Chapter 14
The Diversification of the Creative Activity of Men and Women in Poland, Hungary, Ireland, and Norway

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ABSTRACT

This chapter presents the results of the new aspect of patent statistics exploration which is the identification of women and men being inventors of patents and evaluation their creative activity. Two research objectives were formulated: first to explore the diversification of the dynamics of change for the patent activity of men and women and second, to identify the diversification of the accumulation of the patent activity of men and women for the entire period of 1999-2013 in the following countries under examination: Ireland, Poland, Hungary and Norway. The main conclusion is that the greatest dynamics of change in the number of women who were the creators of the patents was observed in Ireland 17.45% per year. The greatest patent activity of women from all the countries under analysis who were the creators of the patent was observed in the manufacture of chemicals, chemical products and fibers.

1. INTRODUCTION

Patent statistics is currently subject to a variety of exploratory studies. In relevant literature it is perceived as, among others, the measure of innovation (Griliches 1990, Chesbrough, 2011), competitiveness (Innovation Union Scoreboard, 2014), specialisation creativity (McGowan, 1987, Florida, 2010, Dyer, Gregersen & Christensen, 2011), intellectual property, effects achieved thanks to investments into research and development and the level of the technological advancement of countries, regions and individual businesses. Patent activity is also considered a component of innovative potential. It may also serve as the measure of the creative involvement of men and women into developing the innovative potential of countries. Two research objectives were formulated in this study. The first one involves the exploration

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of the diversification of the dynamics of change for the patent activity of men and women in selected countries. The other one aims to identify the diversification of the accumulation of the patent activity of men and women for the entire study duration in the selected countries. Patents are considered a form of legal protection of inventions, in particular with respect to the exclusive right of inventors to use them for business purposes. Individual countries have their own patent bodies that grant legal protection following the provisions on intellectual property protection applied by the legal system in force in a given country. When comparative studies of patent statistics from various countries are conducted, it is necessary to maintain the principle of legal equality as regards the rules for patent granting, which is possible if legal protection is obtained from the European Patent Office (EPO). This is why the data used in this study came from the EPO patent statistics for the countries included in the study. This involves, in particular, selected information provided in the patent description, such as the IPC code and the list of creators of each patent. The study of the diversification of patent activity includes three EU member states which are most often subject to comparative studies, Poland, Hungary and Ireland, and one non-EU country, Norway. The period under analysis was that of 1999 – 2013 due to the availability of as complete patent descriptions as possible, especially with regard to the creators of the patents granted by EPO. The first research objective was achieved thanks to the application of such a statistical tool as the average rate of change of the studied phenomenon over time (Freedman, Pisani, Purves, 2007). The second research objective was achieved by the application of two concordance tables: IPC/NACE (Okoń-Horodyńska, Wisła, Sierotowicz, 2012) and WIPO IPC/TECH (WIPO, 2014b).

2. THE EVALUATION METHOD FOR THE DIVERSIFICATION OF THE PATENT ACTIVITY OF MEN AND WOMEN

The following research objectives were formulated in this study:

1. To explore the diversification of the dynamics of change for the patent activity of men and women in selected countries;
2. To identify the diversification of the accumulation of the patent activity of men and women in selected countries for the entire period under analysis.

The scope of the study was determined by the application of the EPO patent databases, which served as the data source, and IPC/NACE concordance tables (Okoń-Horodyńska, Wisła, Sierotowicz, 2012) as well as WIPO IPC/TECH concordance tables (WIPO, 2014b), which were the tool applied to achieve the second research objective. The study involves the period of 1999 – 2013 defined by the patent grant date, thanks to the completeness of the descriptions available from the EPO database. As the source data does not include information about the inventor's gender, the numbers of male and female inventors were identified on the basis of male and female first names provided in the descriptions of inventors.

The achievement of the first research objective required the application of the statistical tool of the average rate of change (Freedman, Pisani, Purves, 2007). The tool made it possible to conduct an analysis and evaluation of the dynamics of change for the patent activity of men and women in the period under analysis. The calculations of the average rate of change were made on the basis of equations 1 and 2: