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## **QUANTUM SATIS OF POLISH COMPANIES AND FARMS**

### **Abstract**

The authors prove that the number of companies operating in an economy is connected with the number of households. They show how this relation (a proportionality factor  $\alpha$ ) shaped historically in Poland. The factor turned out to be a good measure to describe the social and economic changes in the country. It has also been used to compare economic structures of Poland and other developed economies of Europe and the USA. The authors suggest a *quantum satis* for Polish firms and farms at the level of 3.6 million since such a figure corresponds to the proportionality factor in the developed economies in the same period of time. They also propose a solution concerning registers of business activity, mainly the necessity of statistical monitoring of active businesses (firms and farms).

**Keywords:** relations in economy, firms and farms, households.

### **Introduction**

For decades it has been characteristic for the developed world economies that they contain a large number of small private enterprises. Unfortunately for Poland, in the past totalitarian regime people were not allowed to start private businesses, which was then accurately compared to ‘reversing the natural river flow.’<sup>1</sup> In those

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<sup>1</sup> E. Hozer, J. Hozer, *Przyczyny i skutki kryzysu gospodarczego w Polsce*, Wektory gospodarki, PTE, nr 5.89 (67), Warszawa 1989.

times the proper proportion between the number of households and firms was disturbed – there were too few businesses. The transformation process leading to the establishment of the market economy has triggered the Poles' business potential and creativity. In the span of merely two decades millions of new businesses have been set up.

The purpose of this paper is the analysis of the main economic proportion between the number of households and the number of firms in Poland in comparison to the developed economies of the USA and the European countries.

### 1. The Problem Characteristics in the Reference Literature

*Quantum satis* (Latin term) means the amount which is satisfactory or needed.<sup>2</sup> The paper discusses the satisfactory number of active businesses in Poland. The authors consider businesses to be both firms and farms.

Before the Second World War there were 510 thousands businesses in Poland. *Księga adresowa Polski* (the Address Book of Poland) with the list of all firms and their addresses was published in 1930. It shows how seriously the identification of the existing enterprises was treated. At the same time there were 2.3 million farms, which means that Poland was an agrarian country. Such an unfavourable structure hampered Poland's economic growth.<sup>3</sup> After the World War II small businesses were discriminated instead of being promoted to be the main drive for economic growth, as it happens in other properly functioning economies. In 1986 there were 540 thousands of firms (similarly to 1930) and 2.2 million farms, which again made Poland an agrarian economy where the number of farms outweighs the number of firms.

F. Jacob<sup>4</sup> said that diversity is the condition of change, i.e. of growth. He observed that prosperity is stimulated by diversity because the selection process takes place among non-identical individuals. These biological observations can be referred to economy where growth is also stimulated by the diversity of economic behaviour, attitudes and decisions. Therefore the opposition to diversity means the opposition to progress.

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<sup>2</sup> *Słownik wyrazów obcych PWN*, PWN, Warszawa 1980.

<sup>3</sup> E. Kwiatkowski, *Dysproporcje*, TSL, Warszawa 1931.

<sup>4</sup> F. Jacob, *Gra możliwości: Esej o różnorodności życia*, PIW, Warszawa 1987.

We live in the world where there are ‘vital few, trivial many’, which means that distributions of many attributes are characterised as being positively asymmetric and highly concentrated. It relates to the Pareto principle – Pareto observed that 80% of wealth belongs to 20% of the society, while the remaining 80% of people own the mere 20% of wealth. The Pareto principle says that a small amount of objects is related to a large amount of resources, and vice versa – a large amount of objects is related to a small amount of resources. This regularity is clearly seen in many economic categories, e.g. a large part of a company’s revenue is generated by a small number of clients, a vital value of sales comes from selling a small part of products from a firm’s offer, a significant part of a firm’s intellectual value is represented by a small group of employees, etc. The rule of ‘vital few, trivial many’ refers as well to the number and the size of businesses and it means that it is beneficial to any economy if it contains many micro businesses.

## 2. Methods

The basis for the method to find a right proportion between the number of households and the number of businesses was founded in 1975.<sup>5</sup>

Between the number of households and the number of firms there is a relation of coexistence:

$$G = \alpha \cdot X \quad (1)$$

where:

$G$  – number of households,

$X$  – number of business entities;  $X = X_1 + X_2$ ,

$X_1$  – number of firms,

$X_2$  – number of farms.

Another relation takes place as well:

$$X = \frac{L \cdot b \cdot c}{d} \quad (2)$$

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<sup>5</sup> J. Hozer, *O badaniu proporcji zmiennych*, “Przegląd Statystyczny” 1975, Vol. 1; *idem*, *Poszukiwanie norm proporcji gospodarczych*, “Przegląd Statystyczny” 1996, Vol. 1–2, *idem*, *Quantum satis przedsiębiorczości dzisiaj*, in: *Trendy i wyzwania zrównoważonego rozwoju*, ed. B. Kryk, Zapol, Szczecin 2011.

and:

$$G = \frac{L}{a} \quad (3)$$

where:

$X$  – number of business entities,

$L$  – population,

$G$  – number of households,

$a$  – average household size,

$b$  – percent of labour force,

$c$  – percent of labour force in business entities,

$d$  – average number of labour force in small firms and on farms.

Combined equations (2) and (3) take form:

$$Ga = X \cdot \frac{d}{b \cdot c} \quad (4)$$

thus:

$$G = \alpha \cdot X \quad (5)$$

$$\alpha = \frac{d}{a \cdot b \cdot c} \quad (6)$$

where:

$a$  – average household size,

$b$  – percent of labour force,

$c$  – percent of labour force in business entities,

$d$  – average labour force in firms and on farms,

$\alpha$  – constant of proportionality.

### 3. Description of the Results

In 1986–2010 the ratio between the numbers of households and businesses in Poland fluctuated. At the beginning of the period of study, i.e. in 1986, the number of businesses was too small. Two Polish economists E. and J. Hozer<sup>6</sup> suggested

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<sup>6</sup> E. Hozer, J. Hozer, *op.cit.*

that ‘Poland needs a million of small businesses at once.’ And indeed, in 1992 one million more firms operated on the Polish market. Table 1 shows how this relation looked like in the developed economies.

Table 1. The ratio of households to firms and farms in the developed world economies

Country	$G$	$X_1$	$X_2$	$\alpha = G/(X_1+X_2)$	$X_1/X_2$
	Households	Firms	Farms		
	million				
1992					
Europe (EEC)	110	13.5	8.5	<b>5</b>	1.6
USA	90	17.0	2.2	<b>5</b>	7.7
2010					
Europe (EU27)	209	21.0	28.0	<b>4</b>	0.8
USA	117	27.0	2.2	<b>4</b>	12.3

Source: own study on the basis of the GUS, Eurostat and the U.S. Census Bureau.

By means of the constant of proportionality  $\alpha$  we can compare economic structures in different periods of time. Both in 1992 and in 2010 in the two developed economies the ratio between households and businesses remained at exactly the same level. In the earlier period of study the ratio reached 5, which means that there was 1 business per 5 households. In 2010 the relation changed to 1 business per 4 households. According to J. Hozer<sup>7</sup> the ratio between the number of households representing the demand for goods and services and the number of businesses representing the supply on the competitive should fluctuate between 4 and 6. The optimum ratio value, however, is 5 since it satisfies the rule of *quantum satis*.

The denominator of the examined ratio ( $X$  – the number of businesses) has been enlarged by the number of farms due to the fact that they also create the area of economic activity based on private ownership. Farms are the equivalent of firms, only operating in agriculture. The more firms in the total number of businesses, the better the structure of businesses ( $X$ ). In the 1990s (1992) in Europe there were 160 firms per 100 farms, while in 2010 only 80 firms/100 farms. This undesirable structural change resulted from the accession to the European Union of many regions of agricultural character with plenty inefficient small farms. In the USA the number of farms has remained at the same level of 2.2 million for the last two decades. How-

<sup>7</sup> J. Hozer, *Poszukiwanie norm...; idem, Quantum saris...*

ever, the number of firms has grown, so the structure of businesses has changed for better.

Table 2. The ratio of the number of households to the number of firms in Poland

Year	$G$	$X_1$	$X_2$	$\alpha = G/(X_1 + X_2)$
	Households	Firms	Farms	
	million			
2010	14.5	2.1	1.5	<b>4</b>

Source: own study on the basis of the ZUS (the Social Insurance Institution).

In 2010 in Poland there were 14.5 million households, which in relation to all the operating businesses, i.e. 2.1 million firms and 1.5 million farms gives the constant of proportionality of 4 (see Table 2). The authors propose to adopt the *quantum satis* of firms and farms in Poland at 3.6 million because it corresponds to the constant of proportionality in the USA and the EU in the same period of time. They also suggest statistical monitoring of all active businesses, both firms and farms. According to the 2010 data published by the GUS there were 3.9 million firms in Poland, but the data provided by the ZUS showed that only 54% of them were actually in operation. The remaining 46% are just listed in the National Official Register of Business Entities REGON.

When observing the structure of the self-employed in Poland from the gender point of view, we can see that it is quite good in comparison to the more developed world economies. In Poland the rate of women in the total number of entrepreneurs is higher than in the rest of Europe and the same as in the USA. In 2011 both in Poland and the USA there were 34 women per 100 of entrepreneurs, while in Europe – only 30.

## Conclusions

The relation between the number of households and the number of firms is one of the most principal economic proportions. The analysis of this proportion in Poland in comparison to other developed world economies proves that the number of businesses operating in the country is on the right level. The authors propose to adopt the *quantum satis* of firms and farms in Poland on the level of app. 3.5 million

because it corresponds to the constant of proportionality in the USA and in the EU in the same period of time.

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## QUANTUM SATIS DLA FIRM I FARM W POLSCE

### Streszczenie

Autorzy udowadniają, że liczba firm funkcjonujących w gospodarce jest związana z liczbą gospodarstw domowych. Prezentują kształtowanie się tej relacji (współczynnik proporcjonalności  $\alpha$ ) dla Polski w różnych okresach czasu. Współczynnik okazał się być dobrą miarą opisującą zmiany rozwoju społeczno-gospodarczego kraju. Miara posłużyła również do porównań struktur gospodarczych Polski i rozwiniętych gospodarek: Europy i USA. Zaproponowano przyjęcie *quantum satis* firm i farm w Polsce na poziomie 3,6 mln, ponieważ odpowiada ona współczynnikowi proporcjonalności takiemu jak w gospodarkach rozwiniętych w tym samym okresie.

**Słowa kluczowe:** związek w ekonomii, firmy i farmy, gospodarstwa domowe.

