

## THE ASSORTMENT AND PRODUCTION TECHNOLOGY PROGRESS IN WOOD PROCESSING IN POLAND

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### Abstract

Changes in product structure and production technology are one of the most important factors responsible for the company existence on the market. Especially during the collapse of world trade and the higher demands of customers for a product the enterprises should still improve the technological process to meet the growing competitiveness. For this reason, not only the wood industry companies should carried the appropriate investments on innovation.

**Key words:** innovation, production technology progress, wood industry

### Introduction

Technical progress is expressed by changes in the design and production technology and the main goals of these changes are the profitable economic effects. The economic effects are achieved by an increase of the sold production as a result of improvements. The increase of the sold production usually leads to industry share market increase.

The most important result of technological progress is to improve the production profitability by higher prices and selling more modern and high-quality products, which can effectively compete in the European Union market.

### The Progress in the implementation of new products and technologies in Poland

Basic measure of the implementation of new products to production and trade is the rate of production recovery. It is the ratio of the value of sold new products to the value of total sold production.

Values of this index against the total industry in Poland are not favorable. In 2007 the value for total industry reached 23%, in the wood industry much less, because only 7%, and in particular wood industries, namely: in the furniture industry 11%, and only 6% in the sawmill industry. Only the level of the rate of production recovery of the pulp and paper industry reached a similar level to innovation at industry in general, namely approximately 23%.

Detailed data of the new products are shown in table 1 and figure 1.

**Table 1. The share of sold new products in the 2002-2007 in the medium and large enterprises in Poland**

Industry	The share of sold new products (%)					
	2002	2003	2004	2005	2006	2007
Total	16,7	20,6	20,9	21,8	22,4	22,6
Wood and wood products production	7,2	7,3	9,2	8,7	7,1	5,9
Furniture production	12,6	15,8	7,4	8,5	8,8	11,2
Pulp and paper production	4,0	10,1	14,5	18,1	20,2	22,4

*Source: Author's own calculations based on Główny Urząd Statystyczny data (Central Statistical Office)*

The data analysis allow to determine that the wood industry recovery production rates look far worse in the background of the total industry production; only the recovery production rates for pulp and paper industry notes significant progress in improving of the production assortment structure.

This condition can be explained by the nature of the wood industry, where there are no

such large needs and possibilities of meaningful verification of production assortment structure, as in the electronics or clothing industry. In the pulp and paper industry, there is a clear necessity to implement new products in the field of of paper and cellulose processing, because of rapidly growing printing industry and newer paper products being introduced on the demanding European Union market.

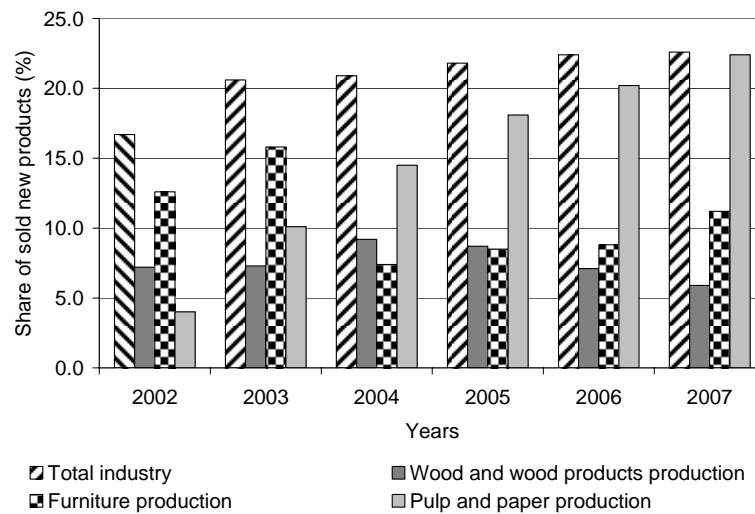


Fig. 1. The share of sold new products in the 2002-2007 in small and medium enterprises in Poland

**The capital expenditures for technological progress in Wood industry enterprises at the background of the total industry**

Technological progress is usually associated with the necessity to invest more in the innovation field. The key measure here is the ratio of

expenditures to the value of revenue from the sale of goods and services. Interesting changes of this indicator in 2002-2007, are shown in the Table 2.

Table 2. The ratios of expenditure for innovation in relation to sales revenue

Industry	The ratios of expenditure for innovation							
	2002		2003		2004		2005	
	MIn PLN	%	MIn PLN	%	MIn PLN	%	MIn PLN	%
Total	13848,1	-	15890,2	-	15417,0	-	14669,6	-
Wood and wood products production	233,4	1,7	220,8	1,4	605,9	3,9	386,1	2,6
Furniture production	251,3	1,8	337,9	2,1	428,7	2,8	493,9	3,4
Pulp and paper production	174,9	1,3	259,6	1,6	260,3	1,7	219,2	1,5

Source: Author's own calculations based on Główny Urząd Statystyczny data (Central Statistical Office)

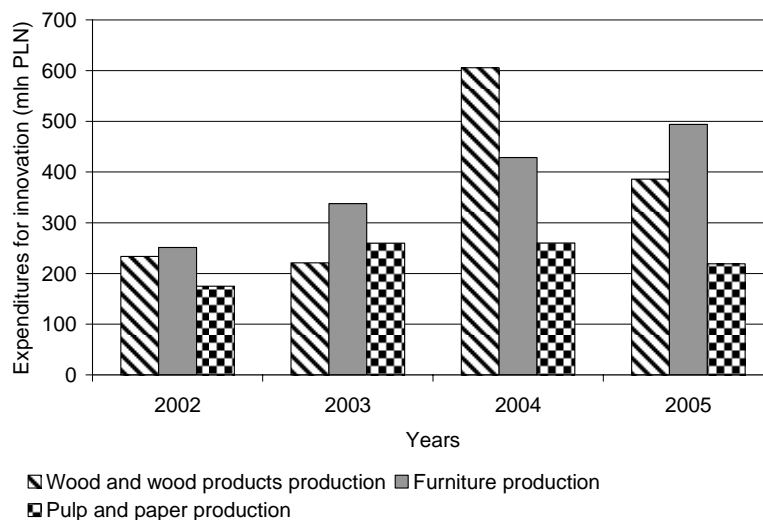


Fig. 2. The ratios of expenditure for innovation in relation to sales revenue

Data analysis shows a systematic increase in the ratio of expenditure for innovation, particu-

larly strong in the furniture industry, which

forced by competition increases efforts to stay on the market or even increases share in it.

Similar situation is observed in the entire industry of wood and wood products production, where values of this indicator systematically increase. Lack of growth is observed only in the

pulp and paper industry, where probably already the necessary modernization was made.

#### The Structure of expenditure for innovation

Table 3. shows the categories of expenditures on innovation in industry.

**Table 3. The structure of expenditures on technical progress in the wood industry on the total industry background**

Industry		Categories of expenditure in innovation (%)					
		Research	Licenses	Buildings and structures	Machines and equipment	Training	Marketing
Total	2002	9,3	3,0	20,1	62,8	0,2	1,5
	2005	9,6	2,4	24,1	58,6	0,3	2,0
Wood and wood products production	2002	5,5	0,2	45,1	44,1	0,1	1,5
	2005	1,2	-	28,1	68,0	-	0,5
Furniture production	2002	0,3	0,4	13,0	82,5	-	-
	2005	2,3	2,6	36,1	55,0	0,2	1,6
Pulp and paper production	2002	2,6	5,5	12,8	75,1	0,1	0,1
	2005	4,9	4,4	12,4	73,7	-	1,3

Source: Author's own calculations based on Główny Urząd Statystyczny data (Central Statistical Office)

Table 3. analysis shows the advantage of expenditure on machines and equipment in relation to buildings and structures, which can be easily explained. Most of the expenditures are associated with means of production, and construction of production halls made of lightweight materials, which does not significantly increase the costs of investment. Investment expenses for machinery and equipment are noted from 55 to 82,5% of total expenditure and these expenses are highest of all categories of investment costs. Second category of expenditures are buildings and structure costs, which reach 45,1%. Substantial expenditures are incurred on machines and equipment, as they are actively involved in the production process, buildings are less important. The lowest expenditures are observed in the field of research, training and marketing costs, which seems to be unfavorable for the further development of the wood industry.

#### Conclusion

Wood industry because of its assortment production nature, especially wood processing, fibre- and particleboard, plywood industry is less susceptible to competitors pressure, than clothing, automobile or electronics industries. More investment needs are in the field of production technology, which is the reason of necessity to invest in new systems and production equipment. These expenditures share is considerably higher, which can improve the competition position of Polish wood industry enterprises in the open market of the European Union. However, it appears that investment expenditures on research, training and marketing should be higher to effectively compete with the wood industry enterprises of the European Union.

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