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**BIOFUEL PRODUCTION SUPPORT MECHANISMS
– THEIR UTILIZATION GROWTH FACTOR****MECHANIZMY WSPIERANIA PRODUKCJI BIOPALIW –
CZYNNIKIEM WZROSTU ICH WYKORZYSTANIA****Abstract**

Domestic policies to support biofuel production respond to different policy goals associated with biofuel production. Today a new policy interest is added, driven by the potential of biofuels to contribute to ameliorating the problem of global warming. All this implies that these policies cover a range of sectors, typically including energy, agriculture, industry and trade. Given that, on the one hand, costs of biofuels production are higher than those of conventional fuels and, on the other hand, there are positive externalities associated with biofuels, the use of some form of public policy is essential to make biofuel production competitive. The use of policy tools such as the setting of national targets for the blending of biofuels with standard fuels, tax benefits, subsidies and loan guarantees to encourage greater production and consumption has been the rule rather than the exception behind the development of this market. The European Union's 2001 RES-E directive.

Keywords: biofuel production, production support mechanisms

Streszczenie

Polityka wewnętrzna wspierania produkcji biopaliw realizuje różne cele, z których jednym z najważniejszych jest obecnie redukcja globalnego ocieplenia klimatu. Skutkuje to faktem, że polityka wewnętrzna w tym zakresie obejmuje energetykę, rolnictwo, przemysł i handel. Biorąc po uwagę, że z jednej strony koszt produkcji biopaliw jest wyższy niż paliw konwencjonalnych, a z drugiej – efekty zewnętrzne wykorzystania biopaliw są pozytywne, wykorzystanie pewnych mechanizmów wspierania pozwala na stworzenie warunków konkurencyjności produkcji biopaliw. Wykorzystanie mechanizmów polityki wspierania produkcji biopaliw, takich jak określenie narodowych celów wielkości domieszki biopaliw w paliwach konwencjonalnych, korzyści podatkowe, subwencje i pożyczki są zachętą do zwiększania produkcji i wykorzystania biopaliw, pozwalając między innymi na spełnienie wymagań Dyrektywy Unii Europejskiej z 2001 r. o odnawialnych źródłach energii (RES).

Słowa kluczowe: produkcja biopaliw, mechanizmy wsparcia produkcji

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1. Introduction

Biofuels are products that can be processed into liquid fuels for either transport or heating purposes. Bioethanol is produced from agricultural products including starchy and cereal crops such as sugarcane, corn, beets, wheat, and sorghum. Biodiesel is made from oil – or tree-seeds such as rapeseed, sunflower, soya, palm, coconut or jatropha.

Although efforts to produce biofuels date back to the early days of the automobile (particularly the successful experience of the PROALCOOL Program launched by Brazil in 1975), biofuels have only started to be seen as a serious alternative to oil worldwide over the last seven years. Their reduced carbon emissions compared to conventional fuels and their positive impacts on rural development, together with the current high oil prices, are key elements behind their market development. The perceived benefits of biofuels are reflected in the increasing number of countries introducing or planning to introduce policies to increase the proportion of biofuels within their energy portfolio. If this is to be achieved, significant increases in production are required rapidly to satisfy greater global demand. For instance, the EU's goal of 5.75 per cent biofuel content in the fuel transport blend by 2010 will require a fivefold increase in EU production. With the Kyoto Protocol coming into force and implementation of different domestic measures for biofuels, global biofuel production is expected to quadruple in the next twenty years, accounting for about 10 per cent of world motor petroleum. Currently very little biofuel enters international markets since the bulk of it is consumed domestically. However, trade in biofuels is expected to expand rapidly, as many countries will not have the domestic capacity to supply their internal markets.

Governments will need to create the conditions both at global and national levels for increased production and trade. Despite enthusiastic views on the potential of biofuels for sustainable development, there is currently very little research on the links between biofuel production, trade and sustainable development. Existing research focuses on the economic and technological aspects of biofuel production. Research on environmental aspects tends to concentrate on their energy balance and potential for reduced GHG emissions. Almost no research has been done on the trade aspects or the wider implications for sustainable development of trade in biofuels.

2. The role of domestic policies in biofuel market development

Domestic policies to support biofuel production respond to different policy goals associated with biofuel production. Earlier experiences such as those of the US and Brazil were mainly motivated by pressure to reduce the import bill and increase energy security, though rural support appeared as an important driver in a later stage of these experiences.

Today a new policy interest is added, driven by the potential of biofuels to contribute to ameliorating the problem of global warming. All this implies that these policies cover a range of sectors, typically including energy, agriculture, industry and trade.

Given that, on the one hand, costs of biofuels production are higher than those of conventional fuels and, on the other hand, there are positive externalities associated with biofuels, the use of some form of public policy is essential to make biofuel production competitive in the earliest stages of industry development. The use of policy tools such as

the setting of national targets for the blending of biofuels with standard fuels, tax benefits, subsidies and loan guarantees to encourage greater production and consumption has been the rule rather than the exception behind the development of this market.

In the EU, biodiesel began to be promoted in the 1980s as a means to prevent the decline of rural areas while responding to increasing levels of energy demand. However, it only began to be widely developed in the second half of the 1990s. Key policies affecting the European market for biofuels include energy, agriculture and climate change policies.

In 2003, the EU approved two draft directives concerning energy supply diversification and the reduction of GHG emissions. Directive 2003/30/EC sets indicative targets for biofuel consumption in the transport sector: biofuels must constitute 2 per cent of all gasoline and diesel motor fuels by 2005 and 5.75 per cent 2010. Although these targets are not mandatory, member states must keep the EC informed about the measures taken to reach them. Directive 2003/96/EC complements this policy providing a legal framework to differentiate taxation between biofuels and conventional fuels. The minimum excise rates for unleaded premium, diesel fuel and heating oil effective from January 2004 were: € 359/m³, € 302/m³ and € 21/m³, respectively. For diesel, the minimum rate will be raised to € 330/m³ by January 2010. In addition, a number of EU countries have implemented tax credit for biofuels, including Germany, Sweden and Spain, at 100 per cent.

On the agricultural side, the 2003 EU Common Agricultural Policy (CAP) Reform introduced the 'Carbon Credit', which pays € 45/ha to growers of energy crops, up to 1.5 million hectares. Carbon credit is available for all agricultural crops except sugar beets and hemp, as long as they are used for approved energy uses and have a contract for this purpose. EU farmers cannot get carbon credit for energy crops grown on set-aside land.

The amount of oilseeds that can be grown within the EU is set by the Blair House Agreement (BHA), which restricts the maximum EU oilseeds area for food use to 4.9 million ha and also limits the annual output of side products (oil meals) from oilseeds (rapeseed, sunflower seed and soyabeans) planted on set-aside land for industrial purposes to 1 million MT annually of soyabean equivalent.

In 2005 the EU released the Biomass Action Plan, which suggests a possible revision of the 2003 Biofuels Directive. It encourages, among other things, a closer look at the second generation of biofuels, and the use of bioethanol to reduce demand for diesel, and public procurement of clean vehicles – including those using high biofuel blends. In February 2006 the EU launched the Biofuels Strategy which is a coordinated action plan to promote sustainable large-scale production and use of biofuels in the EU and developing countries. The strategy is a cross-sectoral initiative that contains seven policy axes, some of them based on measures described above but also including some new areas: stimulating demand; capturing environmental benefits; developing the production and distribution of biofuels; expanding feedstock supplies; enhancing trade opportunities; supporting developing countries; and supporting research and development. In addition to the examples above, many other countries – in the industrialised and developing world – have either implemented or are implementing policy tools to support biofuel market development. Table 1 summarises some of these.

These policies play a crucial role in industry's development. However, the existence of a learning curve – as the Brazilian experience shows – suggests that the level of support can be diminished over time. On the other hand, they can also constitute very costly barriers to

trade, especially for those most efficient developing countries that have less financial capacity to support their industry.

Table 1

Examples of policy tools for biofuel market development

Country	Production support	Consumption support
Sweden	Tax incentives for new plant construction Access to EU CAP provisions Capital grants Quotas	Ethanol: Capped fuel tax exemptions (total tax exemption 520 EUR/m ³) Biodiesel: tax exemption 344 EUR/m ³
France	Tax exemption 380 EUR/m ³	Biodiesel: a tax break of 330 EUR/m ³ for motor fuel blends (with a quota of 387,500 tons) Pure biodiesel not covered
Germany	–	Ethanol: tax break of 54 EUR/m ³ Biodiesel: tax incentive of 470 EUR/m ³ , which includes carbon tax exemption
UK	–	Tax break of 20 p/l (138 EUR/m ³) for either ethanol or biodiesel
Spain	–	Ethanol: does not levy tax, granting total exemption equivalent to a tax break of 390 EUR/m ³ Biodiesel: no tax (savings the pump of 294 EUR/m ³)
Italy	–	Biodiesel: tax break full exemption of 403 EUR/m ³ (with a quota of 300,000 and used in motor fuel blends up to 5%) Total tax exemption when used in motor fuel blends (up to 2%)

EU (in general) target – according to the Directive 2003/30/EC – consumption of fuel mix in transport 5.75% by 2010.

An increase in trade in biofuels would imply crop expansion in several countries. This would have implications for sustainable development that would need to be investigated. On the one hand, biofuels could lead to greater economic gains, rural development (i.e. poverty reduction), and reduced GHG emissions compared to oil fuels. On the other hand, production of energy crops could cause expansion of the agricultural frontier, deforestation, monocropping, water pollution, the spread of GMOs, food security problems and poor labour conditions, amongst other concerns.

The positive impacts and trade-offs involved vary depending on the energy crop in question, conversion technology and the country under consideration. These need to become clearer.

3. Polish Biodiesel Output

Biodiesel production in Poland may surge to some 500,000 tonnes by 2010 if the government sticks to plans to introduce new legislation. Poland produced some 70,000 tonnes of biodiesel in 2006 and exported most of it to Germany. Domestic use of biofuels is

very low, with the maximum permitted use of biodiesel and ethanol in motor fuels now five percent. The EU has set a non-binding target of a 5.75 percent share for biofuels by 2010. Assuming diesel fuel use at some 7 million tonnes a year, biodiesel production would have to rise to at least 400,000 tonnes to reach the EU goals. Biofuels extracted from crops such as rapeseed, sugar and maize are used to power vehicles and seen as a way to limit the emissions that contribute to global warming. The EU produced 2.4 million tonnes of biofuels in 2007, including 0.5 million tonnes of bio-ethanol and 1.9 million tonnes of biodiesel.

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