3% for the remaining nine.

Finland also implements two rural development programmes. The first applies to the region of Åland, and the second to the rest of the country. Only nine measures under the RDP are implemented in the Åland region (Table 3.5). The most important of them are payments to areas with constraints (M13), to which more than 41% of programme budget was allocated. Another priority instrument is the agri-environment-climate measure (M10), to which almost 1/4 of the RDP funds were allocated. The third most important measure in terms of the share in total budget is the support for investments in physical assets (M04). This measure was allocated nearly 1/5 of programme funds. In total, three key measures were allocated 82.5% of the RDP budget, namely, on average, more than 28% per each of them, while each of the six remaining measures was allocated, on average, 2.4%.

In the case of the Finnish RDP covering the remaining part of the country, the rural development programme included twelve measures (Table 3.5). It did not include the same measures as in the RDP for the Åland region, moreover, three additional measures were introduced: basic services and village renewal (M07), animal welfare (M14) and cooperation (M16). Three priority measures of this rural development programme are exactly the same as in the case of the Åland region. However, slightly different is their planned share in the programme budget. Payments to areas with constraints (M13) are to receive more than 45% of funds. The agri-environment-climate measure (M10) is to have a budget constituting more than 19% of programme funds, and the support for investments in physical assets (M04) is to receive more than 12.5% of pro-

gramme funds. In total, three key measures under the programme were allocated almost 77% of funds, namely, each of them will receive, on average, more than 23%, and each of the remaining ones – 2.6%.

On the other hand, Portugal implements three rural development programmes. The first of them applies to the Azores. The Azorean RDP includes seventeen measures (Table 3.5). At the same time, the budget of this programme takes account of the need to perform liabilities incurred in the previous programming period relating to early retirement, to which over 3% of available funds were allocated. The programme did not provide for the implementation of the following measures available for Portugal: basic services and village renewal (M07) and animal welfare (M14), while payments to Natura 2000 and water framework directive (M12) were allocated only 0.01% of the budget. The largest amount of funds – almost 38% – is to be spent on the support for investments in physical assets (M04). Payments to areas with constraints (M13) are the second most important measure in terms of the share in the RDP budget. More than 1/5 of programme funds were allocated to them. The third most important instrument is the agri-environment-climate measure (M10) with a budget slightly smaller than 1/5 of the total pool of funds provided for in the RDP. In total, three key measures are to receive nearly 77% of funds, namely, on average, more than 1/4 of the programme budget per each of them, while the remaining measures and early retirement will receive, on average, 1.6% of these funds.

The second regional rural development programme in Portugal applies to Madeira. Seventeen measures are to be executed under this programme (Table 3.5). It was decided not to implement only the support for the implementation of basic services and village renewal (M07) and animal welfare (M14). At the same time, organic farming (M11) is to receive only 0.05% of funds. The main instrument on the RDP for Madeira is the support for investments in physical assets (M04), to which almost 44% of the budget was allocated. Almost 1/5 of funds were allocated to payments to areas with constraints (M13). A considerable pool of funds, significantly larger than in the case of the RDPs discussed so far – more than 17% – are to be distributed between beneficiaries of investments in forest areas (M08). In total, three most important measures were allocated almost 81% of funds, which means that each of them will receive, on average, more than 1/4 of the budget, while the fourteen remaining measures were allocated only 1.4%.

The third rural development programme for 2014-2020 implemented in Portugal applies to the rest of the country. This programme included seventeen measures (Table 3.5) and a very small amount – only 0.01% of the total budget

– to be spent on the performance of liabilities from the previous programming period related to early retirement. The largest amount of funds – nearly 36% – was allocated to the support for investments in physical assets (M04). Nearly 1/5 of funds under the programme were allocated to payments to areas with constraints (M13). Just like on Madeira, this programme also allocated a substantial part of funds to investments in forest areas (M08). In the case of this programme it amounts to 12%. In total, three priority measures are to receive almost 68% of funds, that is, on average more than 22.5% per each of them, while each of the remaining measures (without early retirement) will receive, on average, 2.3%.

Four regional rural development programmes were prepared in the United Kingdom. None of these regional programmes provides for the implementation of the following measures: damage/restoration/prevention actions (M05), producers groups and organisations (M09), payments to Natura 2000 and water framework directive (M12) and risk management (M17).

The English regional programme includes twelve measures (Table 3.5). Apart from measures not included in any regional RDP in the United Kingdom the programme does not include the following instruments: quality schemes (M03), payments to areas with constraints (M13) and animal welfare (M14). An absolute priority of this programme is the agri-environment-climate measure (M10) – more than 71% of the entire budget of the English RDP was allocated to this single measure. This is the highest share of funds planned for this measure in all the RDPs, and, at the same time, the highest share of funds allocated to a single measure in the regional and national programmes in the countries with one RDP. The next most important measure in terms of the share in the RDP budget – the support for investments in physical assets (M04) – was allocated almost 8% of funds. On the other hand, more than 5% of funds were allocated to the support for investments in forest areas (M08). In total, three basic measures under the programme were allocated almost 85% of funds, which means that each of them will receive, on average, only 1.7% of funds.

The second regional rural development programme implemented in the United Kingdom applies to the Northern Ireland. Eleven measures were selected for this programme (Table 3.5). Apart from measures not included in any regional RDP in the United Kingdom, the programme does not provide for the implementation of the following measures: quality schemes (M03), farm and business development (M06), animal welfare (M14) and forest-environmental-climate services (M15). The largest pool of funds – nearly 36% – was earmarked for the support for investments in physical assets (M04). Another meas-

ure is the agri-environment-climate measure (M10), for which more than 1/4 of the budget was planned. The third measure is LEADER to which more than 11% of the RDP funds were allocated. In total, these three measures were allocated more than 72% of available funds, which means that each of them received, on average, more than 24%, and the eight remaining activities were allocated, on average, 3.5% each.

The third regional rural development programme implemented in the United Kingdom applies to Scotland. This programme includes fifteen activities (Table 3.5) and did not provided only for the implementation of those measures that were not covered by any regional RDP in the United Kingdom. Almost 1/3 of the programme budget was allocated to payments to areas with constraints (M13). Nearly 19% was planned for the performance of agri-environment-climate measure (M10), and more than 18% for investments in forest areas (M08). In total, these three measures were allocated more than 2/3 of the programme budget. As a result, each of the three major measures receives, on average, more than 22% of available funds, while the remaining twelve were allocated, on average, 2.8% each.

The fourth regional rural development programme implemented in the United Kingdom applies to Wales. Twelve measures were selected for the Welsh RDP (Table 3.5). Apart from measures not included in any regional RDP in the United Kingdom the programme is exclusive of the following instruments: quality schemes (M03), payments to areas with constraints (M13) and animal welfare (M14). The largest pool of funds – nearly 30% – was planned on investments in physical assets (M04). Slightly less – almost 28% of funds – is to be spent on the agri-environment-climate measure (M10), and 7.5% on cooperation (M16). In other regions of the United Kingdom this measure was not allocated so large amount of funds, which shows that the needs and instruments to satisfy them were identified differently for each region. In total, the most important measures in the Welsh RDP were allocated almost 65% of the budget, namely, each of them received, on average, nearly 22%, and each of the remaining nine is to receive, on average, 3.9% of funds.

Table 3.5. Structure of RDP 2014-2020 planned expenditure in division to measures in Belgium, Finland, Portugal and the United Kingdom

Measure	Belgium			Finland		Portugal			United Kingdom			
	Wallonia	Flanders	Aland	The rest of the country	Azores	Madeira	The rest of the country	England	Northern Ireland	Scotland	Wales	
M01 - Knowledge transfer and information actions	1.07	3.37	0.17	0.97	1.12	0.58	0.61	1.66	5.21	0.22	5.22	
M02 - Advisory services	0.00	2.33	0.51	0.41	0.85	0.58	0.71	1.12	0.20	1.42	1.37	
M03 - Quality schemes	0.00	0.00	0.00	0.00	0.26	0.05	0.00	0.00	0.00	0.05	0.00	
M04 - Investments in physical assets	23.81	54.50	19.43	12.52	37.56	43.89	35.76	7.96	35.53	15.02	29.53	
M05 - Damage/restoration/prevention actions	0.00	0.00	0.00	0.00	0.21	0.58	0.54	0.00	0.00	0.00	0.00	
M06 - Farm and business development	8.28	6.46	1.52	4.86	2.41	0.92	4.89	2.60	0.00	0.67	2.66	
M07 - Basic services and village renewal	4.92	3.70	0.00	0.97	0.00	0.00	0.10	2.14	1.76	1.17	6.18	
M08 - Investments in forest areas	0.69	1.47	0.00	0.00	5.06	17.48	12.39	5.39	2.87	18.09	6.43	
M09 - Producers groups and organisations	0.00	0.22	0.00	0.00	0.62	0.10	0.36	0.00	0.00	0.00	0.00	
M10 - Agri-environment-climate	22.54	21.54	24.49	19.19	18.49	4.93	11.72	71.40	25.50	18.79	27.52	
M11 - Organic farming	15.28	1.09	7.60	3.94	0.15	0.05	2.36	0.37	0.45	0.89	4.60	
M12 - Natura 2000 and WFD	5.97	0.00	0.00	0.00	0.01	0.87	1.19	0.00	0.00	0.00	0.00	
M13 - Areas with constraints	8.86	0.00	41.39	45.18	20.60	19.31	19.51	0.00	10.43	32.50	0.00	
M14 - Animal welfare	0.00	0.00	0.00	5.54	0.00	0.00	0.00	0.00	0.00	0.37	0.00	
M15 - Forest-environmental-climate	0.00	0.00	0.00	0.00	0.29	0.87	0.07	0.67	0.00	1.52	0.04	
M16 - Cooperation	1.62	0.23	0.00	1.94	1.12	0.48	1.26	1.61	0.84	2.14	7.50	
M17 - Risk management	0.00	0.55	0.00	0.00	0.71	0.39	1.19	0.00	0.00	0.00	0.00	
M19 - LEADER/CLLD	4.69	3.63	2.70	3.63	6.58	6.33	5.29	4.28	11.24	6.09	4.98	
M20 - Technical assistance	2.26	0.91	2.20	0.85	0.85	2.61	2.02	0.80	5.97	1.06	3.99	
M113 - Early retirement	0.00	0.00	0.00	0.00	3.12	0.00	0.01	0.00	0.00	0.00	0.00	
Three main measures in total	61.63	82.50	85.30	76.89	76.65	80.69	67.66	84.75	72.27	66.31	64.55	
Other measures in total	38.37	17.50	14.70	23.11	23.35	19.31	32.34	15.25	27.73	33.69	35.45	

Source: own elaboration based on the data available at <http://emrd.ec.europa.eu/en>.

Germany also implements only regional rural development programmes. There are twelve of them. From all the measures that can be implemented in Germany, none of these programmes includes: quality schemes (M03) and risk management (M17). The first one is rural development programme for the Berlin region, containing fourteen measures (Table 3.6). Apart from the measures that were omitted in all the German RDPs, this programme does not include: animal welfare (M14) and forest-environmental-climate services (M15). More than 1/4 of the programme budget was allocated to implementation of the LEADER measure (M19). The second largest share of the budget under this RDP was allocated to the support for organic farming (M11), which is to receive more than 13% of funds. The third measure is the support for investments in physical assets (M04). This instrument was allocated more than 12% of funds. In total, these three most important measures were allocated more than 51% of the programme budget, which means that, on average, each of these measures receives 17%, and each of the remaining eleven – 4.4% of funds.

The second regional programme is the Bavarian programme. It contains nine measures (Table 3.6). As much as 29% of the budget of the Bavarian programme was allocated to the agri-environment-climate measure (M10). Nearly 22% of funds were planned on payments to areas with constraints (M13), and more than 16% on the implementation of basic services and village renewal. In total, these three measures were allocated more than 67% of programme funds, which means that, on average, each of them receives more than 22%, and each of the remaining six measures was allocated, on average, 5.4% of funds.

Another German regional rural development programme applies to Baden-Württemberg. It includes fourteen measures (Table 3.6). Almost the same amount was allocated for the implementation of two measures: investments in physical assets (M04) – 29.24% of funds and the agri-environment-climate measure (M10) – 29.26%. The third largest share of the budget was allocated to payments to areas with constraints (M13), for which more than 11.5% of funds were allocated. In total, these three measures were allocated 70% of the programme budget, which means, on average, more than 23% per each of them and 2.7% of funds per each of the remaining eleven.

The regional rural development programme for Hesse includes ten measures (Table 3.6). The most important of them is supporting the implementation of basic services and village renewal (M07), for which more than 28% of funds were allocated. Another measure was allocated to investments in physical assets (M04) for which almost 1/5 of the RDP budget was planned. On the con-

trary, nearly 19% is to be spent on the support for development of organic farming (M11). In total, these three key measures were allocated nearly 67% of the total programme budget. It means that, on average, each of the key measures will be allocated 22.5% of funds, and each of the six remaining measures will receive, on average, 5.5%.

In the case of the regional development programme for Saxony and Bremen, twelve measures were chosen (Table 3.6). The largest part of the programme budget – more than 26% – is to be allocated to damage/restoration/prevention actions (M05). More than 22% was planned on supporting the provision of basic services and village renewal. On the other hand, more than 15% was allocated to investments in physical assets (M04). In total, nearly 65% of the RDP funds were allocated to these three key measures, namely, each of them received, on average, nearly 22%, while each of the remaining nine instruments was allocated, on average, 3.9% of funds.

Mecklenburg-West Pomerania provides in its rural development programme for the implementation of fourteen measures (Table 3.6). It is worth pointing out that the programme did not include payments to areas with constraints (M13). The most important measure from the point of view of the share in the programme budget is the support for provision of basic services and village renewal (M07). This instrument was allocated almost 28%. The second measure is the support for investments in physical assets (M04), which is to receive more than 22% of funds. The third instrument is the support for development of organic farming (M11), to which almost 14% of the budget was allocated. In total, these three key measures were allocated almost 64% of funds, which means that, on average, each of them received 21.3%. On the other hand, the eleven remaining measures received 3.3% of funds.

The rural development programme adopted in North Rhine-Westphalia covered thirteen measures (Table 3.6). It is planned to allocate the largest amount of funds – almost 28% – to the agri-environment-climate measure (M10). The second measure is the support for the implementation of basic services and village renewal (M07). Almost 17% of funds were allocated to this purpose. On the other hand, more than 16% of the budget was allocated to the support for investments in physical assets (M04). Three key measures were allocated more than 60% of this RDP budget, which means that, on average, each of them will receive over 20%. On the other hand, the ten remaining measures were allocated 3.9% of funds.

Table 3.6. Structure of RDP 2014-2020 planned expenditure in division to measures in German lands: Berlin, Bavaria, Baden-Wuerttemberg, Saxony and Bremen, Mecklenburg-Vorpommern and North Rhine and Westphalia

Measure	Berlin	Bavaria	Baden- -Wuerttemberg	Hesse	Saxony and Bremen	Mecklenburg- -Vorpommern	North Rhine and Westphalia
M01 - Knowledge transfer and information actions	0.88	0.00	0.17	0.00	3.66	0.47	0.71
M02 - Advisory services	0.20	0.00	2.11	0.00	0.42	1.56	0.62
M03 - Quality schemes	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M04 - Investments in physical assets	12.02	15.74	29.24	19.90	15.57	22.24	16.14
M05 - Damage/restoration/prevention actions	5.48	0.00	0.00	0.00	26.56	5.01	0.00
M06 - Farm and business development	0.38	0.32	1.80	0.93	0.00	0.48	0.00
M07 - Basic services and village renewal	9.49	16.43	6.53	28.32	22.64	27.79	16.72
M08 - Investments in forest areas	5.81	0.00	1.00	2.18	0.00	2.42	4.53
M09 - Producers groups and organisations	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M10 - Agri-environment-climate	7.07	29.08	29.26	2.78	12.34	13.07	27.64
M11 - Organic farming	13.21	11.58	9.01	18.54	4.21	13.92	11.23
M12 - Natura 2000 and WFD	2.09	0.00	0.23	0.00	0.00	1.67	2.44
M13 - Areas with constraints	10.32	21.81	11.52	14.00	4.31	0.00	3.95
M14 - Animal welfare	0.00	0.00	1.84	0.00	1.20	0.00	6.95
M15 - Forest-environmental-climate	0.00	0.00	0.00	0.00	0.00	0.28	0.00
M16 - Cooperation	3.29	0.20	1.21	0.77	2.27	0.44	1.88
M17 - Risk management	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M19 - LEADER/CLLD	25.92	4.41	4.61	9.52	5.61	7.32	6.13
M20 - Technical assistance	3.83	0.43	1.48	3.06	1.23	3.34	1.07
Three main measures in total	51.15	67.32	70.02	66.76	64.76	63.95	60.50
Other measures in total	48.85	32.68	29.98	33.24	35.24	36.05	39.50

Source: own elaboration based on the data available at <http://enrd.ec.europa.eu/en>.

Another German regional rural development programme is the Rheinland-Palatinate programme. It covers eleven measures (Table 3.7). Almost 1/3 of the programme budget was allocated to the support for investments in physical assets (M04). More than 23% of funds were allocated to the performance of agri-environment-climate measure (M10) and more than 18% to the development of organic farming (M11). In total, these three key measures were to receive almost 74% of the RDP budget, namely, each of them was allocated, on average, nearly 25%, while each of the remaining eight measures is to receive, on average, 3.3% of funds.

Another German regional rural development programme is implemented in Saarland. This programme includes ten measures (Table 3.7). The largest amount of funds – more than 21% – was planned for the support for provision of basic services and village renewal (M07). The second instrument is the agri-environment-climate measure (M10). Almost 17% of the budget was allocated to this purpose. On the other hand, nearly 16% of funds were earmarked for the support for investments in physical assets (M04). In total, these three main instruments were allocated, on average, 54% of programme funds, which means 18% per each of them. On the other hand, each of the seven remaining activities was allocated, on average, 6.5% of funds.

Another rural development programme applies to Saxony. It includes ten measures (Table 7). The most important measure of this programme is LEADER (M19). Nearly 2/5 of the local RDP funds were allocated to the implementation of this instrument. More than 1/5 of them were allocated to the support for investments in physical assets (M04). On the other hand, nearly 16% of the budget was earmarked for the performance of agri-environment-climate measure (M10). In total, these three key measures were allocated more than 77% of funds, namely, each of them will receive, on average, more than 1/4 of the budget, while each of the remaining seven activities will be allocated, on average, 3.4% of funds.

The rural development programme implemented in Saxony-Anhalt includes twelve measures (Table 3.7). The support for provision of basic services and village renewal (M07) is a key instrument of this programme. More than 38% of funds were planned for the implementation of this measure. Slightly more than 13% of funds were allocated to the agri-environment-climate measure (M10), while investments in physical assets (M04) will receive almost 12%. In total, more than 63% of funds under this RDP are to be spent on three key measures. This means that, on average, each of them will receive more than 21% of the budget, and each of the remaining nine measures – on average, more than 4% of funds.

Table 3.7. Structure of RDP 2014-2020 planned expenditure in division to measures in Germany (total) and in German lands: Rheinland-Palatine, Saarland, Saxony, Saxony-Anhalt, Schleswig-Holstein

Measure	Rheinland-Palatine	Saarland	Saxony	Saxony-Anhalt	Schleswig-Holstein	Total
M01 - Knowledge transfer and information actions	0.48	0.00	1.27	0.00	0.44	0.84
M02 - Advisory services	0.66	0.00	0.00	0.00	2.20	0.63
M03 - Quality schemes	0.00	0.00	0.00	0.00	0.00	0.00
M04 - Investments in physical assets	32.00	15.78	21.57	11.72	5.31	17.85
M05 - Damage/restoration/prevention actions	3.93	0.00	0.00	10.07	38.63	7.68
M06 - Farm and business development	1.72	1.72	0.00	0.00	0.00	0.46
M07 - Basic services and village renewal	3.79	21.27	0.75	38.17	19.57	17.13
M08 - Investments in forest areas	0.00	1.03	2.85	2.14	1.70	1.67
M09 - Producers groups and organisations	0.00	0.00	0.00	0.00	0.00	0.00
M10 - Agri-environment-climate	23.55	17.15	15.79	13.42	10.06	19.04
M11 - Organic farming	18.42	15.44	4.08	5.93	6.95	9.88
M12 - Natura 2000 and WFD	0.00	1.37	0.00	1.95	1.84	0.76
M13 - Areas with constraints	0.00	8.58	10.33	4.42	0.90	9.67
M14 - Animal welfare	0.00	0.00	0.00	0.00	0.00	0.90
M15 - Forest-environmental-climate	0.00	0.00	0.00	0.31	0.00	0.04
M16 - Cooperation	1.13	0.00	0.86	0.93	1.54	1.25
M17 - Risk management	0.00	0.00	0.00	0.00	0.00	0.00
M19 - LEADER/CLLD	10.75	13.72	39.99	7.46	9.05	10.28
M20 - Technical assistance	3.56	3.95	2.50	3.48	1.83	1.92
Three main measures in total	73.97	54.20	77.35	63.31	68.26	54.02
Other measures in total	26.03	45.80	22.65	36.69	31.74	45.98

Source: own elaboration based on the data available at <http://emrd.ec.europa.eu/en>.

The last of the German rural development programmes is the programme for Schleswig-Holstein. This programme provides for the implementation of thirteen measures (Table 3.7). Similarly to the RDP of Saxony and Bremen, the greatest pool of funds was earmarked for the damage/restoration/prevention actions (M05). More than 38% of the budget was allocated to this purpose. Nearly 1/5 of funds were allocated to the support for implementation of basic services and village renewal (M07). On the other hand, 10% of funds are to be spent on the implementation of agri-environment-climate measure (M10). In total, three most important measures under this programme were allocated more than 68% of funds, that is, on average, more than 22.7% per each of them, while each of the ten remaining measures will receive, on average, almost 3.2% of funds.

In general, distribution of funds allocated to the German rural development programme is characterised by a substantial fragmentation of funds. In total, the German RDPs included fifteen measures. Three basic measures altogether received 54% of funds. Main measures include: the agri-environment-climate measure (M10) – more than 19% of funds; investments in physical assets (M04) – almost 18%, and basic services and village renewal (M07) – more than 17%. The agri-environment-climate measure (M10) was among the three most important measures in eight out of twelve regional programmes implemented. This measure received the smallest pool of funds in the RDP of Hesse – 2.8% of funds, and the largest pool in Bavaria – 29%. On the other hand, the support for investments in physical assets (M04) was among the most important measures of ten regional programmes. The smallest share of this measure was recorded in the financial plan of the programme implemented in Schleswig-Holstein – only 5.3% of programme funds. On the other hand, it received the largest pool – more than 29% - in Baden-Wurtemberg. The third largest share in the total budget of German rural development programmes was recorded for the support for provision of basic services and village renewal (M07). This measure was among the most important ones in eight RDPs. It received the largest pool in Saxony-Anhalt – more than 38% of the local programme budget, and the smallest in Saxony – only 0.75% of funds.

To sum up, it can be stated that, in general, the implementation of the EU rural development policy in Germany is quite conservative. There are several key measures with a total budget slightly exceeding half of available funds, several less important measures with budgets of ca. 10% of total budget and a few measures with a very low level of provided support. It was decided not to implement risk management (M17) which may turn out to be the main measure in the EU policy in the future years. A small amount of funds was also allocated to new measures such as cooperation (M16). However, particular regions are char-

acterised by significant differences and different approach, which indicates that they tried to match support instruments with their specific nature.

Another group of Member States consists of countries implementing both the regional and national programme, the second one of which focuses on several priority instruments. Countries which used this approach are: Spain, France and Italy.

Apart from the national programme, Spain implements sixteen regional rural development programmes. In total, Spain is to implement all the measures available to it, though many of them received a very small pool of funds.

The first of the Spanish regional rural development programmes is the programme for Andalusia. It contains as much as seventeen measures (Table 3.8). It should be emphasised that the budget under this programme provides a small pool of funds for the performance of liabilities incurred in the previous programming period with regard to early retirement. The most important measure under this programme is the support for implementation of investments in physical assets (M04). More than 28% of funds were allocated to them. The second key measure were investments in forest areas (M08) which received almost 17% of the budget. The third instrument of the programme is the agri-environment-climate measure (M10) which was allocated more than 13% of funds. In total, three key measures are to receive over 58% of the budget. This means that, on average, each of the three most important measures will receive almost 19.5%, while the fourteen remaining measures, on average, 2.8% of funds.

The second Spanish regional rural development programme applies to Aragon. This programme includes fifteen measures (Table 3.8). This programme allocates also a small amount to the performance of liabilities related to early retirement. More than 2/5 of programme funds were allocated to the support for investments in physical assets (M04). Over 10% of funds were allocated to the implementation of two instruments: the agri-environment-climate measure (M10) and investments in forest areas (M08). In total, three key measures under this programme were allocated almost 64% of funds, that is, on average, each of them receives more than 21% of funds, while each of the remaining twelve measures receives 2.8% of funds.

Table 3.8. Structure of RDP 2014-2020 planned expenditure in division to measures in Spanish regions: Andalucía, Aragón, Principado de Asturias, Islas Baleares, País Vasco, Canary Islands, Cantabria, Cataluña, Castilla La Mancha

Measure	Andalucía	Aragón	Principado de Asturias	Islas Baleares	País Vasco	Canary Islands	Cantabria	Cataluña	Castilla La Mancha
M01 - Knowledge transfer and information actions	2.44	1.80	0.41	0.83	1.03	0.97	0.36	1.11	0.44
M02 - Advisory services	2.28	1.55	1.35	0.00	0.00	1.02	0.00	0.49	0.45
M03 - Quality schemes	0.83	0.79	0.84	3.04	2.98	1.02	0.00	1.23	0.51
M04 - Investments in physical assets	28.12	42.51	32.15	39.27	37.05	48.19	20.00	38.06	25.53
M05 - Damage/restoration/prevention actions	0.34	0.00	0.00	0.00	0.00	1.02	0.00	0.00	0.00
M06 - Farm and business development	5.65	6.58	4.24	11.59	3.87	7.98	8.78	9.87	4.36
M07 - Basic services and village renewal	2.99	1.66	1.34	0.00	0.00	8.68	0.48	0.25	1.79
M08 - Investments in forest areas	16.89	10.46	18.87	5.04	19.76	9.60	9.66	8.76	28.77
M09 - Producers groups and organisations	0.38	0.00	0.00	0.00	0.51	0.00	0.00	0.31	0.53
M10 - Agri-environment-climate	13.39	10.61	6.90	6.90	5.89	8.52	8.46	15.42	6.31
M11 - Organic farming	8.23	1.86	2.91	3.04	0.82	1.02	1.40	4.69	14.44
M12 - Natura 2000 and WFD	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.63
M13 - Areas with constraints	2.93	8.83	11.89	20.50	9.73	0.00	25.31	8.39	4.34
M14 - Animal welfare	0.37	0.00	0.00	0.00	0.00	0.00	8.66	0.00	0.00
M15 - Forest-environmental-climate	0.45	0.13	0.00	0.00	0.17	0.00	0.00	0.00	0.26
M16 - Cooperation	1.20	3.90	3.44	5.52	4.45	4.37	0.00	3.33	0.39
M19 - LEADER/CLLD	10.53	8.48	12.48	2.69	13.25	5.12	12.10	7.65	9.06
M20 - Technical assistance	2.77	0.60	1.51	1.59	0.24	2.48	0.32	0.41	0.76
M113 - Early retirement	0.21	0.15	1.68	0.00	0.24	0.00	4.47	0.04	0.42
Three main measures in total	58.40	63.58	63.50	71.36	70.07	66.31	57.41	63.35	68.73
Other measures in total	41.60	36.42	36.50	28.64	29.93	33.69	42.59	36.65	31.27

Source: own elaboration based on the data available at <http://emrd.ec.europa.eu/en>.

Another regional rural development programme applies to Principado de Asturias. It includes thirteen measures (Table 3.8). This RDP also includes in its budget funds for the performance of liabilities related to early retirement. Similarly to the Spanish regional rural development programmes discussed above, this programme also provides the greatest pool of funds for supporting the implementation of investments in physical assets (M04). More than 32% of the programme budget was allocated to this purpose. The second measure is the support for investments in forest areas (M08) which were allocated almost 19% of funds. The third measure is LEADER (M19) with a budget constituting more than 12% of all funds under this RDP. In total, three most important measures were allocated more than 63% of funds, which means that, on average, each of them receives more than 21%. On the other hand, the remaining measures will receive, on average, 3.3% of funds.

The next regional rural development programme in Spain applies to Balearic Islands. This programme includes eleven measures (Table 3.8). This RDP also provides the largest amount of funds – more than 39% – for the support for investments in physical assets (M04). More than 1/5 of funds were allocated to payments to areas with constraints (M13). On the other hand, more than 11% of the budget is to be spent on the support for of farm and business development (M06). In total, these three measures were allocated more than 71% of funds, which means that each of them will receive, on average, nearly 24%. In the case of the eight remaining measures their average budget is 3.6% of programme funds.

The rural development programme for Pais Vasco assumes the implementation of thirteen measures (Table 3.8). The budget under this programme includes also a small amount for the performance of liabilities from the previous programming period related to early retirement. The most important measure is the support for investments in physical assets (M04) which were allocated 37% of funds under this RDP. On the other hand, nearly 20% of the budget is to be spent on investments in forest areas (M08). The third most important measure, with a 13% share, is LEADER (M19). In total, funds for these three measures constitute 70% of the programme budget, which means that, on average, each of them will receive more than 23% of funds, and each of the remaining measures, on average, only 2.7% of funds.

In the case of the rural development programme for Canary Islands, thirteen measures are to be implemented (Table 3.8). The most important measure under this programme is also the support for investments in physical assets (M04). More than 48% of funds under this RDP were allocated to this purpose. As in the programme for Pais Vasco the second most important measure is the

support for investments in forest areas (M08) which received nearly 10% of funds. The third most important instrument is the measure concerning the implementation of basic services and village renewal (M07) the budget of which constitutes nearly 9% of the RDP funds. In total, three key measures were allocated 2/3 of the programme budget, which means that each of the ten remaining measures will be allocated, on average, almost 3.4% of programme funds.

Another rural development programme applies to Cantabria. This programme envisages the implementation of eleven measures (Table 3.8). The programme budget allocates almost 4.5% of funds to the performance of liabilities incurred in the previous programming period in connection with the implementation of early retirement. The largest amount of funds under this programme was allocated to payments to areas with constraints (M13) – 1/4 of funds under this RDP. 1/5 of funds of the programme are to be spent on the support for investments in physical assets (M04). On the other hand, the LEADER measure (M19) was allocated more than 12% of funds. In total, these three measures will receive more than 57% of funds, which means that each of them will be allocated, on average, 19% of funds, while, on average, 4.7% of funds will be granted for the remaining measures.

Another Spanish regional rural development programme applies to Catalonia. It provides for the implementation of fourteen activities (Table 3.8). The programme budget provides a very small pool of funds for the performance of liabilities from the previous programming period related to early retirement. The main measure under this programme is the support for investments in physical assets (M04), to which more than 38% of programme funds were allocated. The second instrument is the agri-environment-climate measure (M10) to which 15% of funds was allocated. On the other hand, almost 10% of funds are to be spent on farm and business development (M06). In total, these three measures were allocated more than 63% of funds, which means that each of them will receive, on average, 21%, while each of the remaining RDP measures was allocated, on average, 3% of funds.

A regional rural development programme also applies to Castilla La Mancha. This programme assumes the implementation of sixteen activities (Table 3.8). The programme budget provides also a small amount on liabilities from the previous programming period related to early retirement. The most important measure is the support for investments in forest areas (M08), to which almost 29% of funds were allocated. More than 1/4 of the budget was reserved for supporting the implementation of investments in physical assets (M04). On the other hand organic farming (M11) is to receive more than 14% of funds. In total, the three most important measures were to receive nearly 69% of funds. This means that each of

the key measures was allocated, on average, nearly 23% of funds, and each of the remaining measures – only 2.2% of funds.

In the case of regional rural development programme for Castilla y Leon, sixteen measures are to be implemented (Table 3.9). The programme budget provided also funds for the performance of liabilities from the previous programming period related to payment of early retirement: 2.5% of the budget is allocated to this purpose. A key measure under the programme is to support investments in physical assets (M04) to which almost 45% of funds were allocated. The second instrument of this RDP is the agri-environment-climate measure (M10) to which almost 12% of funds were allocated. On the other hand, the third most important measure is the support for investment in forest areas (M08) the budget of which is almost 11% of the total funds available under the RDP. In total, the three most important measures under this programme will receive more than 67% of funds. On average, each of the three most important measures will receive 10 times more than the average amount allocated to the remaining measures.

A regional rural development programme for Extramadura contains exactly the same set of the most important measures as the programme for Castilla La Mancha. This programme envisages the implementation of fifteen measures (Table 3.9). The programme budget will receive also a small pool of funds for the performance of liabilities from the previous programming period related to early retirement. Nearly 1/3 of programme funds were allocated to the support for investments in physical assets (M04). On the other hand, more than 14% of the budget is to be spent on the agri-environment-climate measure (M10). The third instrument under this programme is the support for investments in forest areas (M08) with more than 12% of the budget of this RDP. In total, the three key measures under the programme were allocated 59% of funds, which means that each of them will receive, on average, ca. 20% of funds, whereas each of the remaining activities was allocated, on average, 3.1% of funds.

Another Spanish regional rural development programme applies to La Rioja. The implementation of thirteen measures is planned under the programme (Table 3.9). More than 36% of funds are meant for the support for investments in physical assets (M04). Almost 1/5 of the budget was allocated to the support for investments in forest areas (M08). On the other hand, more than 10% of funds were allocated to the agri-environment-climate measure (M10). In total, the three key measures under this RDP are to receive more than 2/3 of funds, which means that each of them will be allocated, on average, more than 22%, while each of the remaining ten will receive, on average, 3.3% of funds.

Table 3.9. Structure of RDP 2014-2020 planned expenditure in division to measures in Spain (total), Spanish National RDP and Spanish regions: Castilla y Leon, Extremadura, La Rioja, Comunidad da Madrid, Murcia, Murcia, Navarre and Valencia

Measure	Castilla y Leon	Extremadura	La Rioja	Comunidad da Madrid	Murcia	National	Navarre	Valencia	Total
M01 - Knowledge transfer and information actions	0.27	0.25	2.48	0.75	1.06	0.86	3.59	0.78	1.15
M02 - Advisory services	0.77	1.43	2.97	0.58	1.06	0.75	4.28	0.89	1.27
M03 - Quality schemes	0.08	0.29	0.00	0.00	0.14	0.00	0.94	0.67	0.64
M04 - Investments in physical assets	44.74	32.59	36.19	31.98	39.41	65.39	46.74	38.87	35.96
M05 - Damage/restoration/prevention actions	0.11	0.00	0.00	0.00	2.36	0.00	0.00	0.00	0.17
M06 - Farm and business development	6.88	6.88	9.17	2.74	7.90	0.00	6.77	10.67	6.33
M07 - Basic services and village renewal	1.15	5.40	4.21	11.79	0.00	4.36	1.78	0.00	2.29
M08 - Investments in forest areas	10.79	12.12	19.68	21.59	11.38	5.22	8.30	13.27	14.83
M09 - Producers groups and organisations	0.29	1.16	0.30	0.00	0.00	3.03	0.00	0.00	0.45
M10 - Agri-environment-climate	11.99	14.38	10.66	3.07	15.86	0.00	6.59	18.09	11.01
M11 - Organic farming	1.62	5.01	1.74	4.90	7.87	0.00	3.84	5.11	5.52
M12 - Natura 2000 and WFD	0.00	0.00	0.00	0.00	0.29	0.00	1.12	0.00	0.25
M13 - Areas with constraints	9.60	6.73	2.92	3.32	3.85	0.00	8.77	2.22	6.59
M14 - Animal welfare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
M15 - Forest-environmental-climate	0.00	0.27	0.00	0.08	0.00	0.00	0.00	0.00	0.17
M16 - Cooperation	0.69	0.74	2.97	3.16	1.69	0.93	1.50	0.44	1.62
M17 - Risk management	0.77	0.00	0.00	0.00	0.00	15.28	0.00	0.00	0.66
M19 - LEADER/CLLD	7.13	9.34	6.69	14.87	5.60	0.00	5.34	6.00	8.52
M20 - Technical assistance	0.63	2.77	0.01	1.08	1.52	4.17	0.28	1.11	1.50
M113 - Early retirement	2.50	0.63	0.00	0.08	0.00	0.00	0.16	1.89	0.81
Three main measures in total	67.52	59.09	66.53	68.44	66.65	85.89	63.82	70.22	61.81
Other measures in total	32.48	40.91	33.47	31.56	33.35	14.11	36.18	29.78	38.19

Source: own elaboration based on the data available at <http://em.d.ec.europa.eu/en>.

Another Spanish regional rural development programme is implemented in the Community of Madrid. It includes thirteen measures (Table 3.9). Two key measures under this programme also relate to the support for investments. The implementation of investments in physical assets (M04) was allocated almost 32% of funds, and investments in forest areas (M08) are to receive more than 21%. The third most important measure under this programme is LEADER which will receive almost 15% of the budget of this RDP. In total, three basic measures under the programme have over 68% share in the budget, which means that each of them will receive, on average, 22.8% of funds, and each of the ten remaining measures will consume, on average, only 2.9% of funds.

The Region of Murcia also has its rural development programme. This programme provides for the implementation of fourteen measures (Table 3.9). The most important of them is to support the implementation of investments in physical assets (M04). This measure is to receive more than 39% of programme funds. The agri-environment-climate measure (M10) was allocated nearly 16% of funds. On the other hand, investments in forest areas (M08) will receive more than 11% of funds. In total, these three measures were allocated more than 2/3 of the programme funds, which means that each of them will be allocated, on average, more than 22%, while each of the eleven remaining measures – on average, 3% of funds.

Another Spanish regional rural development programme applies to the Region of Navarra. This programme envisages the implementation of fourteen measures (Table 3.9). The budget of this RDP allocates a small pool of funds for the performance of liabilities concerning payment of early retirement granted in the previous programming period. The largest amount of funds was allocated to the support for investments in physical assets (M04). More than 46% of funds were allocated to this purpose. The second most important measure of the programme are payments to areas with constraints (M13). These payments will receive almost 9% of the budget of this RDP. On the other hand, the third instrument is the support for investments in forest areas (M08) to which more than 8% of funds were allocated. In total, these three measures will receive almost 64% of funds, which means that each of them will receive, on average, more than 21%. Each of the remaining measures was allocated, on average, 3% of funds.

The last of the Spanish regional rural development programmes is the programme for the Region of Valencia. This programme envisages the implementation of twelve measures (Table 3.9). The budget of this RDP allocates almost 2% of funds to the performance of liabilities related to early retirement. The support for investments in physical assets (M04) is the most important

measure under this programme. More than 38% of funds were allocated to the implementation of this measure. The second instrument is the agri-environment-climate measure (M10) with the pool of funds constituting more than 18% of the budget under this programme. The third instrument is the support for investments in forest areas (M08) to which more than 13% of funds were allocated. In total, these three measures are to receive 70% of funds under the programme, which means that each of them will receive, on average, more than 23%. On the other hand, each of the remaining measures will receive almost 3% of funds under the programme.

As it has been already mentioned, apart from the regional rural development programme, Spain also implements a national programme. This programme includes only nine measures (Table 3.9). Similarly to all the Spanish regional RDPs, also the national programme allocates the largest amount of funds to the support for investments in physical assets (M04). More than 65% of funds under this programme is to be allocated to this purpose. The second most important measure under the programme is risk management (M17) to which more than 15% of funds were allocated. On the other hand, the third instrument is the support for investments in forest areas (M08) with a budget constituting 5% of funds under the programme. In total, these three measures will receive almost 86% of funds. This means that each of the most important measures will receive, on average, nearly 29% of funds, and each of the six remaining measures – almost 2.4% of funds.

Taking into account the overall level of funds allocated to particular measures under the national and regional RDPs in Spain, it can be concluded that the priority measures in most regions were similar. A central place in the total budget for the implementation of all Spanish RDPs is given to the support for investments in physical assets (M04), which were allocated almost 36% of funds available under the Spanish RDPs (Table 3.9). The second most important measure is the support for investments in forest areas (M08). Almost 15% of funds were allocated to this purpose. The third instrument is the agri-environment-climate measure (M10) with a budget constituting 11% of funds available under the Spanish RDPs.

Due to the fact that the Spanish RDPs provide for the implementation of all measures of the 2nd pillar of the CAP available for this country and most programmes include also the need to perform liabilities related to early retirement, the share in the total budget of the Spanish development rural programmes is lower than 2% for as much as twelve measures. Three most important measures, in total, were allocated almost 62% of funds, which means that each of them will

receive, on average, 21%, whereas the remaining measures – on average, 2.2% of funds. The fact that the most important instruments are investments shows that the assessment of needs of the Spanish agriculture indicates the necessity of investments and that it is more important than the implementation of pro-environmental activities.

France is the second country implementing the programmes at both regional and national level. In total, this country implements as much as twenty-seven programmes.

The first of the French regional rural development programmes applies to Alsace. This programme envisages the implementation of thirteen measures (Table 3.10). The agri-environment-climate measure (M10) is the most important instrument under this RDP. Almost 23% of funds were allocated to its implementation. The second measure is the support for investments in physical assets (M04), to the implementation of which more than 1/5 of funds were reserved. Payment to areas with constraints (M13) is the third instrument under this programme, and its share in the RDP budget is almost 14% of the programme funds. In total, these three measures were allocated more than 57% of funds, which means that each of them will receive, on average, 19%.

The second French regional rural development programme applies to Aquitaine. The programme for this region includes thirteen measures (Table 3.10). More than 30% of funds under this RDP are to be spent on payments to areas with constraints (M13). The second measure is the support for the implementation of investments in physical assets (M04), for which almost 18% of funds were allocated. On the other hand, more than 15% of the budget is to be spent on investments in forest areas (M08). In total, three most important measures were allocated more than 64% of funds, which means that, on average, each of them will receive more than 21%, while each of the remaining measures will be allocated, on average, 3.5% of the RDP budget.

The third regional rural development programme applies to Auvergne. This programme assumes the implementation of fifteen measures (Table 3.10). Payments to areas with constraints (M13) are the measure, for which as much as 61% of funds were allocated. The second measure under this programme is the support for investments in physical assets (M04). More than 12% of the budget is to be spent on this RDP instrument. The third measure is the support for farm and business development (M06) with more than 7% of funds. In total, these three measures were allocated nearly 81% of funds under this programme, which constitutes 27% per each of them, and the average budget allocated to each of the remaining twelve measures amounting, on average, to 1.6% of funds under this RDP.

Another regional rural development programme in France applies to Lower Normandie. This programme includes fourteen measures (Table 3.10). The most important measure is the support for investments in physical assets (M04). More than 23% of the programme budget was allocated to this purpose. The second measure under this programme is farm and business development (M06). This instrument was allocated more than 16% of funds.

The fifth rural development programme implemented in France applies to Bourgogne. This programme includes thirteen measures (Table 3.11). Similarly to the RDP for the Region of Aquitaine, the most important measure are payments to areas with constraints (M13), to which almost 2/5 of the budget of this RDP was allocated. The second largest share of funds was allocated to the agri-environment-climate measure (M10). 12.8% of funds were allocated to this purpose. A similar pool of funds – 12.1% – is to be spent on the support for investments in physical assets (M04). The total share of these three measures in the RDP budget is 64%, which means that each of them will receive, on average, 21.4% of funds. On the other hand, each of the remaining measures is allocated 3.6% of funds.

Another French regional rural development programme applies to Brittany. This programme envisages the implementation of thirteen measures (Table 3.10). Investments in physical assets (M04) are the most important measures under this RDP. More than 42% of funds were allocated to them. More than 21% of funds were allocated to the agri-environment-climate measure (M10). On the other hand, farm and business development (M06) is to receive almost 13% of funds. In total, these three measures are to receive almost 77% of the programme funds, which means that, on average, each of them will receive 25.6%, whereas each of the ten remaining measures will receive, on average, only 2.3% of funds.

The Loire Valley is another French region for which a rural development programme is implemented. This RDP includes fourteen measures (Table 3.10). The largest amount of funds – almost 1/4 of the budget – was allocated to payments to areas with constraints (M13). A slightly smaller amount – over 23% of funds – was received by the agri-environment-climate measure (M10). The third measure under this programme is the support for the implementation of basic services and village renewal (M07), to which 11.7% of funds were allocated. The total share of these three measures in the budget under this RDP is 59%, which means that, on average, each of them will receive ca. 19.8%. On the other hand, each of the eleven remaining measures will receive, on average, almost 3.7% of funds.

Another French regional rural development programme applies to Champagne. This programme includes fourteen measures (Table 3.10). Expenses planned for each of the three most important measures are quite similar. The largest amount of funds was allocated to investments in physical assets (M04) – 19.6% of funds. The second instrument is the agri-environment-climate measure which received 18.4% of funds. The third measure is the support for farm and business development (M06). This instrument was allocated 18.2% of funds. In total, these three measures will consume 56% of funds under this RDP, which means that, on average, each of them will receive 18.7% of funds. In the case of the eleven remaining measures, their average share in the programme budget is 4% of funds per each measure.

Another region covered by the rural development programme in France is Corsica. Its RDP also envisages the implementation of fourteen measures (Table 3.10). This programme focuses on payments to areas with constraints (M13), for which more than 2/5 of funds were allocated. The second instrument under this programme is the support for investments in physical assets (M04) which will consume almost 18.5% of funds. Another 10% of funds were allocated to basic services and village renewal (M07). The total share of these three measures in the RDP budget is almost 70%, which means that each of them will receive, on average, over 23%, whereas each of the eleven remaining measures will receive, on average, 2.7% of funds.

The Region of Franche-Comte also has its own rural development programme. It includes fourteen measures (Table 3.10). Focus on payments to areas with constraints (M13) in this region is even stronger than on Corsica. In this case, this measure was allocated more than 52% of funds under this RDP. The second most important instrument of the programme is farm and business development (M06) to which 11.5% of funds were allocated. The third measure is the support for investments in physical assets (M04), for which 10% of funds are to be spent. In total, three most important measures were allocated more than 74% of funds, which means that each of them will receive almost 25%. On the other hand, each of the eleven remaining activities of the programme will receive, on average, 2.3% of funds.

Table 3.10. Structure of RDP 2014-2020 planned expenditure in division to measures in French departments: Alsace, Aquitaine, Auvergne, Basse Normandie, Bourgogne, Bretagne, Val de Loire, Champagne, Corse and Franche-Comte

Measure	Alsace	Aquitaine	Auvergne	Basse Normandie	Bourgogne	Bretagne	Val de Loire	Champagne	Corse	Franche-Comte
M01 - Knowledge transfer and information actions	0.39	0.89	0.40	1.54	0.80	0.46	1.04	1.11	1.27	0.31
M02 - Advisory services	0.33	0.00	0.33	0.67	0.63	0.00	0.53	1.42	0.12	0.03
M03 - Quality schemes	0.55	0.92	0.63	0.57	0.00	0.13	0.00	0.00	0.93	0.03
M04 - Investments in physical assets	20.49	17.81	12.23	23.14	12.30	42.40	11.21	19.61	18.49	10.12
M05 - Damage/restoration/prevention actions	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.03	0.58	0.00
M06 - Farm and business development	10.91	7.40	7.19	16.38	9.17	12.98	11.30	18.22	7.14	11.50
M07 - Basic services and village renewal	12.62	8.23	4.36	12.29	12.10	4.58	11.70	3.79	10.11	7.83
M08 - Investments in forest areas	1.66	15.36	0.53	1.22	0.75	1.51	0.57	4.03	4.13	0.56
M09 - Producers groups and organisations	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M10 - Agri-environment-climate	22.87	6.18	5.53	13.21	12.79	21.33	23.43	18.37	5.98	6.04
M11 - Organic farming	8.86	4.64	1.58	7.19	4.92	5.99	5.04	6.62	2.32	4.46
M12 - Natura 2000 and WFD	0.00	0.01	0.01	0.08	0.01	0.09	0.02	0.03	0.00	0.03
M13 - Areas with constraints	13.79	31.45	61.26	10.68	39.06	0.10	24.68	12.83	41.18	52.59
M16 - Cooperation	0.78	0.30	0.42	1.54	1.74	1.36	2.26	3.79	1.31	0.35
M19 - LEADER/CLLD	4.37	6.26	4.74	8.96	4.38	7.26	5.58	8.40	4.13	5.02
M20 - Technical assistance	2.38	0.55	0.77	2.53	1.35	1.81	2.26	1.75	2.32	1.14
Three main measures in total	57.14	64.62	80.69	52.73	64.14	76.70	59.32	56.20	69.78	74.21
Other measures in total	42.86	35.38	19.31	47.27	35.86	23.30	40.68	43.80	30.22	25.79

Source: own elaboration based on the data available at <http://emrd.ec.europa.eu/en>.

In the case of the rural development programme for the Region of Guadeloupe, fifteen measures are to be implemented (Table 3.11). The most important of them is the support for investments in physical assets (M04) which will consume more than 54% of funds. The subsequent largest measures in order of share in the total RDP budget were allocated substantially less funds. The share of the second largest measure – the support for farm and business development (M06), is 7.3% of funds. On the other hand, the agri-environment-climate measure (M10) will consume only 5.7% of the programme budget. In total, three most important measures were allocated nearly 68% of funds, which means that, on average, each of them will receive nearly 23%, whereas each of the remaining twelve measures will receive, on average, 2.7% of funds.

The next region in France covered by the regional rural development programme is Guyane. The programme for this region envisages thirteen measures (Table 3.11). The largest amount of funds of this RDP was allocated to basic services and village renewal (M07). The share of this measure in the programme budget exceeds 2/5. The second instrument is the support for investments in physical assets (M04) which will consume more than 24% of funds. The third instrument is LEADER, on which more than 7% of funds are to be spent. In total, three key measures are to receive more than 71%, which means that, on average, each of the most important measures is allocated 23.8% of funds, whereas each of the remaining ten, on average, only 2.9% of funds.

In the Region of Upper Normandy, to which another French regional rural development programme applies, fourteen measures are planned (Table 3.11). Investments in physical assets (M04) were allocated the greatest pool of funds – more than 27% of funds. The second measure is the support for the implementation of basic services and village renewal (M07). More than 18% of funds were allocated to this purpose. On the other hand, farm and business development (M06) are to receive more than 14% of funds under this RDP. In total, three key measures under the programme were allocated nearly 60% of funds, which means that, on average, each of them will receive nearly 20%, whereas each of the eleven remaining measures will consume, on average, 3.7% of funds.

The regional rural development programme for Ile-de-France is limited to only nine measures (Table 3.11). Investment in physical assets (M04) is an instrument which is to receive the greatest pool of funds – nearly 22%. On the contrary, the agri-environment-climate measure will consume more than 18% of funds. The third measure under this RDP is organic farming (M11) to which almost 11% of funds were allocated. In total, these three measures are to receive

more than 51% of the programme funds, that is, each of them will receive, on average, 17%, while each of the six remaining measures will receive, on average, 8% of funds.

The next regional rural development programme applies to Lang-Rous. This programme assumes the implementation of thirteen measures (Table 3.11). The largest amount of funds was allocated to payments to areas with constraints (M13) – almost 2/5 of funds. The support for investments in physical assets (M04) will consume more than 1/5 of the RDP budget, and almost 12% was allocated to the agri-environment-climate measure (M10). In total, three most important measures under this programme were allocated almost 72% of funds, that is, on average, each of them is to receive 24% of funds. On the other hand, each of the ten remaining measures will receive 2.8% of funds.

The Region of Limousin also has its own regional rural development programme. It contains thirteen measures (Table 3.11). This programme focuses on payments to areas with constraints (M13) to which nearly 3/5 of funds were allocated. The second measure is the support for investments in physical assets (M04) which are to receive only slightly more than 10% of funds. The agri-environment-climate measure (M10) is the third instrument under this programme in terms of share in its budget. This measure will consume only 7.2% of funds. In total, three most important measures are to receive over 76% of funds, that is, on average, each of them will receive more than 25.3%, while each of the ten remaining measures will be allocated only 2.4% of the programme funds.

Another French regional rural development programme applies to Lorraine. Fourteen measures are to be implemented under this programme (Table 3.11). In this case, the largest amount of funds was allocated also to payments to areas with constraints (M13). They will consume almost 28% of funds. The second instrument is the support for investments in physical assets (M04) which is to receive more than 19.5% of funds. On the other hand, more than 15.7% of funds were allocated to the agri-environment-climate measure (M10). In total, three basic measures of this RDP were allocated 63% of funds, which means that, on average, each of them will receive 21%, whereas each of the eleven remaining measures will be allocated, on average, 3.4% of funds.

Table 3.1.1. Structure of RDP 2014-2020 planned expenditure in division to measures in French departments: Guadeloupe, Guyane, Haute Normandie, Ile-de-France, Lang-Rous, Limousin, Lorraine, Mayotte and Midi-Piren

Measure	Guadeloupe	Guyane	Haute Normandie	Ile-de-France	Lang-Rous	Limousin	Lorraine	Mayotte	Midi-Piren
M01 - Knowledge transfer and information actions	1.94	4.50	0.81	0.00	0.32	0.63	0.62	4.61	0.98
M02 - Advisory services	5.59	1.56	0.93	0.00	0.00	0.38	0.45	5.23	1.08
M03 - Quality schemes	0.15	0.06	0.58	0.00	0.47	0.76	0.00	0.00	0.49
M04 - Investments in physical assets	54.55	24.21	27.28	21.97	20.22	10.24	19.53	38.14	13.45
M05 - Damage/restoration/prevention actions	1.41	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.00
M06 - Farm and business development	7.34	5.30	14.31	9.49	7.33	6.17	9.91	3.74	5.50
M07 - Basic services and village renewal	4.81	40.29	18.21	10.54	3.36	6.35	10.15	24.55	5.04
M08 - Investments in forest areas	1.07	2.59	3.08	5.45	2.00	0.69	2.70	2.37	0.90
M09 - Producers groups and organisations	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
M10 - Agri-environment-climate	5.74	0.81	12.22	18.45	11.94	7.20	15.74	2.87	4.70
M11 - Organic farming	0.44	0.75	7.74	10.98	6.26	2.15	7.22	0.00	4.75
M12 - Natura 2000 and WFD	0.24	0.00	0.06	0.00	0.01	0.00	0.01	0.00	0.01
M13 - Areas with constraints	2.87	2.77	0.00	0.00	39.75	58.72	27.77	1.25	54.98
M16 - Cooperation	5.06	6.97	2.33	9.49	1.37	0.38	1.46	9.10	0.88
M19 - LEADER/CLLD	5.10	7.38	7.50	9.75	5.91	5.14	3.70	4.36	5.98
M20 - Technical assistance	3.69	2.82	4.48	3.87	1.08	1.18	0.73	3.74	1.27
Three main measures in total	67.62	71.47	59.80	51.41	71.91	76.16	63.04	71.78	74.41
Other measures in total	32.38	28.53	40.20	48.59	28.09	23.84	36.96	28.22	25.59

Source: own elaboration based on the data available at http://enrd.ec.europa.eu/_en.

The rural development programme for Mayotte envisages the implementation of twelve measures (Table 3.11). The largest pool of funds was reserved for the support for investments in physical assets (M04) – more than 38%. Another measure with a significant share in the budget of this RDP is the provision of basic services and village renewal (M07) which is to receive more than 24% of funds. On the other hand, the third measure – cooperation (M16), will consume only over 9% of funds. In total, three key measures under this programme are to receive almost 72% of funds, that is, on average, 23.9% per each of them, while each of the nine remaining measures will be allocated, on average, 3.1% of funds.

The rural development programme for Midi-Pyrenees contains fourteen measures (Table 3.11). Similarly to the programme for Limousin, much more than half of funds is to be allocated to payments to areas with constraints (M13). The support for investments in physical assets (M04) is to receive only 13.4% of the budget of this RDP, the LEADER measure – only 6%. In total, these three measures will receive more than 74% of funds, which means that each of them will receive, on average, nearly 25%. On the other hand, each of the eleven remaining measures will be allocated, on average, 2.3% of funds.

Another French regional rural development programme applies to Martinique. This programme includes fourteen measures (Table 3.12). Similarly to the programme for Mayotte, the three most important measures include: support for investments in physical assets (M04), implementation of basic services and village renewal (M07) and support for cooperation (M16). These measures were allocated ca. 42%, over 11% and over 8% of funds, respectively. In total, three key measures under this programme will be allocated approx. 61.5% of the budget. This means that, on average, each of them will receive roughly 1/5 of funds, and each of the eleven remaining measures, on average, 3.5% of funds.

Another French regional rural development programme applies to Nord Pas de Calais. It contains thirteen measures (Table 3.12). As in the case of programmes for Brittany and Champagne the three most important measures under this RDP also include: support for implementation of investments in physical assets (M04), agri-environment-climate measure (M10) and support for farm and business development (M06). These measures were allocated, accordingly, more than 35%, 20.5% and more than 16% of funds. In total, three most important measures were allocated more than 72% of the programme funds, which means that each of them will receive, on average, ca. 24%, while the ten remaining measures will consume ca. 2.8% of funds each.

Separate regional rural development programme applied also to Provence. This programme envisages the implementation of twelve measures (Table 3.12). As in the programme for Burgundy, the three most important measures of this

RDP are: payments to areas with constraints (M13), agri-environment-climate measure (M10) and investments in physical assets (M04) which will receive, accordingly, less than 39%, nearly 16% and 14% of funds. In total, these three key measures were allocated more than 68.5% of the budget, which means that each of them will receive, on average, less than 23%. On the other hand, the remaining measures were allocated, on average, 3.5% of funds each.

Pays de la Loire also has its regional rural development programme which, just like the previous programme assumes the implementation of twelve measures (Table 3.12). As in the case of programmes for Brittany, Champagne and Nord Pas de Calais the three most important measures under this RDP are: investments in physical assets (M04), agri-environment-climate measure (M10) and farm and business development (M06) which will receive, accordingly, more than 33%, ca. 24% and ca. 13% of funds. In total, three most important measures will consume more than 70% of the budget, that is, on average, over 23% per each of them. In the case of the nine remaining measures, each of them will be allocated, on average, approximately 3.3% of the RDP budget.

Another regional rural development programme applies to the Department of Poitou. This programme includes fourteen measures (Table 3.12). As in the programme for Alsace the most important measure under this RDP is the agri-environment-climate measure (M10) which was allocated nearly 27% of the budget. Payments to areas with constraints (M13) are the second important instrument. It was allocated more than 1/5 of the budget. The third key measure under this programme is the support for implementation of investments in physical assets (M04) which will receive less than 19% of funds. In total, three most important measures are to receive approximately 2/3 of the budget, which means that, on average, each of them will receive more than 22%, and each the thirteen remaining measures will receive, on average, 3% of funds.

Another regional rural development programme in France applies to Picardy. This programme includes twelve measures (Table 3.12). As in the case of the first programme, that is the programme for Alsace, the two most important measures under this RDP include: the agri-environment-climate measure (M10) which will receive more than 27% of funds and support for investments in physical assets (M04) with more than 1/5 of the budget. The third important measure under this programme is the support for implementation of basic services and village renewal (M07). It was allocated almost 19% of funds. In total, these three key measures were allocated approximately 2/3 of the budget, which means that each of them will receive, on average, ca. 22% of funds. Each of the remaining measures was allocated, on average, ca. 3.7% of the programme funds.

Table 3.12. Structure of RDP 2014-2020 planned expenditure in division to measures in France (total), French National RDP and French departments: Martinique, Nord Pas de Calais, Provence, Pas de la Loire, Poitou, Picardie and Reunion

Measure	Martinique	National	Nord Pas de Calais	Provance	Pas de la Loire	Poitou	Picardie	Reunion	Total
M01 - Knowledge transfer and information actions	3.55	0.00	1.60	0.40	0.65	0.68	1.47	6.81	1.02
M02 - Advisory services	4.27	0.00	0.00	0.00	0.19	2.00	0.50	1.94	0.66
M03 - Quality schemes	0.36	0.00	0.96	0.00	0.00	0.08	0.00	0.00	0.33
M04 - Investments in physical assets	42.03	0.00	35.25	14.00	33.18	18.80	20.36	41.71	19.01
M05 - Damage/restoration/prevention actions	0.90	0.00	0.00	0.00	0.00	0.02	0.00	0.50	0.07
M06 - Farm and business development	7.82	0.00	16.35	3.73	12.98	7.15	13.53	4.33	8.28
M07 - Basic services and village renewal	11.37	0.00	2.24	13.50	0.47	7.64	18.84	8.14	7.52
M08 - Investments in forest areas	2.22	0.00	1.22	1.76	0.31	0.60	0.87	4.74	2.28
M09 - Producers groups and organisations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
M10 - Agri-environment-climate	4.93	0.00	20.50	15.70	24.03	26.97	27.24	4.33	11.35
M11 - Organic farming	0.36	0.00	8.41	3.58	10.55	7.76	6.24	0.91	4.62
M12 - Natura 2000 and WFD	0.00	0.00	0.16	0.03	0.00	0.00	0.14	0.00	0.02
M13 - Areas with constraints	5.65	0.00	0.00	38.88	2.65	20.75	0.00	8.45	31.86
M14 - Animal welfare	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00
M16 - Cooperation	8.12	0.00	1.22	1.67	1.06	0.47	0.73	10.86	1.67
M17 - Risk management	0.00	97.85	0.00	0.00	0.00	0.00	0.00	0.00	3.92
M19 - LEADER/CLLD	4.99	0.00	8.73	5.76	11.63	6.06	8.62	5.17	5.86
M20 - Technical assistance	3.43	2.15	3.19	0.98	2.31	1.04	1.47	2.09	1.53
Three main measures in total	61.52	97.85	72.10	68.59	70.18	66.51	66.44	61.03	62.21
Other measures in total	38.48	2.15	27.90	31.41	29.82	33.49	33.56	38.97	37.79

Source: own elaboration based on the data available at <http://emrd.ec.europa.eu/en>.

The last of the French regional rural development programmes is dedicated to the Department of Reunion. This programme envisages the implementation of thirteen measures (Table 3.12). Similarly to ca. 40% of the programmes presented, the most important measure under this programme is the support for investments in physical assets (M04) which was allocated almost 42% of the budget. The second key measure is the support for cooperation (M16). It was allocated less than 11% of funds. Payments to areas with constraints (M13) are the third significant instrument which will receive nearly 8.5% of the programme funds. In total, three most important measures were allocated over 3/5 of the budget, which means that each of them will receive, on average, more than 1/5 of funds, whereas each of the ten remaining measures was allocated, on average, 3.9% of the budget.

As mentioned before, apart from the regional rural development programmes, France implements the national programme. However, this programme includes only two measures (Table 3.12). The main measure of the national programme, as opposed to the regional RDPs, is risk management (M17). Almost the entire budget was allocated to this measure – as much as 97.85% of all the programme funds. On the other hand, the remaining part, over 2%, was allocated to technical assistance (M20).

As regards the total level of funds allocated to different measures under the national programme and regional RDPs in France, the most important measure are payments to areas with constraints (M13), with the budget constituting nearly 32% of funds available under the French RDPs (Table 3.12). The second instrument is the support for implementation of investments in physical assets (M04). This measure is to consume approximately 19% of funds. Both the first and the second measure constitute the most important ones in ca. 40% of all the French RDPs. The third instrument is the agri-environment-climate measure (M10), for which more than 11% of the budget was allocated. This measure is among the three main measures in nearly 60% of all the French RDPs.

The French RDP provides for the implementation of seventeen measures of the 2nd pillar of the CAP. The three most important measures consume more than 62% of funds, which means that, on average, each of them was allocated approximately 20.7%. On the other hand, the remaining measures were allocated, on average, 2.7% of funds.

The third country implementing the programme at both national and regional level is Italy. This country implements twenty one programmes. The first regional rural development programme of Italy applies to Abruzzo. This programme includes fifteen measures (Table 3.13). It includes in its budget a small amount for the performance of liabilities related to early retirement. The most

important measure under this RDP is the support for investments in physical assets (M04), to which more than 29% of the budget was allocated. The second most important instrument of the programme is the agri-environment-climate measure (M10), to which less than 13% of funds were allocated. The third key measure is the support for farm and business development (M06). They were allocated more than 12% of the programme funds. In total, these three most important measures were allocated over 54% of the budget, which means that, on average, each of them will receive ca. 18%. On the other hand, in the case of the twelve remaining measures, each of them will consume 3.8% of the budget.

The second regional rural development programme of Italy applies to Basilicata. It includes sixteen measures (Table 3.13). Similarly to the previous programme, the greatest pool of funds is provided for the support for implementation of investments in physical assets (M04). This measure was allocated nearly 22%. Ca. 13% were allocated to each of the two following instruments: investments in forest areas (M08) and organic farming (M11). In total, these three key measures were allocated nearly 48% of the programme funds, which means that, on average, each of them will receive approximately 16%, whereas the thirteen remaining measures were allocated, on average, 4% of funds.

The third Italian regional rural development programme applies to Bolzano. It includes the least number of measures among all the Italian RDPs. It provides for the implementation of eleven measures (Table 3.13). The greatest pool of funds was allocated to payments to areas with constraints (M13). This measure was allocated less than 32% of funds. The second instrument under this programme is the agri-environment-climate measure (M10), to which over 27% of funds were allocated. The third measure is the support for investments in physical assets (M04), to which more than 13% of the budget was allocated. In total, the three most important measures under this programme were allocated over 72% of funds. It means that, on average, each of them was allocated approximately 24%, whereas each of the remaining measures will receive, on average, almost 3.5% of funds.

Another regional rural development programme in Italy applies to Calabria. Similarly to the programme for Abruzzo, it includes fifteen measures (Table 3.13) and its most important measure is also the support for implementation for investments in physical assets (M04), for which over 28% of the budget was allocated. Organic farming (M11) was allocated almost 22% of funds, and investments in forest areas (M08) – more than 9% of funds. In total, the three key measures were allocated over 59% of the budget – on average, 19.8% of funds each. On the other hand, each of the twelve remaining measures, will consume, on average, almost 3.4% of funds.

The next Italian regional rural development programme is the programme for Campania. This programme is one of three with the largest number of measures. It includes as much as eighteen measures out of twenty possible to be selected (Table 3.13). As in the case of the programme for Abruzzo, it includes in its budget a small pool of funds for the performance of liabilities related to early retirement. As in the first programme, its two most important measures are also: investments in physical assets (M04) and the agri-environment-climate measure (M10) which were allocated, accordingly, nearly 31% and over 12% of funds. Payments to areas with constraints (M13) are the third key measure under this programme. This measure was allocated 12% of funds. In total, the three most important measures were allocated over 55% of the budget, which means that each of them received, on average, more than 18% of funds. Each of the fifteen remaining measures was allocated, on average, almost 3% of the RDP budget.

Another regional rural development programme applies to Emilia-Romania. This programme envisages the implementation of sixteen measures (Table 3.13). As in the case of the programme for Abruzzo its three most important measures are also: investments in physical assets (M04), agri-environment-climate measure (M10) and farm and business development (M06), for which, accordingly, more than 29%, almost 15% and almost 9% of funds were allocated. In total, these three key measures were allocated less than 53% of the budget – on average, ca. 17.5% each. On the other hand, the thirteen remaining measures will consume, on average, 3.6% of the programme funds.

Friuli-Venezia Giulia also has its regional rural development programme, which assumes the implementation of sixteen measures (Table 3.13). As in most of the programmes presented, the most important measure in this programme is the support for investments in physical assets (M04). This measure was allocated more than 35% of the budget. Payments to areas with constraints (M13) are the second important measure, to which nearly 13% of funds were allocated. The third key instrument under this RDP is the agri-environment-climate measure (M10) with more than 9% of the budget. In total, these three measures were allocated over 57% of funds, which means that each of them will receive, on average, approximately 19% of funds, whereas each of the thirteen remaining measures was allocated, on average, 3.3% of the budget.

Table 3.13. Structure of RDP 2014-2020 planned expenditure in division to measures in Italian regions: Abruzzo, Basilicata, Bolzano, Calabria, Campania, Emilia-Romagna, FVG, Lazio, Liguria, Lombardia, Marche and Molise

Measure	Abruzzo	Basilicata	Bolzano	Calabria	Campania	Emilia-Romagna	FVG	Lazio	Liguria	Lombardia	Marche	Molise
M01 - Knowledge transfer and information actions	1.09	1.34	0.38	0.72	1.58	1.82	1.60	0.82	1.63	0.85	1.97	2.85
M02 - Advisory services	1.20	0.56	0.00	1.66	0.76	0.71	2.21	1.70	0.86	3.52	0.93	3.80
M03 - Quality schemes	1.62	0.85	0.00	2.34	0.44	0.68	1.09	0.67	1.50	0.50	2.04	0.95
M04 - Investments in physical assets	29.13	21.77	13.10	28.53	30.99	29.14	35.06	27.70	26.78	35.33	22.73	26.13
M05 - Damage/restoration/prevention actions	1.39	1.71	0.00	0.91	0.57	3.35	0.00	2.19	2.01	0.00	2.42	0.00
M06 - Farm and business development	12.24	8.51	7.01	4.75	8.99	8.80	7.20	14.28	8.67	5.92	8.29	4.75
M07 - Basic services and village renewal	8.89	6.89	5.13	4.00	8.33	5.83	5.41	7.64	6.76	4.53	5.39	14.25
M08 - Investments in forest areas	3.00	13.35	6.00	9.12	9.43	4.30	7.68	2.80	15.27	8.92	6.88	5.70
M09 - Producers groups and organisations	0.00	0.25	0.00	0.00	0.27	0.00	0.32	0.30	0.41	0.00	0.37	0.00
M10 - Agri-environment-climate	12.91	12.05	27.29	7.04	12.25	14.79	9.28	5.57	4.78	20.75	5.17	6.65
M11 - Organic farming	6.93	12.83	2.46	21.73	1.91	8.46	2.24	14.17	3.86	3.28	14.87	8.55
M12 - Natura 2000 and WFD	0.00	3.79	0.00	0.00	0.00	0.71	0.48	0.00	1.91	0.29	0.84	0.00
M13 - Areas with constraints	9.24	4.16	31.93	6.77	12.00	7.56	12.80	5.42	9.63	6.74	7.99	11.31
M14 - Animal welfare	0.00	0.00	0.00	2.56	0.11	0.88	0.32	1.62	0.80	0.00	0.93	0.00
M15 - Forest-environmental-climate	0.00	0.00	0.00	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.19	0.00
M16 - Cooperation	3.33	2.97	0.49	1.60	3.13	5.31	4.57	3.11	3.76	1.49	4.94	5.23
M17 - Risk management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M19 - LEADER/CLLD	5.54	5.54	5.54	6.02	5.54	5.58	6.53	8.71	7.94	5.70	11.26	5.56
M20 - Technical assistance	3.42	3.42	0.66	2.25	1.74	2.09	3.23	2.40	3.41	2.18	2.79	3.33
M113 - Early retirement	0.07	0.00	0.00	0.00	0.16	0.00	0.00	0.90	0.03	0.00	0.00	0.95
Three main measures in total	54.29	47.95	72.33	59.39	55.24	52.73	57.13	56.15	51.67	65.00	48.87	51.69
Other measures in total	45.71	52.05	27.67	40.61	44.76	47.27	42.87	43.85	48.33	35.00	51.13	48.31

Source: own elaboration based on the data available at <http://lenrd.ec.europa.eu/en>.

Another Italian regional rural development programme applies to Lazio and includes seventeen measures (Table 3.13). As in the case of the programmes for Abruzzo and Campania this programme allocates a small amount to the performance of liabilities related to early retirement. As in most of the Italian RDPs discussed, the most important measure in this programme is the support for investments in physical assets (M04), to which almost 28% of the budget was allocated. More than 14% of funds were allocated to the implementation of two instruments: farm and business development (M06) and organic farming (M11). In total, the three measures under this programme were allocated over 56% of funds, which means that each of them received, on average, less than 19% of funds. Each of the fourteen remaining measures was allocated, on average, over 3% of the budget.

The next regional rural development programme of Italy applies to Liguria. This programme includes as much as eighteen measures and is the second programme out of three with the largest number of measures (Table 3.13). Just as the previous one, this programme includes in its budget insignificant funds for the performance of liabilities related to early retirement. As in the case of the programme for Basilicata, its two most important measures are also: support for investments in physical assets (M04) and support for investments in forest areas (M08). These measures were allocated, accordingly, nearly 27% and more than 15% of funds. Payments to areas with constraints (M13) are the third important measure under this programme, to which almost 10% of funds were allocated. In total, these three key measures were allocated less than 52% of the budget, which means that, on average, each of them will receive more than 17%, whereas each of the fifteen remaining measures will consume, on average, over 3% of funds.

Lombardia also has the regional rural development programme. This programme includes fourteen measures (Table 3.13). As in most of the programmes presented, the most important measure in this programme is the support for implementation of investments in physical assets (M04), to which over 35% of the budget was allocated. More than 1/5 of the programme funds were allocated to the agri-environment-climate measure (M10), on the other hand, less than 9% of funds were allocated for the support for investments in forest areas (M08). In total 65% of the budget was planned for these three most important measures, namely on average more than 21.6% of the funds. Whereas, on average, almost 3.2% of the funds was planned per each of the remaining eleven measures.

The Marche region also has its regional programme of development of rural areas. This programme includes as much as eighteen measures and is the third programme out of three containing the largest number of measures (Table 3.13).

Similarly to the Calabria programme, where the two most important measures of this RDP are: supporting the implementation of the investments in physical assets (M04) and organic farming (M11), for which was planned almost 23% and less than 15% of the funds, respectively. The third crucial measure of the programme is the LEADER measure (M19) which is present only in one Italian RDP. More than 11% of the budget was planned for this purpose. In total these three most important measures include almost 49% of the funds and it means that on average for each of them is allocated more than 16%. In the case of other fifteen measures, each of them will receive on average 3.4% of funds.

Another Italian regional rural areas development programme is the programme intended for the Molise region which contains fourteen measures (Table 3.13). The budget of this programme includes a small pool of funds for implementation of the obligations related to early retirement. As in the majority of the presented Italian RDPs, also in this programme the most important measure is support for investments in physical assets (M04). More than 26% of funds was planned for this purpose. The second key instrument is measure concerning implementation of basic services and village renewal (M07), which budget amounts to more than 14% of the programme funds. Payments to areas with constraints (M13) are the third measure. More than 11% of the funds was allocated for those payments. In total less than 52% of the budget was reserved for the three most important measures, which means that on average more than 17% was allocated for each of them. On the other hand, in the case of other eleven measures their average budget amounts to approx. 4.4%.

The next regional rural development programme in Italy is the programme intended for the Piedmont region. This programme includes seventeen measures (Table 3.14). Just as the previous one, this programme includes in its budget insignificant funds for the performance of liabilities related to early retirement. Similarly, as in the majority of the discussed Italian RDPs the most important measure of this programme is the support for investments in physical assets (M04), which received less than 27% of the budget. Agri-environment-climate measure (M10) received more than 24% of the funds, while support for implementation of the basic services and village renewal (M07), over 8% of the funds. In total almost 59% of the budget was allocated for these three key measures, namely on average approximately 19.6% on each of them. On the other hand, on average almost 3% was planned for the remaining fourteen measures.

The Puglia region also has its regional rural development programme. This programme envisages the implementation of fourteen measures (Table 3.14). Similarly, as in the previous programme, the two most important measures of this RDP are: investment in physical assets (M04) and the agri-environment-climate

measure (M10), for which was planned less than 33% and more than 14% of the funds, respectively. The third crucial measure of the programme is the support of organic farming (M11). This purpose received approximately 1/8 of the budget. In total almost 3/5 of the budget was allocated for these three key measures, which means that each of them received on average ca. 20% of the funds. The remaining eleven measures received on average almost 3.7% of the funds.

The regional rural areas development programme which includes seventeen measures was also planned for Sardinia (Table 3.14). As in the majority of the presented Italian RDPs, in this programme also the most important measure is support for investments in physical assets (M04). Almost 1/5 of the budget was allocated for this purpose. More than 17% of the funds was allocated for implementation of the two subsequent instruments: payments to areas with constraints (M13) and animal welfare (M14). In total ca. 55% of the funds was planned for the three measures of this programme, namely on average 18% on each of them. On the other hand, each of the remaining fourteen measures received on average more than 3.2% of the budget.

Another regional rural development programme in Italy is the programme intended for Sicily. This programme assumes implementation of sixteen measures (Table 3.14). Similarly, as in the majority of the discussed Italian RDPs, the most important measure of this programme also includes support for investments in physical assets (M04), which received more than 32% of the budget. The second key measure of this programme is the support for organic farming (M11). It was allocated almost 19% of funds. The third important measure is the support of farm and business development (M06), which received approximately 11% of the budget. In total the three most important measures of this programme received more than 62% of the funds. It means that each of them received on average ca. 21%, while the rest on average almost 3% of the funds.

Another Italian regional rural development programme is the programme dedicated for Tuscany. This programme includes sixteen measures (Table 3.14). Its budget includes a small pool of funds for implementation of the obligations related to early retirement. As in the case of the programme for the Basilicata region, the three most important measures of this programme are: investment in physical assets (M04), investment in forest areas (M08) and organic farming (M11), for which was planned, respectively more than 29%, nearly 15% and more than 13% of the funds. In total less than 58% of the budget was allocated for these three key measures, which means that on average more than 19% was allocated for each of them. On the other hand, the remaining thirteen measures will each receive, on average, 3.3% of the RDP funds.

Trident also has its regional rural development programme which includes twelve measures (Table 3.14). As in the case of the programme for Friuli-Venezia Giulia also in this RDP the most important three measures are: supporting the implementation of the investments in physical assets (M04), payments to areas with constraints (M13) and the agri-environment-climate measure (M10). These purposes received approximately 32.5%, over 24% and ca. 17% of the funds, respectively. In total almost 3/4 of funds was planned for these three key measures of the programme, namely, on average, less than 25% on each of them, while other measures received, on average, 2.9% of the funds.

Regional rural areas development programme was also planned for the Umbria region. It includes seventeen measures (Table 3.14). Similarly to the programme dedicated for Piedmont region, the three most important measure of this programme are as follows: the support of investments in physical assets (M04), agri-environment-climate measure (M10) and support for implementation of the basic services and village renewal (M07). These measures received, respectively, more than 28%, more than 16% and less than 12% of the funds. In total more than a half of the budget was allocated for the three key measures of this programme. It means that each of them received on average ca. 17%, while the remaining fourteen measures received, on average, 3.5% of the funds.

Another Italian regional rural development programme is intended for of the Val region. This programme includes fifteen measures (Table 3.14). There was a small amount planned for implementation of the liabilities related to early retirement. It is the second programme, apart from the programme for the Bolzano region, which differs from the others with the fact that its first most important measure is not support of the implementation of the investments in physical assets (M04). As in the case of the programme for the Bolzano region, the first crucial measure of this programme are payments to areas with constraints (M13), which received more than 31% of funds. The two subsequent measures just like in the Bolzano region programme are as follows: agri-environment-climate measure (M10) and the support of investments in physical assets (M04), which received, respectively over 20% and more than 19% of the funds. In total, these three most important measures received less than 71% of the funds, namely, on average, more than 23.5% for each of them. The remaining twelve measures received, on average, almost 2.5 % of the budget.

Table 3.14. Structure of RDP 2014-2020 planned expenditure in division to measures in Italy (total), Italian National RDP and Italian regions: Piedmont, Puglia, Sardinia, Sicilia, Tuscany, Trento, Umbria, Val and Veneto

Measure	National	Piedmont	Puglia	Sardinia	Sicilia	Tuscany	Trento	Umbria	Val	Veneto	Total
M01 - Knowledge transfer and information actions	0.00	4.07	1.53	0.23	0.41	0.83	0.83	1.17	0.29	1.94	1.17
M02 - Advisory services	0.00	3.11	2.01	1.22	0.32	3.95	0.43	2.20	0.00	3.09	1.51
M03 - Quality schemes	0.00	2.81	1.10	0.38	0.50	0.42	0.00	0.82	1.44	1.50	0.88
M04 - Investments in physical assets	14.02	26.62	32.66	19.85	32.17	29.44	32.57	23.18	19.16	37.92	27.51
M05 - Damage/restoration/prevention actions	0.00	0.96	1.22	1.15	0.56	3.12	0.00	2.05	0.00	0.68	1.10
M06 - Farm and business development	0.00	5.58	10.38	6.11	11.06	11.23	5.64	3.99	3.10	11.36	7.72
M07 - Basic services and village renewal	0.00	8.15	1.22	4.84	1.72	4.35	5.47	11.76	5.48	4.33	4.88
M08 - Investments in forest areas	0.00	3.53	6.72	3.13	9.14	14.87	3.32	9.17	3.46	3.55	6.60
M09 - Producers groups and organisations	0.00	0.00	0.31	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.11
M10 - Agri-environment-climate	4.86	24.09	14.23	12.48	10.21	6.13	17.01	16.14	20.39	13.92	12.15
M11 - Organic farming	0.00	2.33	12.70	5.98	18.84	13.41	0.90	3.89	1.66	1.83	8.14
M12 - Natura 2000 and WFD	0.00	0.44	0.00	0.00	1.90	0.00	0.00	0.91	0.58	0.00	0.51
M13 - Areas with constraints	0.00	5.49	0.00	17.58	4.63	1.04	24.28	7.19	31.12	10.06	7.38
M14 - Animal welfare	0.00	0.00	0.00	17.24	0.00	0.00	0.00	0.62	5.76	0.10	1.46
M15 - Forest-environmental-climate	0.00	0.30	0.00	0.38	0.18	0.04	0.00	0.57	0.00	0.00	0.25
M16 - Cooperation	0.00	3.22	3.97	2.41	1.86	3.64	1.92	7.79	0.65	2.33	2.85
M17 - Risk management	76.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.67
M19 - LEADER/CLLD	0.00	6.06	9.65	5.85	5.54	6.03	5.97	5.54	5.55	5.98	5.77
M20 - Technical assistance	4.49	3.18	2.31	0.76	0.96	1.35	1.66	3.00	0.79	1.42	2.26
M113 - Early retirement	0.00	0.05	0.00	0.00	0.00	0.15	0.00	0.00	0.58	0.00	0.07
Three main measures in total	95.51	58.85	59.59	54.67	62.08	57.73	73.86	51.08	70.68	63.21	47.80
Other measures in total	4.49	41.15	40.41	45.33	37.92	42.27	26.14	48.92	29.32	36.79	52.20

Source: own elaboration based on the data available at <http://enrd.ec.europa.eu/en>.

The last of the Italian regional rural development programmes is the programme dedicated for Veneto. This programme envisages the implementation of fifteen measures (Table 3.14). As in the majority of the presented programmes, support for investments in physical assets (M04), which received almost 38% of the budget, is also the most important measure of this programme. The second key instrument is the agri-environment-climate measure (M10). Almost 14% of the funds was planned for this purpose. The third crucial measure is support of farm and business development (M06), which received more than 11% of the programme funds. In total the three most important measures received more than 63% of the budget, namely, on average, approximately 21% of funds, while each of the remaining twelve measures received, on average, approximately 3% of the budget.

As it was mentioned before, apart from the regional rural development programmes Italy also implements the national programme. The programme includes, however, only four measures (Table 3.14). As opposed to the regional RDP, the largest amount of funds in the national programme was allocated for risk management (M17). More than 3/4 of the budget was allocated for this purpose. The second crucial measure of the programme is the one that was most important in the majority of the Italian regional RDP, namely the support for investments in physical assets (M04). It received approx. 14% of the budget. More than 4% of the funds was allocated for implementation of the two remaining instruments: agri-environment-climate measure (M10) and technical assistance (M20). In total the three most important measures are to receive approximately 95.5% of the budget. This means that each of them receives, on average, almost 32% of the funds.

Taking into account the total amount of funds allocated for particular measures under the national programme and the regional RDPs in Italy it can be noted that the main measures in the majority of regions were similar. The most important measure of this programme is the support of implementation of investments in physical assets (M04), which received approximately 27.5% of funds available for Italian RDPs (Table 3.14). The second instrument is the agri-environment-climate measure (M10) with the budget amounting to more than 12% of the funds. The third measure is the support of organic farming (M11). More than 8% of budget funds available for the Italian RDPs was allocated for this purpose.

All available measures of the 2nd pillar of the CAP are implemented under the Italian RDP. Eight programmes include also the implementation of the liabilities related to early retirement. In total the three most important measures received almost 48% of the funds, which means that each of them received on average nearly 16%. The remaining measures receive on average over 3% of the funds.

This limited only to the set of the selected measures and structure of the planned expenses of the rural development programmes in the countries of the EU shows huge diversity of these programmes, which is reflected not only in the diagnosis of needs, but also in the attitude towards support of rural development and agriculture. This diverse approach will be also visible in the process of negotiation of the shape of the Common Agricultural Policy in the subsequent programming period. The visible absence of any clear division into groups or blocks of states with similar approach to use of the 2nd pillar of the CAP also indicates that it will be difficult to find allies supporting all solutions proposed by one of the states and it will be necessary to search for support for specific solutions which will hinder achieving the final agreement by all parties and may result in much greater complexity of the set of available instruments of support which is supposed to provide consideration of all postulated tools of the policy for development of rural areas.

The results of the analysis of expenses of the rural areas development programmes, conducted above, clearly indicates that the share of new measures within the structure of the RDP budgets is small. This is confirmed by the results of the research conducted by J. Dwyer and others (2016)⁸⁷ indicating a clear continuation of funds spending patterns observed in the 2007-2013 programming period in the next 2014-2020 period.

⁸⁷ J. Dwyer et al. (2016), *Research for AGRI Committee – Programmes implementing the 2015-2020 Rural Development Policy*, European Union, 2016.

4. Fiscal multipliers

4.1. The notion of a fiscal multiplier

The notion of a multiplier comes from an analysis of the economic crisis which occurred in the United States in 1930. At that time, two American economists, A. Hansen and P. Samuelson were the first ones to present the concept of a multiplier. Basing on a revolutionary economic theory J.M. Keynes used this notion to explain how government expenditure can help mitigate disastrous consequences of the Great Depression. The point was that if the federal government increased its expenditure and this growth did not correspond to the increase in revenue, the aggregated demand would grow by a multiple of the primary growth in government spending. Those who were the beneficiaries of any additional government spending would spend more, which in turn would contribute to a higher income of other people and so on through the next rounds of expenses. The strength of a multiplier explained by A. Hansen and P. Samuelson was called the marginal propensity to consume⁸⁸.

In subsequent rounds of expenses, the so-called “leakages” can emerge weakening the multiplier effect. The basic form of a “leakage”, taken into account at that time, was saving. The higher the amount of additional income saved rather than spent, the weaker the multiplier effect. For this reason, the citizens were encouraged to abandon the traditional values and spend their income instead of saving it⁸⁹.

Another possible source of “leakage” were the expenses for imported goods and services which did not increase domestic demand and thus reduced the multiplier. Owing to the fact that the economy of the United States in 1930 was practically closed, the foreign trade was only a little part of GDP and the leakages of the expenditure on import was generally ignored⁹⁰.

The third type of “leakage” was taxation. Higher income led to increased tax payments which, consequently, weakened the multiplier⁹¹.

For the first time, the notion of multiplier was officially introduced to the theory of economics by R.F. Kahn (1931) and then by J.M. Keynes (1936). The version of Keynes-Kahn handbook concerning the multiplier states that if government expenditure (G) increases by one unit, the aggregated demand increases by more than one unit. The initial round of expenditure stimulates further ones in such a way that the impact on the size of the aggregated production equals the

⁸⁸ D. Snodgrass (2014), *Agricultural transformation in sub-Saharan Africa and the role of the multiplier: A literature Review*, Report No. 4, USAID LEO, p. 4.

⁸⁹ Ibidem, p. 4.

⁹⁰ Ibidem, p. 4.

⁹¹ Ibidem, p. 5.

multiplier multiplied by the primary increase in spending. For the initial increase in public spending ΔG and the marginal propensity to consume (c), the change in production ΔY equals k multiplied by ΔG , where k constitutes fiscal multiplier amounting to: $k = \frac{1}{1-c}$, provided that the economy is closed⁹². The value of a fiscal multiplier is a cumulated production result created by various rounds of expenditure⁹³.

According to the standard multiplier analysis for open economy, if $Y = C\{Y - t(Y)\} + I + G + X - M(Y)$ then $\frac{\Delta Y}{\Delta G} = \frac{1}{c(1-t)+m}$ = the multiplier, where c is the marginal propensity to consume, m is the marginal propensity to import and t is the income tax rate. “Leakages” of import (apart from savings and taxes) contribute to reducing the capacity of government expenditure in the open economy⁹⁴.

According to the macroeconomic theory, fiscal multiplier plays an important role. Simply speaking, it is a ratio of the change in the size of production to the change in the size of fiscal policy instrument. For example $\frac{dY_t}{dZ_t}$, where Y is the production (or some other variable of activity) and Z is the fiscal instrument, i.e. government expenditure on goods and services, government transfers, taxes or tax rates⁹⁵.

We can distinguish two multipliers: the multiplier of impact presented above and the cumulative multiplier⁹⁶:

$$\frac{\sum_{j=0}^n dY_{t+j}}{\sum_{j=0}^n dZ_{t+j}} \quad (1)$$

The term “fiscal multiplier” is used in literature in various ways. Generally speaking, it describes the impact of changes to the nature of fiscal instruments on the real GDP. Typically, it is defined as the ratio of change in the real GDP to the change in fiscal balance⁹⁷.

⁹² $\frac{1}{1-c}$ is the sum of series $c + c^2 + c^3 + \dots \infty$, i.e. adding subsequent rounds.

⁹³ S. Bose, N.R. Bhanumurthy (2013), *Fiscal Multipliers for India*, http://www.nipfp.org.in/media/medialibrary/2013/09/WP_2013_125.pdf (11.12.2015).

⁹⁴ Ibidem.

⁹⁵ M. Chinn (2013), *Fiscal Multipliers*, <http://www.ssc.wisc.edu/~mchinn/Fiscal%20Multipliers.pdf> (11.12.2015).

⁹⁶ Ibidem.

⁹⁷ G. Coenen, C. Erceg, C. Freedman, D. Furceri, M. Kumhof, R. Lalonde, D. Laxton, J. Lindé, A. Mourougane, D. Muir, S. Mursula, C. de Resende, J. Toberts, W. Roeger, S. Snudden,

Fiscal multipliers measure the short-term impact of discretionary fiscal policy on the production. They are usually defined as the ratio of change in production to exogenous change in budget deficit with regard to relevant reference values⁹⁸.

Fiscal multipliers can be measured in several ways. In general, they are measured as the ratio of change in the size of production (ΔY) to the discretionary change in the level of government expenditure or tax revenue (ΔG or ΔT)⁹⁹.

When concentrating on expenses, two commonly used multipliers can be distinguished, i.e.¹⁰⁰:

- income multiplier = $\frac{\Delta Y(t)}{\Delta G(t)}$;
- period multiplier $i = \frac{\Delta Y(t+i)}{\Delta G(t)}$;

where t may be a quarter or a whole year depending on the frequency of data used in the study.

“General” multiplier describes the reaction of production to indefinite fiscal shock, whereas “income” (“expenditure”) multiplier is a ratio of production to the discretionary change in income (expenditure)¹⁰¹.

If the investments are determined by the increase of income itself, we are dealing with a multiplier referred to by O. Lange (1943) as “complex multiplier” and specified by J. Hicks (1950) as “super multiplier”. There is a conceptual difference between a multiplier and a super multiplier that summarizes the effect of increased expenses on investments by means of an accelerator. However, when talking about empirical evaluation of the aggregated impact of changes in fiscal variables on the aggregated level of operations, we are usually considering connecting the concept of super multiplier with fiscal multiplier¹⁰².

The interpretation of fiscal multiplier is complicated due to the fact that it is not a structural parameter. On the contrary, in the most appropriate contexts, the multiplier is a function of structural parameters and policy reaction parameters¹⁰³.

M. Trabandt, J. in't Veld (2010), *Effects of Fiscal Stimulus in Structural Models*, IMF Working Paper, WP/10/73, p. 10.

⁹⁸ N. Batini, L. Eyraud, A. Weber (2014), *A Simple Method to Compute Fiscal Multipliers*, IMF Working Paper, WP/14/93, p. 4.

⁹⁹ A. Spilimbergo, S. Symansky, M. Schindler (2009), *Fiscal Multipliers*, IMF Staff Position Note, SPN/09/11, p. 2.

¹⁰⁰ N. Batini et al. (2014), as above, p. 4.

¹⁰¹ Ibidem, p. 4.

¹⁰² S. Bose, N.R. Bhanumurthy (2013), as above.

¹⁰³ M. Chinn (2013), as above

Precise estimation and correct use of multipliers plays a key role in ensuring accuracy of macroeconomic forecasts. Large-scale tax operations and GDP growth may be driven mainly by fiscal policy. Therefore, it is essential to precisely measure the relationship between those two variables. As a result, the effects of policy operations are planned and predicted¹⁰⁴.

The multipliers are an important element of fiscal policy evaluation and they should be taken into account in policy consulting and planning. Underestimating multipliers might make countries pursue unattainable fiscal goals and conduct bad calculations of the amount of the adjustment necessary to reduce debt ratio¹⁰⁵. This can affect the credibility of fiscal consolidation programmes¹⁰⁶.

Despite the anticipated benefits, the multipliers are not commonly used by economists for the operational work. The main reason for this is that their estimation is complicated. In particular, it is difficult to isolate any direct impact of fiscal measures on the GDP due to a two-way relationship between those variables. Expenditure and taxes usually respond automatically to the business cycle via the so-called “automatic stabilizers”. They also respond to the cycle on a discretionary basis – for example, the anti-cycle policy might increase tax rates and reduce expenses when the demand gap is growing. The scientists are trying to solve the problem of the vicious circle by focusing on the subgroup of fiscal shocks¹⁰⁷. However, there is no universally accepted methodology of recognizing such shocks or differentiating exogenous components from the observed fiscal results. As a result, there is no agreement in literature as far as the size of multipliers is concerned¹⁰⁸.

Furthermore, the availability of data limits the scope of multipliers evaluation. The econometric methods and those based on a model are demanding in terms of data requirements. For example, the estimation of the structural models of vector autoregression (SVAR) requires high frequency data and sufficiently long time series of macroeconomic data. Long series of quarterly data are non-existent in many developed economies as well as in most emerging market economies and low income countries¹⁰⁹.

¹⁰⁴ N. Batini et al. (2014), as above, p. 4.

¹⁰⁵ L. Eyraud, A. Weber (2012), *Debt Reduction during Fiscal Consolidations: The role of Fiscal Multipliers*, unpublished paper presented at the IMF surveillance meeting seminar of April 10.

¹⁰⁶ N. Batini et al. (2014), as above, p. 5.

¹⁰⁷ In literature, the term “exogenous shock” refers to the changes in expenditure or revenue which are not caused by the macroeconomic environment.

¹⁰⁸ N. Batini et al. (2014), as above, p. 5.

¹⁰⁹ Ibidem, p. 5.

An important condition for the multiplier to occur, which increases the real income and employment, is the presence of unused resources which can be mobilised relatively easily and cheaply, in response to the increase in demand. If this condition is not met, the results of budget expenditure may include inflation and/or, in the case of open economy, a rapidly growing import leading to the commercial deficit. Therefore, in times of high unemployment, budget expenditure may stimulate the real GDP and in times of relatively low unemployment, it may cause inflation and commercial deficits¹¹⁰.

The simplest way to understand multipliers is to consider the model of aggregated demand and supply in neoclassical synthesis, i.e. to substantively consider the structure with short-term Keynes attributes and long-term classical properties. While the structure is not particularly rigorous, it turns out that many basic observations collected through other approaches can be understood in this context¹¹¹.

At the beginning, M. Chinn separates the aggregated demand from the aggregated supply and explains that demand depends on the fiscal and monetary policy, and in the long run the aggregated supply curve is determined by the level of technology, workforce and share capital. In the short term, a higher level of prices is associated with a higher business activity¹¹².

Over time, the level of prices adjusts to the expected level and the production deviations from the full employment become less clear. Therefore, in the long run, the classic model maintains that each fiscal policy has zero impact. This structure is sometimes called the neoclassical synthesis¹¹³.

The more sensitive the level of prices is to the size of the demand gap, the smaller the change in income is for each of the given increase in government expenditure. In extreme cases, when there is no reaction of wages and prices to the rigidity of labour and product markets, the multiplier is relatively big. In Keynes model, the multiplier is a positive function of marginal propensity to consume. From a national income accounting perspective, the difference must occur between the expenditure on goods and services and the expenditure on transfer. The former has a greater impact on production than the latter¹¹⁴.

In the second extreme case, where wages and prices are infinitely sensitive to the demand gap, the curves of short-term and long-term aggregated supply are the same. In such a case, the fiscal multiplier equals zero. It is important to re-

¹¹⁰ D. Snodgrass (2014), as above, p. 5.

¹¹¹ M. Chinn (2013), as above.

¹¹² Ibidem.

¹¹³ Ibidem.

¹¹⁴ Ibidem.

member that the perspective of supply may be interpreted as part of the neoclassical synthesis. Long-term aggregated supply depends on the capital and the workforce employed as well as on the level of technology. If the reductions of marginal tax rate increase employment and/or investments, the multiplier for changes in tax rates may be positive, even if there are no demand effects¹¹⁵.

In addition, the multiplier critically depends on how the monetary policy is conducted. When the policy controls money supply, the multiplier depends on the income and the sensitivity of demand on money. In a more general case, where it is not the function of monetary policy reaction, the multiplier depends on the reaction function parameters. For example, if the central bank is entirely accommodative (i.e. maintains a fixed interest rate), the multiplier is larger than in a situation when the bank is not accommodative¹¹⁶.

Another way to understand multipliers is to consider the approach used as part of the theory of real business cycle (RBC), which may be treated as a stochastic versions of classic models. One of the basic features of this type of models is the incorporation of microfoundations. Taxes not distorting the competition do not affect the current income value. Therefore, tax reliefs have no impact on the consumption, and hence on the income. This result of tax reliefs is often characterized as Ricardian equivalence¹¹⁷.

The consequences of government expenditure are more difficult to analyse. In particular, if the government expenditure is financed by higher taxes not distorting the competition and occurring after tax revenue decrease. In such a situation, the workload increases alongside the production measured as the sum of private and public consumption¹¹⁸.

Although the stereotype of RBC approach mentions low levels of multipliers, small changes in the assumptions may provide high levels. An example may be the assumption that the government capital, private capital and work supplement one another¹¹⁹. However, it should be noted that in this case, the multipliers are not the result of well-known demand effects but rather of supply effects¹²⁰.

Another way to understand multipliers is to consider new Keynes models that are the result of connecting basic microeconomic models concerning the incorporation of time optimization with nominal and real Keynes flexibility. The

¹¹⁵ Ibidem.

¹¹⁶ Ibidem.

¹¹⁷ R.J. Barro (1974), *Are Governments Bonds Net Wealth?*, "Journal of Political Economy", 82(6).

¹¹⁸ M. Chinn (2013), as above

¹¹⁹ M. Baxter, R.G. King (1993), *Fiscal policy in general equilibrium*, "American Economic Review", 83(3).

¹²⁰ M. Chinn (2013), as above

basis for these models are the models of real business cycle. Deviations from RBC occur usually in the form of flexibility, both nominal and real. Nominal flexibility is normally introduced by way of sticky prices, which are adjusted to random moments (usually called Calvo-style evaluation). Whereas real flexibility, often includes costs of adaptation and deviation from full accrued optimization¹²¹.

Since the models are built around essentially neoclassical structures, the policy does not have any major long-term impact on the economy. However, the monetary and fiscal policy can affect the production in a short period of time. The scale of impact depends on various model parameters and – as in the case of Keynes model – the nature of monetary policy reaction functions¹²².

To sum up the three ways of understanding multipliers presented above, it can be stated that various kinds of models deliver fiscal multipliers of almost all sizes. Furthermore, even the models of one class can provide very different multiplier values, depending on the basic parameter values and assumptions concerning the monetary policy reaction functions. As a result, the problem of the size of multipliers can be undertaken in experience¹²³.

The problem of fiscal multipliers had a wider significance in the face of global financial crisis in 2008, when the monetary policy and non-discretionary fiscal policy proved insufficient to stop the rapid decrease in income and employment. A substantial confusion arose concerning the type and size of fiscal multipliers. Many misunderstandings are still not explained¹²⁴.

4.2. The models and methods used in studies on fiscal multipliers

4.2.1. Models of vector autoregression (VAR)

In 1970s, there was no alternative multi-equation modelling, even though the methods of time series modelling were developing dynamically. The work of C. Sims was published only in 1980, in which the author proposed the base for a new methodology of multi-equation modelling, i.e. model of vector autoregression (VAR)¹²⁵.

C. Sims claimed that the Cowles Commission model consisting of a large amount of equations requires improbable identifying assumptions. Therefore, his

¹²¹ J. Gali, J.D. López-Salido, J. Vallés (2007), *Understanding the effects of government spending on consumption*, “Journal of the European Economic Association”, 5(1).

¹²² M. Chinn (2013), as above.

¹²³ Ibidem.

¹²⁴ Ibidem.

¹²⁵ E. Kusideł (2000), *Modele wektorowo-autoregresyjne VAR. Metodologia i zastosowania* [in:] ed. B. Suchecki, *Dane panelowe i modelowanie wielowymiarowe w badaniach ekonomicznych*, Wydawnictwo Absolwent, Łódź, p. 10.

alternative approach includes an estimation of small sets of equations where every variable is modelled as a time-delay function of all variables in the system¹²⁶.

The basic differences between the modelling methodology by C. Sims and the classic structural model formulated by the Cowles Commission include¹²⁷:

- 1) lack of division *a priori* into endogenous and exogenous variables;
- 2) lack of zero restrictions;
- 3) lack of strict (priority in relation to modelling) economic theory, on which the model is based.

The first principle of the econometric modelling method proposed by C. Sims results from the assumption that each variable used in the study creates a separate model equation. Therefore, there is no need to divide variables into endogenous and exogenous. It is also not necessary to apply zero restrictions in order to achieve system identification because the role of explanatory variables is performed solely by the delays of all variables used in the study¹²⁸.

The first two principles of modelling contribute to the fact that, due to the lack of zero restrictions and exogenous variable specifications, the issue of identification simply does not occur. Whereas the third principle is in fact an implication of the former two. E. Kusideł claims that: “If there are no endogenous variables distinguished from the model equations and if neither one can be called exogenous, everything is caused by everything and there is no place for applying economic hypotheses, except for the very general ones adopted as the starting point”¹²⁹.

Due to the fact that there are no exogenous variables, the reaction is expressed within the scope of error or shock values, which means that it is determined with regard to unpredictable component of government expenditure or tax revenue, rather than with regard to a given change occurring in each of these instruments¹³⁰.

There is no reason why the nature of shocks should result from recursion. Alternative methods include long-term restrictions, although one variable does not influence another variable through shock in the long term. The pioneers of such an approach included O. Blanchard and D. Quah¹³¹. Short-term restrictions may be incorporated in such a way so as to ensure that one variable’s shock will

¹²⁶ C. Sims (1980), *Macroeconomics and reality*, “Econometrica”, 48(1).

¹²⁷ E. Kusideł (2000), as above, p. 10.

¹²⁸ Ibidem, p. 10.

¹²⁹ Ibidem, p. 10.

¹³⁰ M. Chinn (2013), as above.

¹³¹ O. Blanchard, D. Quah (1989), *The Dynamic Effects of Aggregate Demand and Supply Disturbances*, “American Economic Review”, 79(4).

not directly affect others, as thought by R. Clarida and J. Gali¹³². O. Blanchard and R. Perotti used the institutional features while adding additional restrictions¹³³. However, different types of restrictions containing negative or positive reactions are also possible¹³⁴. V. Ramey focuses on the expenditure on defence as a method to bypass the problems with the identification of exogenous shocks¹³⁵. In all of these cases, the credibility of results depends on the relevancy of identifying restrictions – including the restrictions concerning the number of significant equations. The VAR method normally uses a relatively small number of equations due to a large number of parameters that must be estimated¹³⁶.

VAR models are classified as empirical estimates widely used to determine the size of fiscal multipliers. This is justified by the fact that significant variables (income, expenditure, production, interest rates and inflation) are connected with one another and many causal links can be observed among them. When it comes to this method, an important challenge is posed by isolating the exogenous fiscal shocks¹³⁷. The ground-breaking works on this topic include the publication by O. Blanchard and R. Perotti, in which the structural identification method (also referred to as SVAR) was applied. Within this method, various identifying assumptions are applied to distinguish structural shocks and estimate their impact on the GDP¹³⁸.

A. Baum, M. Poplawski-Ribeiro and A. Weber assume that the auto-regression vector comprises of three variables: real GDP, real net revenue and real net expenditure (similarly as in the ground-breaking publication by O. Blanchard and R. Perotti). Net income equals a full budget revenue reduced by net transfers, while government expenditure includes investments and consumption of government and local administration institutions (except for transfers and subsidies)¹³⁹.

¹³² R. Clarida, J. Gali (1994), *Sources of Real Exchange Rate Fluctuations: How Important are Nominal Shocks?*, Carnegie-Rochester Conference Series on Public Policy, Vol. 41.

¹³³ O. Blanchard, R. Perotti (2002), *An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output*, “Quarterly Journal of Economics”, Vol. 117, No. 4.

¹³⁴ A. Mountford, H. Uhlig (2009), *What are the effects of fiscal policy shocks?*, “Journal of Applied Econometrics”, 24(6).

¹³⁵ V. Ramey (2011), *Can Government Purchases Stimulate the Economy?*, “Journal of Economic literature”, 49(3).

¹³⁶ M. Chinn (2013), as above.

¹³⁷ N. Batini et al. (2014), as above, p. 21.

¹³⁸ O. Blanchard, R. Perotti (2002), as above.

¹³⁹ A. Baum, M. Poplawski-Ribeiro, A. Weber (2012), *Fiscal Multipliers and the State of the Economy*, IMF Working Paper, WP/12/286, p. 8.

There is a considerable difference of opinion among the researchers as to how the size of fiscal multipliers should be connected with the identification of fiscal shocks. The problem of this identification occurs because there are two possible directions of causality¹⁴⁰:

- 1) government expenditure can affect the production;
- 2) production may affect government expenditure (e.g. through automatic stabilizers and hidden or open policy principles).

One of the main approaches used to solve this problem of identification is the approach of structural vector autoregression (SVAR) that has been used, for the first time, to test fiscal policy by O. Blanchard and R. Perotti¹⁴¹.

The main assumption of the SVAR approach is that fiscal policy requires some time (it is assumed that it needs at least one quarter) to respond to the information on the state of economy. It is assumed that VAR is used to eliminate predictable reactions occurring between two variables, and all other correlations between unforeseen elements of government expenditure and production costs result from the impact of government expenditure on the production¹⁴².

E. Ilzetzi, E.G. Mendoza and C.A. Vegh, on the basis of the work by O. Blanchard and R. Perotti, estimated the following system of equations¹⁴³:

$$AY_{n,t} = \sum_{k=1}^K C_k Y_{n,t-k} + Bu_{n,t}, \quad (2)$$

where $Y_{n,t}$ is a variable vector containing variables of government expenditure (e.g. government consumption and/or investments), GDP and other exogenous variables (current account, real exchange rate and interest rates fixed by the central bank) for a given quarter t and country n . C_k is a matrix of own and cross effects with a delay k^{th} of variables in their current observations. Matrix B is diagonal in a way that u_t is an orthogonal vector, and the shocks of government consumption and production have the same independent distribution where $Eu_{n,t} = 0$ and $E = [u_{n,t}u'_{n,t}]$ is a unit matrix. Whereas matrix A causes simultaneous effects between endogenous variables $Y_{n,t}$. E. Ilzetzi and fellow researchers assume that matrixes A , B , and C_k have non-variable values in terms of time and individual countries. The results of their research are resistant to specifications of the “international VAR” where endogenous variables of large sampled countries are used as exogenous outlays to estimate equations of other countries¹⁴⁴.

¹⁴⁰ Ilzetzi E., Mendoza E.G., Vegh C.A. (2013), *How Big (Small?) Are Fiscal Multipliers?*, “*Journal of Monetary Economics*”, Vol. 60(2), p. 240.

¹⁴¹ O. Blanchard, R. Perotti (2002), as above.

¹⁴² E. Ilzetzi et al. (2010), as above, p. 241.

¹⁴³ *Ibidem*, p. 243.

¹⁴⁴ *Ibidem*, p. 243.

In the standard specification by E. Ilzetki and fellow researchers presented above, the system might be estimated by the regression panel OLS which enables the estimation of matrixes $A^{-1}C_k$. As it usually happens when estimating SVAR, additional identification assumptions are required to estimate the coefficients of matrix A and B . In determining the regression which is a two-dimensional regression $Y_{n,t} = \begin{pmatrix} g_{n,t} \\ y_{n,t} \end{pmatrix}$, where $g_{n,t}$ and $y_{n,t}$ are, respectively, government consumption and production, E. Ilzetki and fellow researchers followed the work of O. Blanchard and R. Perotti assuming that the changes in government consumption require at least one quarter to respond to innovations in production. This is equivalent to Cholesky factorization with g_t ranked before y_t or with an assumption that A takes the form of $A = \begin{pmatrix} 1 & 0 \\ a_{21} & 1 \end{pmatrix}$ ¹⁴⁵.

E. Ilzetki and fellow researchers decided to combine data from different countries, rather than estimate them separately. Except for a few countries, the sample of a typical country spreads over approximately ten years which provides approximately forty observation. Therefore, they use a larger sample created from the combined data which almost always provides more than one thousand observations. The samples are divided into various groups, e.g.: high income versus developing countries, countries with predetermined fixed versus flexible exchange rates, open versus closed countries. After the division, the evaluation and comparison of fiscal multipliers in different categories is conducted¹⁴⁶.

4.2.2. Dynamic stochastic general equilibrium models (DSGE)

The most recent analyses of political effects were conducted using dynamic stochastic general equilibrium models (DSGE) containing, to a larger or smaller extent, neo-Keynesian terms. It was a response to the criticism of the *ad hoc* nature of large-scale macroeconomic models¹⁴⁷. In contemporary macroeconomic research, it is common to use the macroeconomic modelling technique, which is defined as a dynamic stochastic general equilibrium structure (DSGE)¹⁴⁸.

¹⁴⁵ Ibidem, p. 244.

¹⁴⁶ Ibidem, p. 244.

¹⁴⁷ M. Chinn (2013), as above.

¹⁴⁸ J. Kulawik, B. Wieliczko (2013), *Polityka pieniężna a kredytowanie rolnictwa*, "Zagadnienia Ekonomiki Rolnej", no. 4 (337), p. 29.

DSGE models, as macroeconomic neo-Keynesian models, are classified as models based on estimates and commonly used to simulate the impact of fiscal policy on the economic growth. One of the advantages of those models is that they describe the behaviour of economy as a whole using the analysis of interactions and combinations of numerous microeconomic decisions, which is the opposite of vector autoregression models that analyse interactions solely on the basis of several variables¹⁴⁹.

The equations in DSGE models are calibrated or estimated, or a combination of calibration and estimation is used. Most of these models activate Ricardian equivalence, which is the opposite of most empirical evidence. Therefore, almost by definition, fiscal multipliers usually are low-level in comparison to those obtained in traditional macroeconomic models. When Ricardian equivalence is unnecessary, the multipliers are usually larger¹⁵⁰.

P. Fève, J. Matheron and J.G. Sahuc, in their article, used the DSGE model to estimate the multiplier of government expenditure. They prepared a sufficiently simple equilibrium model to achieve a closed formula illustrating how short- and long-term multipliers of government expenditure are not objective when the econometrician ignores the endogenous elements of the public policy. The authors rely on Edgeworth complementarity/substitutability between private consumption and public spending in the mechanism of government expenditure transmission. The literature considers other mechanisms, but regardless of them P. Fève and fellow researchers examine the logarithmic and linear equilibrium of production. Their research begins with an analysis of a representative household aiming to maximize the following formula¹⁵¹:

$$E_t \sum_{i=0}^{\infty} \beta^i \left\{ \log(c_{t+i} + \alpha_g g_{t+i}) - \frac{\eta}{1+\nu} n_{t+i}^{1+\nu} \right\}, \quad (3)$$

with a specific sequence of budget restrictions ($t \geq 0$):

$$c_t + E_t \{q_{t,t+1} b_{t+1}\} = w_t n_t - T_t + b_t, \quad (4)$$

where $E_t \{\bullet\}$ is the operator of expectations dependent on the available information in t time; $\beta \in (0,1)$ is a subjective discount factor; c_t is private consumption; g_t means public spending; n_t is labour supply; w_t is a real wage rate; T_t means lump sum tax. According to Frisch, the flexibility of labour supply

¹⁴⁹ N. Batini et al. (2014), as above, p. 21.

¹⁵⁰ M. Chinn (2013), as above.

¹⁵¹ P. Fève, J. Matheron, J.G. Sahuc (2013), A Pitfall with Estimated DSGE-Based Government Spending Multipliers, "American Economic Journal: Macroeconomics", 5(4), pp. 143-144.

amounts to $1/\nu$ and $\eta > 0$ is a scale parameter. Finally, b_{t+1} means the value in the period $t + 1$ of the household's bond portfolio at the end of the period t . The portfolio includes contingent liabilities of the state since the authors assume that financial markets are complete. Market value of such a package of contingent liabilities of the state in t period is expressed by $E_t \{q_{t,t+1} b_{t+1}\}$, where random variable $q_{t,t+1}$ is a stochastic factor that discounts the price of any financial liabilities¹⁵².

Parameter α_g is responsible for complementarity/substitutability between private consumption c_t and public spending g_t . If $\alpha_g > 0$, then government expenditure is the substitute for private consumption, whereas if $\alpha_g = 1$, then it constitutes an excellent substitution¹⁵³. In this case, the constant growth in government expenditure has no effect on the production, however, it reduces private consumption by means of a perfect crowding out effect. In particular cases, when $\alpha_g = 0$, a standard model of business cycle can be obtained, with government expenditure operating through a negative impact of income on labour supply. When the parameter $\alpha_g < 0$, then the government expenditure is a supplement of private consumption. At such a time, it may happen (depending on the flexibility of labour supply) that the private consumption responds positively to the unexpected increase in government expenditure¹⁵⁴.

The next model equation applies to the representative of the company producing homogeneous final goods y_t that uses work as the sole outlay, depending on the technology of permanent scale effects¹⁵⁵:

$$y_t = e^{z_t} n_t. \quad (5)$$

z_t is the shock for the entire factor productivity and it is assumed to be independent and identically dispersed: $z_t \sim N(0, \sigma_z^2)$. The maximization of profit means that the marginal workforce productivity equals real wage, i.e. $w_t = e^{z_t}$.

Government purchases are entirely financed by taxes¹⁵⁶:

$$T_t = g_t. \quad (6)$$

The most recent literature stresses the significance of stabilization policy in terms of government expenditure. P. Fève and fellow researchers described the feedback rule assuming the following formula¹⁵⁷:

¹⁵² Ibidem, p. 144.

¹⁵³ L.J. Christiano, M. Eichenbaum (1992), *Current Real-Business-Cycle Theories and Aggregate Labor-Market Fluctuations*, "American Economic Review", 82(3).

¹⁵⁴ P. Fève et al. (2013), as above, p. 144.

¹⁵⁵ Ibidem, p. 145.

¹⁵⁶ Ibidem, p. 145.

$$g_t = \bar{g} \left(\frac{y_t}{y_{t-1}} \right)^{-\varphi_g} e^{u_t}, \quad \varphi_g \geq 0 \quad (7)$$

where \bar{g} is the scale factor that specifies the deterministic level of government expenditure in equilibrium, and φ_g regulates reactions g_t to the increase in production, while u_t represents a discretionary part of the policy and is assumed to be independent and identically dispersed: $u_t \sim N(0, \sigma_u^2)$.

The status of market settlements on the market for goods is described by the formula¹⁵⁸:

$$y_t = c_t + g_t. \quad (8)$$

Combining the first-order condition of households with regard to work with the condition of profit maximization and resource restrictions, P. Fève and fellow researchers finally reach the state of balance¹⁵⁹:

$$\eta y_t^\nu = \frac{e^{(1+\nu)z_t}}{y_t - (1 - \alpha_g)g_t}. \quad (9)$$

Conditions (7) and (9) together form a system of balance managing the economy dynamics. For the marginal consumption utility to be positive, the authors impose the restriction $\alpha_g > \frac{(s_g - 1)}{s_g}$, where $s_g \equiv \frac{\bar{g}}{y} \in [0, 1)$ is a ratio of public spending for production in equilibrium, while \bar{y} is the level of production in equilibrium¹⁶⁰.

Next, P. Fève and fellow researchers define the long-term multiplier of government expenditure. According to them, this multiplier marked with $\frac{\Delta y}{\Delta g}$, indicates the growth in production level in equilibrium \bar{y} to the growth of government expenditure in equilibrium \bar{g} ¹⁶¹:

$$\frac{\Delta y}{\Delta g} \equiv \frac{d\bar{y}}{d\bar{g}}. \quad (10)$$

¹⁵⁷ Ibidem, p. 145.

¹⁵⁸ Ibidem, p. 145.

¹⁵⁹ Ibidem, p. 145.

¹⁶⁰ Ibidem, p. 145.

¹⁶¹ Ibidem, p. 146.

The above definition and the structure of the presented model of economy provide key properties of long-term multipliers of government expenditure. On the basis of the presented assumptions, it can be concluded that the long-term multiplier of government expenditure assumes the form¹⁶²:

$$\frac{\Delta y}{\Delta g} = \frac{1 - \alpha_g}{1 + \nu[1 - s_g(1 - \alpha_g)]} \quad (11)$$

and is a decreasing function α_g .

This statement implies that, in the long term, the multiplier of government expenditure depends on the share of government expenditure in production (s_g) and on the reverse Frisch workforce flexibility (ν) and the parameter regulating the degree of Edgeworth complementarity between private consumption and government expenditure (α_g). It should be noted that, due to the restrictions of parameters discussed above, the multiplier is within the range $\left[0, \frac{1}{s}\right)$ ¹⁶³.

The above claim also implies that the multiplier is a decreasing function α_g . Indeed, as the growth α_g progresses, private consumption and public spending become more substitutable. Therefore, the crowding out effect in government consumption mechanically contributes to a lower multiplier. Also, it can be noted that the multiplier is a decreasing function ν . This means that the higher the variable ν , the smaller the flexibility of labour supply. In turn, smaller flexibility of labour supply reduces the negative wealth effect of government expenditure which leads to a lower multiplier. As a result, the multiplier is an increasing function of share of government expenditure in production s_g . Taking flexibility ν into account, this parameter regulates the total size of the negative wealth effect of government expenditure. Therefore, high value of s_g contributes to the high value of the multiplier¹⁶⁴.

P. Fève and fellow researchers define α as¹⁶⁵:

$$\alpha \equiv s_g \frac{\Delta y}{\Delta g}. \quad (12)$$

Considering the above the restrictions of parameters, $\alpha \in [0,1)$.

¹⁶² Ibidem, p. 146.

¹⁶³ Ibidem, p. 146.

¹⁶⁴ Ibidem, p. 146.

¹⁶⁵ Ibidem, p. 146.

4.2.3. The bucket approach

In the case of countries where fiscal multipliers are not easily accessible, general conclusions from literature concerning other countries can be applied. Specifically, it is possible to use the approach proposed by N. Batini and fellow researchers called the bucket approach, in which the examined countries are divided into three groups with similar multiplier values on the basis of their structural features¹⁶⁶.

The selection of features and calculating their marginal effect on the multipliers is based mostly on the research results of advanced countries. A simple method prepared by N. Batini and fellow researchers assumes that similar factors affect multipliers in the economies of emerging markets and low-income countries where empirical estimates and those based on the model are not commonly available and are often of low quality¹⁶⁷.

In the first year, the selection of general fiscal multipliers can be carried out in three stages. Firstly, the results should be ascribed to the appropriate country on the basis of how many structural features related to “large” multipliers it has. Definitions of features and thresholds are identical in all countries, except for the “safe” level of public debt which is probably lower in the economies of emerging markets and low-income countries, while developed economies can withstand a higher debt without compromising the access to the market. In particular, one should ascribe the value one to each of the following features occurring in a particular country¹⁶⁸:

- **Low level of trade openness.** The economy is relatively closed and the ratio between import and domestic demand, on average, have amounted to below 30% in the past five years.
- **High level of labour market rigidity.** The country has strong trade unions and/or its labour market is strongly regulated (indicatively, “strong” means that the rigidity of labour market amounts to 0.8-1 indexes of labour market rigidity with the scale ranging from 0 (poor) to 1 (strong) – just as in the case of J. Botero, S. Djankov, R. Porta and F.C. Lopez-De-Silanes¹⁶⁹).
- **Low level of automatic stabilizers.** Automatic stabilizers measured by the ratio of public spending to nominal GDP are low level (e.g. when the ratio is below 0.4).

¹⁶⁶ N. Batini et al. (2014), as above, p. 14.

¹⁶⁷ Ibidem, p. 14.

¹⁶⁸ Ibidem, pp. 14-15.

¹⁶⁹ See: J. Botero, S. Djankov, R. Porta, F.C. Lopez-De-Silanes (2004), *The Regulation of Labor*, “Quarterly Journal of Economics”, Vol. 119, No. 4.

- **Fixed or quasi-fixed foreign exchange rates.** Arranging the country's exchange rate is not entirely flexible. The countries might be ascribed the value one, if the annual statement concerning monetary arrangements and foreign exchange restrictions includes the following foreign exchange arrangements: lack of own legal tender; currency board; fixed exchange rate regime; stabilized exchange rate regime; crawling peg; exchange rate regime similar to crawling peg. The countries within one currency area generally receive 1 point (unless a fiscal shock takes place in all the countries at the same time, which most likely would result in a common reaction to foreign exchange rate).
- **Low or safe level of public debt.** Gross public debt of the country is below the level commonly considered "safe" by the financial markets (namely, with relatively low-risk premium). In developed economies, this level may be treated as 100% of GDP, whereas in the economies of emerging markets, the threshold amounting to 40% of GDP is applied. These thresholds are only indicative. In some cases, the debt ratio does not ensure proper pattern for the state of public finances and should be supplemented with other indicators of fiscal space, such as fiscal balance, share of debt against residents or status of public bonds as a safe harbour for investments in the countries with international currency.
- **Effective management of public expenses and state revenues.** On the expenditure side, the assessment might depend on the measurement structure of efficiency of the programme concerning government expenditure and financial liability. On the revenue side, the calculations of tax efficiency (measured as the ratio of actual potential tax revenue) may constitute the first evaluation.

Secondly, the results should be summed up to specify the likely multiplier level in the first year (low, medium or high) in the so-called "normal" times. Due to the limited empirical evidence concerning the relative significance of factors determining the multiplier level, all structural features receive identical weight. It may be assumed that the countries with total score ranging from 0 to 3 have a low level of multipliers, from 3 to 4 – medium, and from 4 to 6 – high. Because the scores in the aforementioned ranges overlap, the countries with a total score amounting to 3 or 4 can belong to two categories. This flexibility enables the use of factors specific for a given country as well as marginal values of structural features¹⁷⁰.

Table 4.1 presents the ranges of multipliers for particular categories in the first year. Instead of points, each group of countries is assigned a multiplier range to consider the differences between countries of the same group and to

¹⁷⁰ N. Batini et al. (2014), as above, pp. 15-16.

assess the selection of multipliers. The multipliers in the middle of the range (0.4-0.6) can be found in developed economies assuming that the fiscal shock (stimulus or exacerbation) is spread evenly between expenditure and revenue, and that cyclical conditions are “normal” (i.e. the demand gap is close to zero and the monetary policy is not limited). These three groups are also compliant in OECD with the distribution of multipliers based on models which are more or less evenly spread over three categories¹⁷¹.

Table 4.1. Ranges of multipliers in the first year (in normal times)

Category of country	Range of multiplier
Low level of multiplier	0.1-0.3
Medium level of multiplier	0.4-0.6
High level of multiplier	0.7-1.0

Source: N. Batini et al. (2014), as above, p. 16.

Thirdly, the score is raised or lowered depending on whether the country is during the term of any condition specified in the list of “business” features. Specifically¹⁷²:

- **The phase of the business cycle is adjusted.** If the economy is at the lowest point of the cycle, both the lower and the upper limit of multipliers is increased by approx. 60%. However, if the economy is in the peak phase of the cycle, both limits are reduced by 40%. When the demand gap equals zero, the adjustment should not be applied.
- **The monetary policy is adjusted.** If the monetary policy is ineffective, due to a low level of interest rates, the limits of multiplier range are increased by 30%. If the monetary policy is limited because of other reasons, multiplier ranges are increased by 0-30%.

However, the analysis of the impact of public spending on the economy does not enable a complete characterization of the macroeconomic situation. In addition, the borrowing needs of the state and public institutions should also be taken into account, i.e. the sources of financing state expenditure¹⁷³.

N. Batini and fellow researchers propose the use of a multiplied formula to consider the total impact of business features on the multiplier. The multiplier formula assumes that these characteristics interact with each other and conse-

¹⁷¹ Ibidem, p. 16.

¹⁷² Ibidem, pp. 16-17.

¹⁷³ B. Wieliczko, A. Kurdyś-Kujawska (2015), *Mechanizmy i impulsy fiskalne oddziałujące na rozwój wsi i rolnictwa (I)*, IERiGŻ, Warsaw, p. 103.

quently accumulate. In particular, the upper and lower limits of the multiplier range should be adjusted in the following way¹⁷⁴:

$$M = M_{NT} \cdot (1 + Cycle) \cdot (1 + Mon), \quad (13)$$

where: M is the final multiplier, M_{NT} is the multiplier in “normal times” (originating from the second stage), $Cycle$ is a cyclic factor ranging between -0.4 and +0.6, Mon is the coefficient of monetary policy ranging between 0 and 0.3.

To illustrate the presented method, N. Batini and fellow researchers have calculated on its basis a number of multipliers in the first year for the USA. They assumed that the United States have a negative supply gap. Tables 4.2 and 4.3 demonstrate how the general multiplier was taking shape in the first year. Despite the fact that the public debt in the USA amounted to over 100% of GDP, it was classified as “safe”¹⁷⁵.

Table 4.2. Score granted on the basis of structural features

Structural features	USA
Relatively closed country	1
Rigid labour market	0
Low level of automatic stabilizers	1
Fixed foreign exchange rates	0
Safe level of public debt	1
Effective management of expenditure and revenue	1
Total effect	4

Source: N. Batini et al. (2014), as above, p. 18.

Table 4.3. Introducing the multiplier in the first year by means of *the bucket approach*

	Result	Multiplier range	Value of the multiplier after raising or lowering the score
USA	4	Medium level (0.4-0.6)	0.6-0.9
USA	4	<u>High level (0.7-1.0)</u>	<u>1.0-1.4</u>

Source: N. Batini et al. (2014), as above, p. 18.

Because the total result amounts to 4, there is a possibility to choose the level of the multiplier (medium or high). Based on the existing empirical estimates and the prior knowledge, N. Batini and fellow researchers attribute the high level to the United States. The upper and lower ranges are regulated by the following factors: 0.3 (moderately negative demand gap) and 0.1 (limited monetary

¹⁷⁴ N. Batini et al. (2014), as above, p. 17.

¹⁷⁵ Ibidem, p. 18.

policy). The results of the presented approach appear reasonable¹⁷⁶. For comparison, A.J. Auerbach and Y. Gorodnichenko estimate that the multiplier of expenditure in the first year in recession amounts to approx. 1.4¹⁷⁷, while A. Baum and fellow researchers believe that the general multiplier during the economic slowdown amounts to 0.9 (assuming that half of the income can be attributed to expenditure)¹⁷⁸, and N. Batini, G. Callegari and G. Melina claim that with the same assumptions, the multiplier amounts to 1.2¹⁷⁹.

The bucket approach focuses on providing solely basic guidelines as to the size of fiscal multipliers and should not be used in a mechanical manner. Although fiscal multipliers in the economies of emerging markets and low-income countries may be similar in terms of coefficients to developed economies, it is important to remember that the presented approach was calibrated for the study based on the latter group. In every case, the assessment should be carried out on the basis of previous research and economic theories, modifying multipliers accordingly. N. Batini and fellow researchers provide examples where further regulation of the multiplier level may be justified¹⁸⁰:

- When a large part of economy is controlled by the government and the private sector is sufficiently small (has limited crowding out effect of private demand), the multiplier can be revised upwards.
- In the economies with fixed exchange rates but, due to a currency mismatch, limited monetary policy in terms of financial stability, the multiplier can be revised upwards as well.
- In cases when fiscal regulation is highly reliable, the multiplier can be revised downwards. It has been observed that confidence effects can decrease the costs of fiscal consolidation.

4.3. Size of fiscal multipliers

Multipliers are calculated assuming that the monetary policy is either defined by Taylor rule referring to the endogenous nominal interest rate, or alternatively by interest rates determined for the period of two years and treated as a binding imitation of interest rate condition close to zero (Zero Lower Bound – ZLB)¹⁸¹.

¹⁷⁶ Ibidem, p. 18.

¹⁷⁷ A.J. Auerbach, Y. Gorodnichenko (2012), *Measuring the Output Responses to Fiscal policy*, “American Economic Journal: Economic Policy”, Vol. 4(2).

¹⁷⁸ A. Baum et al. (2012), as above.

¹⁷⁹ N. Batini, G. Callegari, G. Melina (2012), *Successful Austerity in the United States, Europe and Japan*, IMF Working Paper, WP/12/190.

¹⁸⁰ N. Batini et al. (2014), as above, pp. 18-19.

¹⁸¹ J. Kilponen, M. Pisani, S. Schmidt, V. Corbo, T. Hledik, J. Hollmayr, S. Hurtado, P. Júlio, D. Kulikov, M. Lemoine, M. Lozej, H. Lundvall, J.R. Maria, B. Micallef, D. Papageorgiou,

Short-term multipliers are usually negative and below one in the absolute value. This result is permanent in terms of fiscal instrument, examined country and duration of the fiscal shock. Short-term tax multipliers (labour, consumption and capital) usually have smaller absolute value than the multipliers of government expenditure¹⁸².

Determining ZLB in a two-year period does not have any significant impact on the short-term multipliers associated with temporary tightening of fiscal policy in individual countries of the Eurozone. This is due to the fact that the monetary policy rate remains essentially on its baseline even when the monetary authority is free to adjust it to reflect the limited impact of the fiscal shock of a given country on the euro-zone economy. By contrast, ZLB has a quite significant impact on the size of multipliers if the fiscal shocks are simultaneously carried out in the euro-zone as a whole. In particular, the short-term multipliers of government expenditure become larger than one. The same applies to the countries from outside the euro-zone where the monetary policy is fixed in each country¹⁸³.

In short and long term, the effects of permanent fiscal shocks depend on fiscal instruments which react endogenously to the stabilization of public debt in the long run. Long-term multipliers are generally negative when the budgetary resources achieved after fiscal tightening are used to reduce lump-sum taxes. They are usually positive when the income tax rate of households decreases in the average and long term¹⁸⁴.

DSGE simulations and SVAR models, in the process of development since early 1990, suggest that in the first year, the multipliers generally fall within the range between 0 and 1, in the so-called “normal times”. The multipliers of expenditure seem to be larger than the multipliers of income. On the basis of the survey from 41 such tests, A. Mineshima, M. Poplawski-Ribeiro and A. Weber show that in the first year, multipliers on average reach 0.75 for government expenditure and 0.25 for budgetary income in developed economies. According to the latest plans of fiscal adjustment in these economies, it is assumed that two thirds are attributed to the measures of expenditure correction which in “normal times” gives a multiplier 0.6¹⁸⁵.

J. Rysanek, D. Sideris, C. Thomas, G. De Walque (2015), *Comparing fiscal multipliers across models and countries in Europe*, ECB Working Paper, No. 1760, p. 4.

¹⁸² Ibidem, p. 4.

¹⁸³ Ibidem, pp. 4-5.

¹⁸⁴ Ibidem, p. 5.

¹⁸⁵ N. Batini et al. (2014), as above, p. 6.

However, these standard results have been challenged by the newer literature. Firstly, numerous research proved that multipliers can exceed 1 in “abnormal” conditions – particularly if the economy goes through a significant economic downturn or if the monetary policy used is weakened. Secondly, some works where a new “story-telling” approach is used to identify the external fiscal shocks show larger tax multipliers than the conventional VAR models¹⁸⁶.

The “story-telling” approach is a methodological improvement in the traditional measurement of fiscal shocks but is not intended to directly determine the external fiscal shocks. From the tax perspective, the method uses the estimates of fiscal measures derived from budgetary documents¹⁸⁷ with the exception of a subset of tax measures undertaken in response to short-term macroeconomic fluctuations (since they are not exogenous)¹⁸⁸. On the expenditure side, some research uses information on the future military spending as a measure of external shocks¹⁸⁹. The point is that the military spending depends on wars and foreign policy changes, rather than concerns about the economic situation¹⁹⁰.

Little is known about the size of fiscal multipliers in the economies of emerging markets and low income countries. From a theoretical point of view, it is not clear whether the multipliers should be higher or lower than in developed economies¹⁹¹.

The available limited empirical literature suggests that multipliers in the economies of emerging markets and low income countries are smaller than in developed economies¹⁹². Some research even states that the multipliers are negative, especially in a longer perspective¹⁹³, also when the public debt is high¹⁹⁴.

¹⁸⁶ Ibidem, p. 6.

¹⁸⁷ C.D. Romer, D.H. Romer (2010), *The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks*, “American Economic Review”, 100(3).

¹⁸⁸ N. Batini et al. (2014), as above, p. 7.

¹⁸⁹ V. Ramey (2011), *Identifying Government Spending Shocks: It’s all in the Timing*, “Quarterly Journal of Economics”, Vol. 126, No. 1.

¹⁹⁰ C.D. Romer (2011), *What Do We Know About the Effects of Fiscal Policy? Separating Evidence From Ideology*, Hamilton College, November 7.

¹⁹¹ N. Batini et al. (2014), as above, p. 8.

¹⁹² See: M. Estevão, I. Samake (2013), *Economic Effects of Fiscal Consolidation with Debt Feedback*, IMF Working Paper WP/13/136; E. Ilzetzi, E.G. Mendoza, C.A. Vegh (2013), *How Big (Small?) Are Fiscal Multipliers?*, “Journal of Monetary Economics”, Vol. 60(2); E. Ilzetzi (2011), *Fiscal Policy and Debt Dynamics in Developing Countries*, Policy Research Working Paper Series 5666; IMF (2008), *Fiscal policy as a Countercyclical Tool*, “World Economic Outlook”, Chapter 5; A. Kraay (2012), *How large is the Government Spending Multiplier? Evidence From World Bank Lending*, “Quarterly Journal of Economics”, Vol. 127, No. 2.

¹⁹³ IMF (2008), as above, p. 166.

¹⁹⁴ A. Ghosh, L. Rahman (2008), *The Impact of Fiscal Adjustment on Economic Activity*, IMF, Washington (unpublished).

In terms of fiscal instruments, tax multipliers essentially appear similar to the multipliers of expenditure in the economies of emerging markets¹⁹⁵. E. Ilzetzki states that in these economies, the multipliers of expenditure range between 0.1 and 0.3, whereas the multipliers of revenue between 0.2 and 0.4 in a short term¹⁹⁶. The fact that the multipliers of expenditure in the economies of emerging markets are, on average, lower than in the developed economies may be associated with several factors, including the lack of spending efficiency, difficulties in developing expenditure or with compositional effects¹⁹⁷.

A. Mineshima, M. Poplawski-Ribeiro and A. Weber engaged in carrying out a complex review of fiscal multipliers in empirical literature. Conclusions they drew from this review were presented in their work. The sizes of multipliers found in literature were put together in two categories based on the methods used for calculating fiscal multipliers (i.e. VAR and DSGE)¹⁹⁸. Table 4.4 contains a summary of their conclusions.

Table 4.4. Ranges of fiscal multipliers at a given average and median

Specification	Based on the mid-range of 30% for all samples	Range for the entire sample	Average	Median
Multipliers of government expenditure	0.5 – 0.9	0.0 – 2.1	0.8	0.7
Multipliers of tax	0.1 – 0.3	-1.5 – 1.4	0.2	0.2
Multipliers of government expenditure for the USA	–	0.0 – 2.1	0.9	1.0
Multipliers of government expenditure for Europe	–	0.2 – 1.8	0.6	0.5

Source: own study based on A. Mineshima et al (2014), as above, p. 335.

The first category includes the multipliers of government expenditure that are positive and, based on the middle 30% range of all samples, are between 0.5 and 0.9, whereas on the range of the whole sample, between 0.0 and 2.1 with the average of 0.8 and the median of 0.7.

The second category includes the multipliers of tax. They are generally smaller than the multipliers of expenditures and, based on the middle 30% range of all samples, are between 0.1 and 0.3. Some tax multipliers may be negative and thus, in terms of the whole sample, they range between -1.5 and 1.4 with the average and the median of 0.2 each.

¹⁹⁵ N. Batini et al. (2014), as above, p. 8.

¹⁹⁶ E. Ilzetzki (2011), as above.

¹⁹⁷ N. Batini et al. (2014), as above, p. 8.

¹⁹⁸ A. Mineshima, M. Poplawski-Ribeiro, A. Weber (2014), *Size of Fiscal Multipliers*, [in:] ed. C. Cottarelli, P. Gerson, A. Senhadji, *Post-Crisis Fiscal Policy*, MIT Press, Cambridge, p. 335.

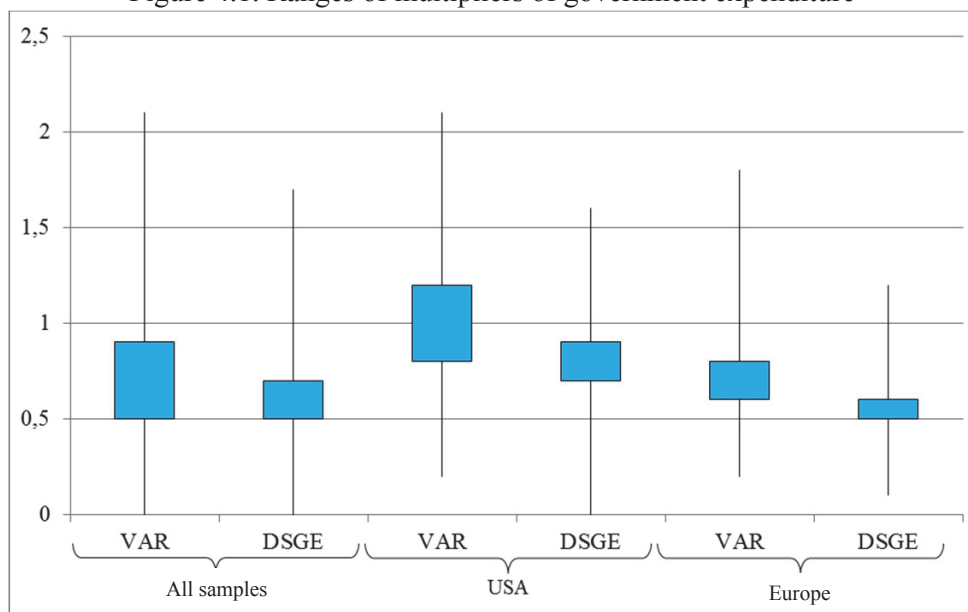
A. Mineshima and fellow researchers have also looked at the multipliers of government expenditure occurring in the United States and in Europe. They noticed that larger values of fiscal multipliers occur in the USA. The level of multipliers of government expenditure in the United States ranges between 0.0 and 2.1 with the average of 0.9 and the median of 1.0 and is higher than the level of multipliers of government expenditure in Europe where the multipliers range between 0.2 and 1.8 with the average of 0.6 and the median of 0.5¹⁹⁹. G. Coenen and fellow researchers demonstrate three likely causes of such a situation: firstly, Europe is more open, therefore the leakages of import are higher; secondly, the degree of nominal rigidity in Europe is higher, therefore the impact of expansive fiscal measures on inflation rate is higher particularly in Europe; and thirdly, the automatic stabilizers have a more substantive impact in Europe than in the United States. The authors believe that most differences between the levels of fiscal multipliers in Europe and the United States are explained by the higher nominal rigidity occurring in Europe²⁰⁰.

The conclusions are presented in Fig. 4.1 and 4.2.

¹⁹⁹ Ibidem, p. 335.

²⁰⁰ G. Coenen et al. (2010), as above.

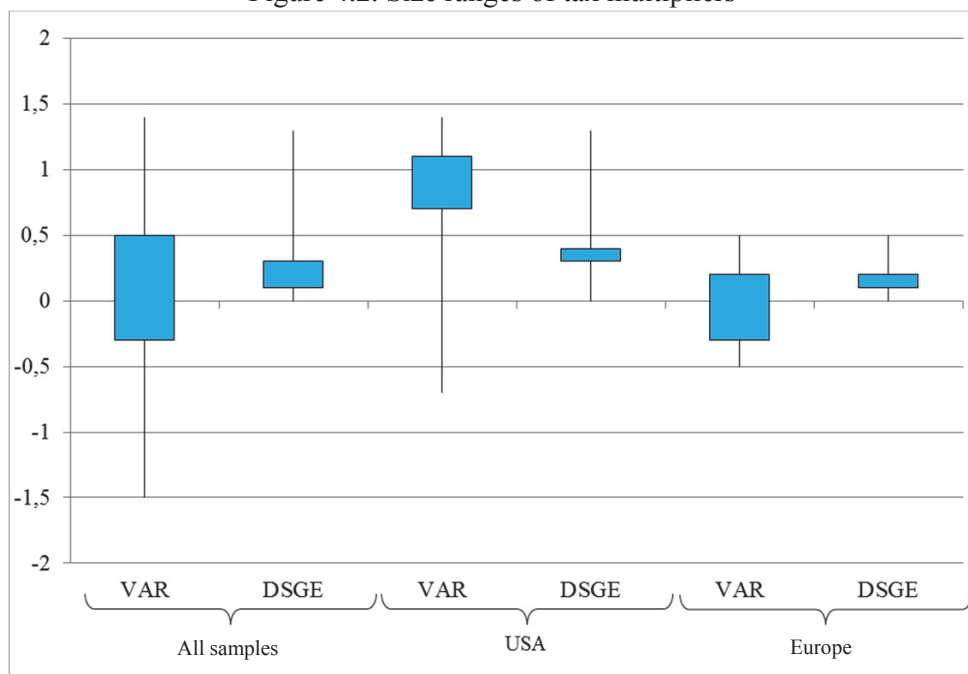
Figure 4.1. Ranges of multipliers of government expenditure



Source: own study based on A. Mineshima et al. (2014), as above, p. 335.

Figure 4.1 presents a graph with size ranges of multipliers of government expenditure. The straight lines represent ranges for the whole sample and the blue rectangles indicate ranges based on the average 30% range of all samples. The graph is divided into three categories: multiplier sizes derived from the review of literature and multiplier sizes in the United States and in Europe. Each category contains size ranges of multipliers calculated with the: VAR and DSGE methods. When analysing the presented graph, we can observe that the multipliers of government expenditure calculated with the VAR method have wider ranges than those calculated with the DSGE method. It is also possible to note that the level of multipliers in the United States is higher than in Europe.

Figure 4.2. Size ranges of tax multipliers



Source: own study based on A. Mineshima et al. (2014), as above, p. 335.

Figure 4.2 presents a graph with size ranges of tax multipliers. Symbols are identical as in Fig. 4.1. There is also a division into three identical categories with distinguished size ranges of multipliers calculated with the: VAR and DSGE methods. When analysing the presented graph, it can be noted that tax multipliers can take negative values but only in the case of the VAR method. Multipliers calculated with DSGE method are equal or higher than 0. It can be also observed that the level of tax multipliers, similarly as in the case of multipliers of government expenditure, is lower in Europe than in the United States.

Concluding from the latest scientific literature, fiscal multipliers vary in a number of dimensions. The dispute as to the size of fiscal multipliers in recent years has not yet been resolved despite broad empirical and theoretical analyses²⁰¹.

²⁰¹ J. Kilponen et al. (2015), as above, p. 4.

4.4. Determinants of fiscal multiplier size

In literature, there are usually two types of determinants of the size of fiscal multipliers²⁰²:

- structural characteristics of the country affecting the reaction of the economy to fiscal shocks in “normal times”;
- economic/temporary factors (predominantly cyclical or related to the policy of the phenomenon) making the multipliers diverge from “normal” levels.

Some structural characteristics affect the reaction of the economy to fiscal shocks in “normal times”. Because of that the empirical estimates of fiscal multipliers differ, in spite of the fact that the incremental impact of structural factors on the multipliers is unknown to a large extent. The key structural features include²⁰³:

- **Trade openness.** Countries with a lower propensity to import (i.e. large countries and/or countries only partially open to trade) usually have higher fiscal multipliers because the demand leakage through import is weaker.
- **Labour market rigidity.** Countries with more rigid labour markets (i.e. with stronger unions and/or stronger regulation of the labour market) have higher fiscal multipliers if the rigidity leads to the reduction of wage flexibility, since rigid wages have the tendency to strengthen the reaction of production to demand-based shocks.
- **Size of automatic stabilizers.** Higher automatic stabilizers reduce the value of fiscal multipliers because the automatic reaction of transfers and taxes balances the initial fiscal shock which reduces its impact on the GDP.
- **Exchange rate regime.** Countries with flexible exchange rate regimes have the tendency to lower multipliers because the changes in foreign exchange rates may contribute to balancing the impact of discretionary fiscal policy on the economy.
- **Level of indebtedness.** Countries with a high level of indebtedness have essentially lower multipliers and the fiscal consolidation (stimulus, as appropriate) might have a positive (negative, as appropriate) credibility and confidence which affect private demand and interest rate risk premium.
- **Management of public expenditure and administration revenue.** Multipliers have probably lower values when the problems with collecting taxes and spending inefficiency limit the impact of fiscal policy on the production²⁰⁴.

²⁰² N. Batini et al. (2014), as above, p. 9.

²⁰³ Ibidem, pp. 9-10.

²⁰⁴ This argument assumes in a non-open way that fiscal multipliers measure the impact of planned fiscal measures on the production, rather than the effect of actual changes in revenue or expenditure.

Economic (temporal) factors have the tendency to increase or decrease multipliers from their “normal” level. The contemporary literature identifies two basic factors²⁰⁵:

- **Phase of the business cycle.** Fiscal multipliers are commonly considered higher in the periods of economic slowdown rather than expansion. This applies both to fiscal consolidation as well as stimulus. The stimulus is less effective in times of expansion because, at full capacity, the increase in public demand replaces private demand leaving the production unchanged (at higher prices). The consolidation is more expensive in times of economic slowdown as far as production is concerned because the limited credit cannot be borrowed to maintain consumption. In addition, the period of economic slowdown affects the size of multipliers more than the economic recovery. In other words, the level of multipliers increases in times of recession and decreases in times of expansion. One of the reasons may be that the limitation of deliveries is asymmetric, whereas in times of economic recovery, the impact of fiscal policy is limited by a non-flexible pool of resources (and ultimately abolished when the economy reaches maximum efficiency and full work capacity). This limitation does not exist in times of economic stagnation, and the additional resources intended or separated by the government have a more direct impact on the production.
- **Degree of impact of accommodative monetary policy on fiscal shocks.** Expansionary monetary policy and reduction of interest rates may contribute to mitigating the impact of fiscal tightening on the demand. The value of multipliers may be potentially higher when the monetary policy used is weakened (as in the case of interest rates close to zero (ZLB)). The majority of literature focuses on the consequences of temporary increase in government procurements and states that the size of the multiplier in ZLB in “normal times” is significantly exceeded. This effect depends on a number of factors. C.J. Erceg and J. Linde demonstrate the size of shock in ZLB – the larger the freedom of increasing the spending, the shorter the time of economy remaining in ZLB, which means that the level of fiscal multiplier is lower.

4.5. Durability of fiscal multipliers

Understanding the shape and durability of fiscal multipliers is necessary to calculate the impact of fiscal policy on the production after the first year. A distinction should be made between the durability of multipliers and the durability of fiscal shocks, both conceptually and empirically (the latter depends on whether the fiscal measure is temporary or permanent). In general, based on the

²⁰⁵ N. Batini et al. (2014), as above, pp. 10-11.

econometric model and research, it can be observed that the impact of production on the exogenous fiscal shock vanishes within five years, even if the fiscal measures are permanent. The impact does not decrease in a linear manner but usually takes the shape of a reverse letter U with the maximum impact occurring in the second year²⁰⁶. On the basis of literature review conducted by A. Mine-shima and fellow researchers, the multiplier in the second year on average amounts to 10-30% more than in the first year²⁰⁷.

The duration of these effects depends on the following factors²⁰⁸:

- durability of fiscal shocks,
- type of fiscal instrument,
- factors related to the economic situation, such as cyclical positions or reactions of monetary policy to fiscal shocks.

Permanent fiscal measures usually have more durable impacts on the production than the temporary ones. DSGE models clearly distinguish temporary and permanent fiscal measures. In these models, temporary impact of a fiscal measure usually does not occur at the same time as the shock because future factors cannot affect temporary changes in their disposable income, while the limited credit can only affect at the time of the shock. For example, G. Coenen and fellow researchers indicate that the GDP will return to its baseline after two years if a two-year temporary growth of government consumption takes place. On the other hand, the effect of a permanent fiscal shock may be more durable, although generally it does not last longer than five years (partially due to the endogenous reaction to the prices and monetary policy)²⁰⁹.

The durability of the impact of discretionary fiscal policy on the production may, to some extent, depend on the fiscal instruments used. Model based literature shows that permanent discretionary changes in indirect taxes, government consumption and transfers have only short-term impacts on the production and usually disappear within five years²¹⁰. In turn, the impact on permanent discretionary changes in public investments or corporate taxes lasts longer and it even might be permanent, with multipliers continuously growing after the first year to reach long-term values²¹¹. This happens because corporate taxes have undesirable effects when it comes to investments which, in the long run, leads to the re-

²⁰⁶ N. Batini et al. (2012), as above.

²⁰⁷ N. Batini et al. (2014), as above, p. 12.

²⁰⁸ Ibidem, p. 12.

²⁰⁹ Ibidem, pp. 12-13.

²¹⁰ D. Anderson, B. Hunt, M. Kortelainen, M. Kumhof, D. Laxton, D. Muir, S. Mursula, S. Snudden (2013), *Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model*, IMF Working Paper, WP/13/55.

²¹¹ G. Coenen et al. (2010), as above.

duction of share capital and thus of economy's production capacities. Similarly, public investment cuts in the infrastructure sector can decrease the efficiency of the economy and thus have a long-lasting negative impact on production²¹².

The business cycle has an impact on the durability and the shape of fiscal multipliers as well. Fiscal shocks occurring in times of recession or when the production is below its potential may have a more durable impact due to the hysteresis effect²¹³ or because the measures limiting the access to credit cannot balance the declining disposable income through loans. The shape of multipliers also depends on the phase of the business cycle. A.J. Auerbach and Y. Gorodnichenko show that the level of multipliers is constantly growing if the initial expenditure shock takes place in the time of recession, and is constantly falling if the shock takes place in the time of expansion²¹⁴.

To sum up, the monetary policy is an important indicator of durability. Durability is higher if the monetary policy does not compensate for the fiscal shocks (i.e. by raising interest rates in response to the fiscal stimulus or by increasing money supply in response to the fiscal tightening). DSGE models demonstrate that even if the fiscal shock is of temporary character, the stimuli based on public consumption permanently for two years can have a positive impact on the production even for the period of five years, if there is no reaction of the monetary policy²¹⁵. By contrast, if the monetary policy balances the fiscal shock, its impact will not last beyond the duration of the fiscal stimulus²¹⁶.

²¹² N. Batini et al. (2014), as above, p. 13.

²¹³ IMF (2011), *Separated at Birth? The Twin Budget and Trade Balances*, "World Economic Outlook", Chapter 4.

²¹⁴ A.J. Auerbach, Y. Gorodnichenko (2012), as above.

²¹⁵ G. Coenen et al. (2010), as above.

²¹⁶ N. Batini et al. (2014), as above, p. 13.

Summary

Although the issues presented in this monograph are very diverse thematically, all of the presented research and analyses tackle the problem of efficiency and effectiveness of the state policy towards agriculture and rural areas. At the same time, this publication can be a valuable point of reference in the already ongoing large-scale debate on the future of the Common Agricultural Policy. In the discussion about the CAP 2020+ numerous opinions have already been expressed arguing for a different potential directions of changes in the first (e.g. Matthews, 2016), as well as the second pillar of the CAP (e.g. T. Dax, A. Copus, 2016). The opinions presented so far in this discussion concern both budgetary issues as well as the future shape of the CAP instruments, including their impact on the environment. Thus, the issues discussed in the monograph directly relate to the problems of the future of the EU agricultural policy.

The diversity of the issues raised in the publication also shows the complexity of decision problems facing policymakers towards rural areas and agriculture. It seems that currently the most visible problems are two issues – how to ensure efficient financial support and methods for a wider and more effective integration of the problem of externalities into agricultural policy. These problems are rarely tackled in a single research study, making it difficult to find comprehensive solutions, so it is worth noting that the research task “Fiscal mechanisms and stimuli having their influence on the rural development, returnable financing and quasi-marketable instruments for internalization of external effects in agriculture, the provision of public goods”, linking these issues is particularly valuable in terms of trying to analyse ways and means for harmoniously linking up the issues of financial support and access to finance with the problems of the environment in agricultural policy. In subsequent years, within this task further research will be carried out on how to approach each of these issues in the most beneficial way for the farmer, the taxpayer and the environment.

In this monograph we signalled the importance of pollution generated by the agriculture in the subject of climate change. However, greenhouse gas emissions are not the only negative side effect of agricultural activity. No less important are the issues related to water resources and ground water contamination by nitrogen coming from fertilizers used in agriculture. As indicated in the first chapter of the monograph there is a variety of market and quasi-market mechanisms to mitigate the adverse environmental effects of economic activity, but many of them are still, both for technical reasons as well as organizational or political, at least difficult to implement. However, many problems remain poorly

recognized or unexplored due to the still low degree of cooperation between scientists from different fields and disciplines. As indicated by M. Cox and others, there is a large potential for interdisciplinary cooperation, which could lead to the synthesis of theory in the field of natural resource management²¹⁷.

Policy instruments for the protection of the environment are changing very quickly. The same applies to their assessment. A few decades ago reluctantly perceived was the system of “cap and trade” and there were doubts in the possibility of implementation of such a system²¹⁸. The same now applies to the possibility of popularizing the use of financial instruments, including guarantees and loan guarantees, in rural development programmes. The key seems to be implementing a number of pilot programmes that could show the practical problems of implementation of different instruments and demonstrate their real advantages and disadvantages. Moreover, using such experimental instruments limited as regards scale, also makes it possible to determine what economic and behavioural factors determine the involvement of different groups of potential beneficiaries in the use of such instruments.

²¹⁷ M. Cox, S. Villamayor-Tomas, G. Epstein, L. Evans, N.C. Ban, F. Fleischman, M. Nenadovic, G. Garcia-Lopez (2016), *Synthesizing theories of natural resource management and governance*, “Global Environmental Change”, vol. 39 (2016), pp. 45-56.

²¹⁸ R. Schmalensee, R.N. Stavins (2015), *Lessons Learned from Three Decades of Experience with Cap-and-Trade*, NBER Working Paper no. 21742.

Literature

1. Abrell J., Faye A.N., Zachmann G. (2011), *Assessing the Impact of the EU ETS Using Firm Level Data*, Bruegel Working Paper, no. 2011/08.
2. Act of 14 March 2003 on Bank Gospodarstwa Krajowego (Journal of Laws 2003, No. 65 item 594).
3. Act of 8 May 1997 on Sureties and Guarantees granted by the State Treasury and Certain Legal Persons, as amended (Journal of Laws 2015, no. item 1052, 1854).
4. *Analiza ex ante instrumentów finansowych w perspektywie finansowej 2014-2020 w województwie warmińsko-mazurskim*, PSDB, Warszawa 2013.
5. Anderson D., Hunt B., Kortelainen M., Kumhof M., Laxton D., Muir D., Mursula S., Snudden S. (2013), *Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model*, IMF Working Paper, WP/13/55.
6. Auerbach A.J., Gorodnichenko Y. (2012), *Measuring the Output Responses to Fiscal Policy*, "American Economic Journal: Economic Policy", Vol. 4(2), 1-27.
7. *Badanie sieci funduszy poręczeniowych pod kątem nowych zasad UE dotyczących kwalifikowania poręczeń i gwarancji jako pomocy publicznej*. Raport Końcowy, PAG Uniconsult, Warszawa 2010.
8. Barro R.J. (1974), *Are Governments Bonds Net Wealth?*, "Journal of Political Economy", 82(6), 1095-1117.
9. Bartkowiak B., (2009), *Fundusze pożyczkowe i poręczeniowe w finansowaniu małych i średnich przedsiębiorstw w Polsce*, Warszawa.
10. Batini N., Callegari G., Melina G. (2012), *Successful Austerity in the United States, Europe and Japan*, IMF Working Paper, WP/12/190.
11. Batini N., Eyraud L., Weber A. (2014), *A Simple Method to Compute Fiscal Multipliers*, IMF Working Paper, WP/14/93.
12. Baum A., Poplawski-Ribeiro M., Weber A. (2012), *Fiscal Multipliers and the State of the Economy*, IMF Working Paper, WP/12/286.
13. Baxter M., King R.G. (1993), *Fiscal policy in general equilibrium*, "American Economic Review", 83(3), 315-334.
14. Beck T., Klapper L.F., Mendoza J.C., (2008), *The Typology of Partial Credit Guarantee Funds around the World*, The World Bank Development Research Group Finance and Private Sector Team & Latin America & Caribbean Region Finance and Private Sector Development Department.

15. Bennetzen E.H., Pete Smith P., Porter J.R. (2016), *Agricultural production and greenhouse gas emissions from world regions – The major trends over 40 years*, Global Environmental Change, vo. 37, pp. 43-55.
16. Blanchard O., Perotti R. (2002), *An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output*, “Quarterly Journal of Economics”, Vol. 117, No. 4, 1329-1368.
17. Blanchard O., Quah D. (1989), *The Dynamic Effects of Aggregate Demand and Supply Disturbances*, “American Economic Review”, 79(4), 655-673.
18. Bose S., Bhanumurthy N.R. (2013), *Fiscal Multipliers for India*, http://www.nipfp.org.in/media/medialibrary/2013/09/WP_2013_125.pdf (11.12.2015).
19. Botero J., Djankov S., Porta R., Lopez-De-Silanes F.C. (2004), *The Regulation of Labor*, “Quarterly Journal of Economics”, Vol. 119, No. 4, 1339-1382.
20. Branger F., Lecuyer O., Quirion Ph. (2015), *The European Union Emissions Trading Scheme: should we throw the flagship out with the bathwater?*, WIREs Climate Change, no. 6 (1), pp. 9-16.
21. Brown L.M., Hanafi A., Petsonk A. (2012), *The EU Emissions Trading System. Results and Lessons Learned*, Environmental Defense Fund.
22. Chinn M. (2013), *Fiscal multipliers*, <http://www.ssc.wisc.edu/~mchinn/Fiscal%20Multipliers.pdf> (11.12.2015).
23. Christiano L.J., Eichenbaum M. (1992), *Current Real-Business-Cycle Theories and Aggregate Labor-Market Fluctuations*, “American Economic Review”, 82(3), 430-450.
24. Clarida R., Gali J. (1994), *Sources of Real Exchange Rate Fluctuations: How Important are Nominal Shocks?*, Carnegie-Rochester Conference Series on Public Policy, Vol. 41, 1-56.
25. Clo S. (2010), *Grandfathering, auctioning and Carbon Leakage: Assessing the inconsistencies of the new ETS Directive*, Energy Policy, vol. 38(2010), pp. 2420-2430.
26. Coenen G., Erceg C., Freedman C., Furceri D., Kumhof M., Lalonde R., Laxton D., Lindé J., Mourougane A., Muir D., Mursula S., de Resende C., Toberts J., Roeger W., Snudden S., Trabandt M., in’t Veld J. (2010), *Effects of Fiscal Stimulus in Structural Models*, IMF Working Paper, WP/10/73.
27. Commission Regulation (EU) No 702/2014 of 25 June 2014 declaring certain categories of aid in the agricultural and forestry sectors and in rural areas compatible with the internal market in application of Articles 107 and 108 of

- the Treaty on the Functioning of the European Union (Official Journal of EU L 193, 1.07.2014, p. 1).
28. Council Regulation (EC) No 1083/2006 of 11 July 2006 laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund and repealing Regulation (EC) No 1260/1999
 29. Cox M., Villamayor-Tomas S., Epstein G., Evans L., Ban N.C., Fleischman F., Nenadovic M., Garcia-Lopez G. (2016), *Synthesizing theories of natural resource management and governance*, “Global Environmental Change”, vol. 39 (2016), pp. 45-56.
 30. Dax T., Copus A. (2016), *The future of rural development [in:] Research for AGRI Committee – CAP Reform post-2020 – Challenges in Agriculture*, European Union, Brussels.
 31. Decision 2009/406/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community’s greenhouse gas emission reduction commitments up to 2020, OJ EU L140.
 32. Deelen L., Molenaar K., (2004), *Guarantee Funds for Small Enterprises*, International Labour Organization, Switzerland.
 33. Department of Agriculture, *Food and the Marine, 2015, Local Roots Global Reach. Food Wise 2015. A 10-year vision for the Irish agri-food sector*, Dublin.
 34. Dwyer J., Kubinakova K., Lewis N., Powell J., Viganì M., Fährmann B., Gocht A., Grajewski R., Coto Sauras M., Nieto Cachinero P., Mantino F., Berriet-Sollicé M., Pham H. (2016), *Research for AGRI Committee – Programmes implementing the 2015-2020 Rural Development Policy*, European Union.
 35. EBCI (2014), *Credit Guarantee Schemes for SME lending in Central, Eastern and South-Eastern Europe, A report by the Vienna Initiative Working Group on Credit Guarantee Schemes*.
 36. Efekty “Programu gwarancji de minimis” realizowanego przez Bank Gospodarstwa Krajowego, Bank Gospodarstwa Krajowego 2015.
 37. Estevão M., Samake I. (2013), *The Economic Effects of Fiscal Consolidation with Debt Feedback*, IMF Working Paper WP/13/136.
 38. European Commission (2015a), Communication from the Commission to the European Parliament, the Council, the European Economic and Social

- Committee and the Committee of the Regions. Commission Work Programme 2016. No time for business as usual, COM(2015)610 final.
39. European Commission (2015b), EU ETS Handbook.
 40. European Commission (2015c), *FI Compass – Financial Instrument products. Loans, guarantees, equity and quasi-equity*.
 41. European Commission (2015d), Summary report on the progress made in financing and implementing financial engineering instruments. Reported by managing authorities in accordance with Article 67(2)(j) of Council Regulation (EC) No 1083/2006. Programming period 2007-2013, Situation as at 31 December 2014.
 42. European Commission (2015e), COM(2015)642 – Report from the Commission – Second Biennial Report of the European Union under the UN Framework Convention on Climate Change (required under Article 18(1) of Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC and Decision 2/CP.17 of the Conference of Parties of the UNFCCC).
 43. European Commission (2016a), Competitiveness of Enterprises and SMEs – Loan Guarantee Facility, Implementation Update, EFI, Reporting: 30/06/2016.
 44. European Commission (2016b), Proposal for a Regulation of the European Parliament and of the Council on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry into the 2030 climate and energy framework and amending Regulation No 525/2013 of the European Parliament and the Council on a mechanism for monitoring and reporting greenhouse gas emissions and other information relevant to climate change, COM(2016)479.
 45. European Commission (2016c), Proposal for a Regulation of the European Parliament and of the Council on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 for a resilient Energy Union and to meet commitments under the Paris Agreement and amending Regulation No 525/2013 of the European Parliament and the Council on a mechanism for monitoring and reporting greenhouse gas emissions and other information relevant to climate change, COM(2016)482.

46. European Commission (2016d), Risk Sharing Instrument for Innovative and Research oriented SMEs and small Mid-Caps, Implementation Update, EFI, Reporting: 30/06/2016.
47. European Commission (2016e), Supporting study for the Evaluation of Decision No 406/2009/EC (Effort Sharing Decision). Final report.
48. European Court of Auditors (2015), *Are financial instruments a successful and promising tool in the rural development area?*, Special Report No 5/2015. Publications Office of the European Union, Luxembourg.
49. European Court of Auditors (2016), *Implementing the EU budget through financial instruments – lessons to be learnt from the 2007-2013 programme period*. Special Report No 19/2016. Publications Office of the European Union, Luxembourg.
50. Eyraud L., Weber A. (2012), *Debt Reduction during Fiscal Consolidations: The role of Fiscal Multipliers*, unpublished paper presented at the IMF surveillance meeting seminar of April 10.
51. Fellmann T., Van Doorslaer B., Witzke P., Huck I., Weiss F., Salputra G., Jansson T., Drabik D., Leip A. (2015), *An economic assessment of GHG mitigation policy options for EU agriculture*, Luxembourg, Publications Office of the European Commission.
52. Feng Z-H., Wei Y-M., Wang K. (2012), *Estimating risk for the carbon market via extreme value theory: An empirical analysis of the EU ETS*, Applied Energy 99 (2012), pp. 97-108.
53. Fève P., Matheron J., Sahuc J.G. (2013), *A Pitfall with Estimated DSGE-Based Government Spending Multipliers*, “American Economic Journal: Macroeconomics”, 5(4), 141-178.
54. *Financial Instruments: making funding go further 2015, Getting Rural Development Programmes Going*, EU Rural Review, 30-35.
55. Fischer C., Fox A.K. (2007), *Output-based allocation of emissions permits for mitigating tax and trade interactions*, “Land Economics”, vol. 83 (4), pp. 575-599.
56. Fowlie M., Perloff J.M. (2013), *Distributing pollution rights in cap-and-trade programs: are outcomes independent of allocation?*, “The Review of Economics and Statistics”, vol. 95 (5), pp. 1640-1652.
57. Gajewski M., Szucki J., (2013), *Ekspertyza nt. dobrych praktyk w zakresie rozwiązania problemów w dostępie do finansowania zwrotnego w wybranych krajach Europy, w tym w państwach regionu Europy Środkowo-Wschodniej*, Warszawa.

58. Gali J., López-Salido J.D., Vallés J. (2007), *Understanding the effects of government spending on consumption*, "Journal of the European Economic Association", 5(1), 227-270.
59. Ghosh A., Rahman L. (2008), *The Impact of Fiscal Adjustment on Economic Activity*, IMF, Washington (unpublished).
60. Green A., (2003), *Credit Guarantee Schemes for Small Enterprises: An Effective Instrument to Promote Private Sector-Led Growth?*, The United Nations Industrial Development Organization (UNIDO) Working Paper No 10.
61. <http://ec.europa.eu>
62. http://ec.europa.eu/regional_policy/what/future/publication/index_pl.cfm
63. http://enrd.ec.europa.eu/_en
64. http://www.efi.org/news_centre/publications/EIF_AGRI_guarantee_facility
65. <http://www.aecm.eu>
66. <http://www.arimir.gov.pl>
67. <http://www.bgk.pl>
68. Ilzetzki E. (2011), *Fiscal Policy and Debt Dynamics in Developing Countries*, Policy Research Working Paper Series 5666.
69. Ilzetzki E., Mendoza E.G., Vegh C.A. (2013), *How Big (Small?) Are Fiscal Multipliers?*, "Journal of Monetary Economics", Vol. 60(2), 239-254.
70. IMF (2008), *Fiscal Policy as a Countercyclical Tool*, "World Economic Outlook", Chapter 5, 159-196.
71. IMF (2011), *Separated at Birth? The Twin Budget and Trade Balances*, "World Economic Outlook", Chapter 4, pp. 135-160.
72. Implementation of the First Pillar of the CAP 2014-2020 in the EU Member States, European Union, 2015.
73. *Innowacyjne Instrumenty Finansowe w politykach UE. Dotychczasowe doświadczenia i wnioski dla projektowania PROW 2014-2020*, Fundacja Programów Pomocy dla Rolnictwa, Warszawa 2012.
74. IPCC (2006). *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Downloaded from: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html> (10.05.2016).
75. Jouré J., Houssein G., Monjon S. (2013), *Border carbon adjustment in Europe and trade retaliation: what would be the cost for the European Union*, Working Paper 2013-34, CEPII.
76. Kagan A. (2016), *Wybrane prawne determinant konkurencyjności wielkotowarowych przedsiębiorstw rolnych*, IERiGŻ-PIB, Warszawa.

77. Kantor Management Consultants S.A., *Synthesis of Ex ante Evaluations of Rural Development Programmes 2014-2020. Final Report*, 2015.
78. Kata R., (2010), *Korzystanie przez rolników i przedsiębiorców wiejskich z usług bankowych – analiza preferencji i ograniczeń*, *Zagadnienia Ekonomiki Rolnej* Nr 1 (322).
79. Kata R., Walenia A., (2015), *Wykluczenie finansowe rolników i przedsiębiorców wiejskich*, *Journal of Agribusiness and Rural Development* 2 (36).
80. Kemkes R.J., Farley J., Koliba Ch.J. (2010), *Determining when payments are an effective policy approach to ecosystem service provision*, *Ecological Economics* 69 (2010), 2069-2074.
81. Kilponen J., Pisani M., Schmidt S., Corbo V., Hledik T., Hollmayr J., Hurtado S., Júlio P., Kulikov D., Lemoine M., Lozej M., Lundvall H., Maria J. R., Micallef B., Papageorgiou D., Rysanek J., Sideris D., Thomas C., De Walque G. (2015), *Comparing fiscal multipliers across models and countries in Europe*, ECB Working Paper, No. 1760.
82. Kraay A. (2012), *How large is the Government Spending Multiplier? Evidence from World Bank Lending*, "Quarterly Journal of Economics", Vol. 127, No. 2, 829-887.
83. Kulawik J., Wieliczko B. (2013), *Polityka pieniężna a kredytowanie rolnictwa*, "Zagadnienia Ekonomiki Rolnej", no. 4(337), 20-40.
84. Kusideł E. (2000), *Modele wektorowo-autoregresyjne VAR. Metodologia i zastosowania* [in:] ed. Suhecki B., *Dane panelowe i modelowanie wielowymiarowe w badaniach ekonomicznych*, Wydawnictwo Absolwent, Łódź.
85. Lankoski J. (2016), *Alternative Payment Approaches for Biodiversity Conservation in Agriculture*, OECD Food, Agriculture and Fisheries Papers, No. 93, OECD Publishing, Paris.
86. Laying T., Sato M., Grubb M., Comberti C. (2014), *The effects and side-effects of the EU emissions trading scheme*, *Wiley Interdisciplinary Reviews: Climate Change*, vol. 5, no. 4, pp. 509-19.
87. Lepczyński B., Penczar M., (2013), *Znaczenie instrumentów zwrotnych w ograniczaniu luki finansowej i podnoszeniu bezpieczeństwa finansowego przedsiębiorstw z sektora MSP*, *Journal of Management and Finance* 4/4.
88. Lockie (2013), *Market instruments, ecosystem services, and property rights: Assumptions and conditions for sustained social and ecological benefits*, "Land Use Policy", vol. 31, pp. 90-98.

89. Martin R., Muûls M., de Preux L.B., Wagner U.J. (2014), *On the empirical content of carbon leakage criteria in the EU Emissions Trading Scheme*, Ecological Economics no. 105, pp. 78-88.
90. Matthes F.C. (2008), *What makes a sector with significant cost increase subject to leakage?* [in:] Neuhoff K., Matthes F.C. (eds.), *The Role of Auctions for Emissions Trading. Climate Strategies*, pp. 29-35 (Ch. 4).
91. Matthews A. (2016), *The future of direct payments*, [in:] *Research for AGRI Committee – CAP Reform post-2020 – Challenges in Agriculture*, European Union, Brussels.
92. Miler C. (ed.), (2013), *Case Studies on Credit Guarantee Funds for Agriculture*, FAO, Rome.
93. Milt A.W., Armsworth P.R. (2017), *Performance of a cap and trade system for managing environmental impacts of shale gas surface infrastructure*, Ecological Economics 131, pp. 399-406.
94. Mineshima A., Poplawski-Ribeiro M., Weber A. (2014), *Size of Fiscal Multipliers*, [in:] ed. Cottarelli C., Gerson P., Senhadji A., *Post-Crisis Fiscal Policy*, MIT Press, Cambridge, 315-372.
95. Mountford A., Uhlig H. (2009), *What are the effects of fiscal policy shocks?*, “Journal of Applied Econometrics”, 24(6), pp. 960-992.
96. OECD (2012), *SME and Entrepreneurship Financing: The Role of Credit Guarantee Schemes and Mutual Guarantee Societies in supporting finance for small and medium-sized enterprises*, 2012.
97. Ordinance of the Council of Ministers of 27 January 2015 on the detailed scope and methods of implementation of certain tasks of ARMA (Journal of Laws No. 187, as amended).
98. Ordinance of the Council of Ministers of 30 January 1996 on detailed directions of activities of ARMA and methods of their implementation (Journal of Laws No. 1, item 82, as amended).
99. Pérez Domínguez I., Fellmann T., Weiss F., Witzke P., Barreiro-Hurlé J., Himics M., Jansson T., Salputra G., Leip A. (2016), *An economic assessment of GHG mitigation policy options for EU agriculture (EcAMPA 2)*, JRC Science for Policy Report.
100. Pérez-Domínguez I., Britz W., Holm-Müller K. (2009), *Trading schemes for greenhouse gas emissions from European agriculture: A comparative analysis based on different implementation options*, “Review of Agricultural and Environmental Studies”, vol. 90(3), pp. 287-308.

101. Perthuis Ch., Trotignon R. (2013), *Governance of CO₂ markets: Lessons from the EU ETS*, Les Cahiers de la Chaire Economie du Climat, Working Paper Series, no. 2013/07.
102. Pirard R., Lapeyre R. (2014), *Classifying market-based instruments for ecosystem services: A guide to the literature jungle*, "Ecosystem Services", vol. 9, pp. 106-114.
103. Próchniak J. (2010), *Ocena działalności systemu funduszy poręczeń kredytowych w Polsce*, Oeconomia Copernicana nr 1.
104. Program rządowy "Wspieranie przedsiębiorczości z wykorzystaniem poręczeń i gwarancji BGK" z 2015 roku.
105. Ramey V. (2011), *Can Government Purchases Stimulate the Economy?*, "Journal of Economic Literature", 49(3), 673-685.
106. Ramey V. (2011), *Identifying Government Spending Shocks: It's all in the Timing*, "Quarterly Journal of Economics", Vol. 126, No. 1, 1-50.
107. Rao S., Klimont Z., Smith S.J., Van Dingenen R., Dentener F., Bouwman L., Riahi K., Amann M., Bodirsky B.L., Van Vuuren D.P., Reis L.A., Calvin K., Drouet L., Fricko O., Fujimori S., Gernaat D., Havlik P., Harmsen M., Hasegawa T., Heyes C., Hilaire J., Luderer G., Masui T., Stehfest E., Strefler J., Van der Sluis S., Tavoni M. (2016), *Future air pollution in the Shared Socio-economic Pathways*, Global Environmental Change.
108. Raport o stanie funduszy poręczeniowych w Polsce – stan na dzień 31.12.2014 r., Krajowe Stowarzyszenie Funduszy Poręczeniowych, Warsaw 2015.
109. Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 (Official Journal of the EU of 20.12.2013, L 347).
110. Riahi K., van Vuuren D.P., Kriegler E., Edmonds J., O'Neill B.C., Fujimori S., Bauer N., Calvin K., Dellink R., Fricko O., Lutz W., Popp A., Cuaresma J.C., Samir K.C., Leimbach M., Jiang L., Kram T., Rao S., Emmerling J., Ebi K., Hasegawa T., Havlik P., Humpenöder F., Da Silva L.A., Smith S., Stehfest E., Bosetti V., Eom J., Gernaat D., Masui T., Rogelj J., Strefler J., Drouet L., Krey V., Luderer G., Harmsen M., Takahashi K., Baumstark L., Doelman J.C., Kainuma M., Klimont Z., Marangoni G., Lotze-Campen H., Obersteiner M., Tabeau A., Tavoni M. (2016), *The Shared Socioeconomic Pathways and their energy, land use, and green-*

house gas emissions implications: An overview, Global Environmental Change.

111. Romer C.D. (2011), *What Do We Know About the Effects of Fiscal Policy? Separating Evidence From Ideology*, Hamilton College, November 7.
112. Romer C.D., Romer D.H. (2010), *The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks*, "American Economic Review", 100(3), 763-801.
113. Schmalensee R., Stavins R.N. (2015), *Lessons Learned from Three Decades of Experience with Cap-and-Trade*, NBER Working Paper no. 21742.
114. Sims C. (1980), *Macroeconomics and reality*, "Econometrica", 48(1), 1-48.
115. Snodgrass D. (2014), *Agricultural transformation in sub-Saharan Africa and the role of the multiplier: A literature Review*, Report No. 4, USAID LEO.
116. Spilimbergo A., Symansky S., Schindler M. (2009), *Fiscal Multipliers*, IMF Staff Position Note, SPN/09/11.
117. Szucki J., Gajewski M., Tamowicz P., Przybyłowski M., Kubajek R., Penszko P. (2013), *Ocena realizacji instrumentów inżynierii finansowej w ramach NSRO 2007-2013*. Raport końcowy, Warszawa.
118. Vatn A., Barton D.N., Porras I., Rusch G.M., Stenslie E. (2014), *Payments for Nature Values Market and Non-market Instruments*, Norad report 5/2014.
119. Venmans F. (2012), *A literature-based multi-criteria evaluation of the EU ETS*, Renewable and Sustainable Energy Reviews, no. 16, pp. 5493-5510.
120. Wieliczko B., (2016), *Czy warto stosować instrumenty finansowe w programach rozwoju obszarów wiejskich?*, Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie, Problemy Rolnictwa Światowego vol. 16 (XXXI), issue 1.
121. Wieliczko B., Kurdyś-Kujawska A. (2015), *Mechanizmy i impulsy fiskalne oddziałujące na rozwój wsi i rolnictwa (I)*, IERiGŻ-PIB, Monografie Programu Wieloletniego, Warszawa, pp. 28-29.
122. Zander R., Miller C., Mhlanga N., (2013), *Credit Guarantee Systems for Agriculture and Rural Enterprise Development*, FAO, Roma.
123. Zhang Q., Wang, Q-M., Liang, H. Chen (2016), *A bibliometric analysis of research on carbon tax from 1989 to 2014*, Renewable and Sustainable Energy Reviews vol. 58(2016), pp. 297-310.
124. Zhang Y-J., Wei Y-M. (2010), *An overview of current research on EU ETS: Evidence from its operating mechanism and economic effect*, Applied Energy, no. 87, pp. 1804-1814.

COPY FREE

*Print run: 250 copies, 9.83 publisher`s sheets
Printing and binding: EXPOL Wloclawek*