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The economic analysis of furniture production in several districts of Slovakia

Ekonomska analiza proizvodnje namještaja u nekoliko okruga Slovačke

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ABSTRACT • *The submitted paper proposes a method of evaluation of projects of both the small-scale and the large-scale furniture productions in five various districts of Slovakia. On the base of the technical coefficients of inputs and outputs and their market prices in districts, expected net annual cash-flows for each project were calculated in the presented analysis. Then an economic analysis of investment projects in each district was carried out. The measure of the internal rate of return was used, and, according to its level, equal to the social discount rate, economic prices of production outputs were derived. The obtained results can provide information for government institutions when deciding whether to subsidize furniture production in a particular district or not.*

Key words: *furniture production, economic analysis, investment projects, internal rate of return, economic prices.*

SAŽETAK • *U radu je predložena metoda vrednovanja projekata u proizvodnji namještaja manjeg i većeg obujma proizvodnje u pet različitih okruga Slovačke. Njih tri nalaze se u sjevernijem, pošumljenijem dijelu Slovačke (Spišská Nová Ves, Čadca i Dolný Kubín), dok su dva u južnijem, manje pošumljenom dijelu zemlje (Veľký Krtíš i Nové Zámky). U opisanoj analizi na bazi tehničkih koeficijenata ulaza i izlaza te njihovih tržišnih cijena izračunan je godišnji neto novčani tijek za svaki pojedini projekt. Provedena je i ekonomska analiza investicijskih projekata u svakom pojedinom okrugu. Primijenjena je mjera unutrašnjeg postotka povrata kapitala i prema njegovoj razini proračunane su diskontirane ekonomske*

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cijene izlaza proizvodnje. Dobiveni rezultati mogu koristiti vladinim institucijama kao pokazatelj je li razumno financijski podržati proizvodnju namještaja u pojedinom okrugu ili nije.

Prema dobivenim rezultatima očekivane neto dobiti po 1 m³ proizvedenog namještaja može se zaključiti da je najisplativije uložiti u proizvodnju većeg obujma u okrugu Spišská Nová Ves. Taj je projekt vrlo prihvatljiv i s gledišta opskrbe drvnim materijalom. Sljedeći najprihvatljiviji projekt jest projekt proizvodnje niskog obujma u okrugu Nové Zámky.

Ključne riječi: proizvodnja namještaja, ekonomska analiza, investicijski projekti, unutarnji postotak povrata kapitala, ekonomske cijene

1. INTRODUCTION

1. UVOD

The Slovak economy has already shown the first signs of changes in its economic activities after several years of a growth decrease. Macroeconomic measures have shown a desirable success in the transition of the country from a centrally planned to a market economy. The processing of wood in Slovakia has a long tradition. At present furniture production is the most lucrative activity within the whole wood-processing branch.

The aim of this paper is to propose a procedure which can help the Slovak government institutions to distribute credits and subsidies among small and medium furniture producing enterprises efficiently. Or, on the other hand, to avoid any waste of the limited means of the state budget by financing inefficient investments. The analysis covers five districts. Three of them belong to the mountainous northern parts of Slovakia, that is districts of Spišská Nová Ves, Čadca and Dolný Kubín, and two of them districts of Veľký Krtíš and Nové Zámky situated in a less afforested southern part of the country.

2. THE ANALYSIS DESCRIPTION IN FURNITURE PRODUCTION

2. OPIS ANALIZA U PROIZVODNJI NAMJEŠTAJA

The objective of the analysis was to get a brief account of the economic and financial background of the furniture production in districts as a whole. In the analyzed districts there is no wood processing plant which is still owned by the state. Therefore, at the decomposition and the analysis the state subsector was excluded from all further considerations. So furniture producing firms within the private subsector were divided according to the capacity of their production into two groups - the small - scale production subsector with less than 60 m³ of produced furniture per year and the large - scale production subsector with more than 60 m³ of produced furniture per year.

The important sources of raw timber available annually in districts are the basis for all wood-processing development. The annual allowable cut, market prices of timber expressed in Slovak crowns (Sk)* and the

Table 1.

The supplies, allowable cuts, market prices and the rank of districts according to the volumes of timber available • Zaliha, sječivi etat, tržišna cijena i redoslijed pojedinih okruga prema sječivom etatu

DISTRICT OKRUG	TIMBER VRSTA DRVA	[%]	ALLOWABLE CUT SJEČIVI ETAT [m ³]	MARKET PRICE TRŽIŠNA CIJENA [Sk/m ³]	RANK REDO- SLIJED
Spišská Nová Ves	coniferous četinjari	80.75	168 845	2 270,-	3
	non-coniferous lišćari	19.25			
Čadca	coniferous četinjari	94.66	194 069	2 055,-	1
	non-coniferous lišćari	5.34			
Dolný Kubín	coniferous četinjari	93.71	185 092	2 066,-	2
	non-coniferous lišćari	6.29			
Veľký Krtíš	coniferous četinjari	6.65	38 558	2 999,-	5
	non-coniferous lišćari	93.35			
Nové Zámky	coniferous četinjari	1.70	50 956	1 956,-	4
	non-coniferous lišćari	98.30			

rank of districts according to the volume of timber supply are presented in Table 1.

2.1. The cost-profit structure of furniture production

2.1. Struktura troškova i dobitka u proizvodnji namještaja

We set up input-output Tables for each subsector in order to calculate a total efficiency of production activities within the furniture production. Since technical efficiency of furniture production does not depend on the district but is determined by used technologies in a small-scale or a large-scale production, these Tables are the same for the production activity within the subsector in each district. Technical coefficients were set up by expert estimates and calculations according to the necessary technical equipment needed for a particular scale of production. With this aim in view we used data related to the capacity and technical properties of machinery, material consumption and the other necessary costs connected with the approximate approaching presented level and quality of production. The starting point for cost-profit calculations, concerning both the small-scale and the large-scale productions, were the data related to market prices of inputs and outputs gathered in each district. But, due to approaching objectives of the economic analysis we also used the economic prices of the labour force and capital.

The economic price of labour was calculated according to the highest average wage paid by a non-subsidized firm or subsector under analysis.

The actual interest rate corresponding to the interest rate paid for financial credit by the analysed firms at the district level reduced by the annual rate of inflation was taken as the private price for the capital using the well-known formula:

$$i_r = \frac{i_n - i_f}{1 + i_f} \quad (1)$$

where i_r - is the actual interest rate
 i_n - is the nominal interest rate paid for financial credits
 i_f - is the annual rate of inflation

The total annual costs of the capital equipment (K_c) included in the analysis were calculated by multiplying the difference of its present market value (M_c) and its present value of salvage (P_s) by the recovery ratio (R) as follows:

$$K_c = (M_c - P_s)R \quad (2)$$

where the private recovery ratio R equals to the expression:

$$R = \frac{(1 + i_r)^n \cdot i_r}{(1 + i_r)^n - 1} \quad (3)$$

and the assumed service life $n=8$ years.

The economic price of capital goods was derived following the same procedure as that stated for private capital prices. However, instead of the actual private interest rate, the actual social (economic) interest rate was used. Since a correct calculation of the actual economic interest rate is rather complex we used the recommendations of Henning [2]. According to his considerations the actual social interest rate in the Slovak Republic approximately equals 0.1.

All the above mentioned data were processed for the calculations of the annual cash-flows induced by the investment projects in each of the districts. As an example, we here present the cash-flow calculations for both the small - scale and the large - scale projects of the furniture production in the district of Spišská Nová Ves. They are presented in Table 2 and Table 3.

3. THE ECONOMIC ANALYSIS OF INVESTMENT PROJECTS
3. EKONOMSKA ANALIZA INVESTICIJSKIH PROJEKATA

The economic evaluation of both described subsectors in the districts is based on the analysis of specific investment projects consisting of input and output annual flows as they occur during the life of a project. Expected cash-flow horizon of 10 years was used. It is, in our view, a sufficiently long period for each project to prove its feasibility in the given conditions. All projects were evaluated and compared by using a measure of the internal rate of return (IRR). It is a relative measure of project value which gives information on the returns per unit of cost and thus provides more relevant information than the net present value (NPV). It is especially important for comparing the benefits which can be expected from alternative uses of a limited budget. Therefore, it is more useful for ranking independent project alternatives when it is not possible for the budget or other reasons to undertake all projects that meet the basic economic efficiency conditions.

When the calculated IRR for a project is higher than the social discount rate (SDR), the project can be acceptable from the social point of view. Moreover, such prices of outputs at which $IRR=SDR=0,10$ for each project, were calculated. (The trial and error method was used). Prices of this kind can be regarded as

1 DEM = 20 SK = 3,50 Kn

District: Spišská Nová Ves Okrug: Spišská Nová Ves		Investment project: furniture production, small-scale plant with < 60 m ³ per year Investicijski projekt: proizvodnja namještaja manjeg obujma, < 60 m ³ godišnje			
Flow input Ulazi za obračun		unit jedinica	price p. unit in Sk jedinичna cijena u Sk	units per year jedinica godišnje	costs per year in Sk godišnji troškovi u Sk
material / reprodukcijski materijal		Sk	89.962,40	60,00	5.397.684,81
sawn wood / piljenice		m ³	5.312,80	48,96	260.114,70
energy / energija		kWh	1,96	59.234,00	116.098,00
other materials / drugi materijal	total / ukupno	Sk/m ³	2.400,65	60,00	144.039,80
labour force / radna snaga	direct wages / izravne plaće	Sk	33,29	31.875,00	1.061.119,00
	indirect wages / neizravne plaće	Sk	45,96	6.375,00	292.998,00
	social earmarking/ izdvajanja	Sk			560.400,00
capital costs / kapitalni troškovi (strojevi, zgrade)		Sk	8.900,06	60,00	534.004,00
average annual repairs / prosječni godišnji remont		Sk	438,19	60,00	26.291,40
maintenance / održavanje		Sk	312,70	60,00	18.762,00
buildings / zgrade		Sk			
average annual repair / prosječno godišnje održavanje		Sk	240,36	60,00	14.421,60
maintenance / održavanje		Sk	625,00	60,00	37.500,00
external services / vanjske usluge	waste / otpad	Sk	1.447,11	60,00	86.826,60
other indirect costs / ostali neizravni troškovi		Sk	48,53	60,00	2.911,80
Total costs / Ukupni troškovi		Sk			141.660,00
					revenue per year in Sk
Output / Izlaz	products / proizvodi	m ³	161.103,10	60,00	9.666.186,00
	wood shavings / blanžano drvo	m ³	100,00	7,35	735,00
	cut-offs / iskrojeno drvo	m ³	200,00	17,65	3.530,00
	saw-dust / piljevina	m ³	90,00	4,41	397,00
Total output / Ukupno izlaz		Sk			9.670.848,00
Total annual cash-flow / Ukupni godišnji novčani tijek		Sk			1.117.676,29
General production method Metoda proizvodnje	Scale of production Obujam proizvodnje	Investment goods Investirana dobra	Main output Glavni izlaz	Side products Dodatni proizvodi	
furniture / namještaj	small / manji	machinery strojevi	furniture namještaj	cut-offs iskrojeno drvo	saw-dust piljevina
capacities / kapaciteti		Sk	m ³	m ³	m ³
assumed service life / pretpostavljeni rok trajanja	8 years / godina	2.800.000,00	60,00	17,65	4,41
		8 years / godina			
		50 years / godina			
					wood-shavings blanžano drvo
					m ³
					7,35

Table 2.

Calculation of the annual cash-flow induced by a specific investment project • Proračun godišnjeg novčanog tijeka potaknutog pojedinih investicijskim projektom.

District: Spišská Nová Ves Okruh: Spišská Nová Ves		Investment project: furniture production, large-scale plant with > 60 m ³ per year Investičijski projekt: proizvodnja namještaja većeg obujma, > 60 m ³ godišnje	
Flow input Ulazi za obračun			
material / reprodukcijski materijal	unit jedinica	price p. unit in Sk jedinичna cijena u Sk	units per year jedinica godišnje
sawn wood / piljenice	m ³	5.240,30	210,00
energy / energija	kWh	1,44	194,34
other materials / drugi materijal	Sk/m ³		280.165,20
labour force / radna snaga	Sk	31,54	210,00
direct wages / izravne plaće	Sk	44,24	80.750,00
indirect wages / neizravne plaće	Sk		10.625,00
social earmarking / izdvajanja	Sk		1.147.344,00
capital costs / kapitalni troškovi (strojevi, zgrade)	Sk	10.288,20	210,00
average annual repairs / prosječni godišnji remont	Sk	594,74	210,00
maintenance / održavanje	Sk	833,33	210,00
buildings / zgrade	Sk		
average annual repair / prosječno godišnje održavanje	Sk	356,60	210,00
maintenance / održavanje	Sk	404,80	210,00
purchased services / vanjske usluge	Sk	756,30	210,00
waste / otpad	Sk		
other indirect costs / ostali neizravni troškovi	Sk	25,47	210,00
Total costs / Ukupni troškovi	Sk		25.071.552,40
			revenue per year in Sk
			godišnji prihod u Sk
Output / Izlaz			
products / proizvodi	m ³	153.276,50	210,00
wood shavings / blanjano drvo	m ³	21,30	100,00
cut-offs / iskrojeno drvo	m ³	60,55	200,00
saw-dust / piljevina	m ³	30,27	90,00
Total output / Ukupno izlaz	Sk		32.205.029,00
Total annual cash-flow / Ukupni godišnji novčani tijek	Sk		7.133.476,60
General production method Metoda proizvodnje	Investment goods Investirana dobra	Main output Glavni izlazi	Side products Dodatni proizvodi
	machinery strojevi	furniture namještaj	cut-offs iskrojeno drvo
	Sk	m ³	m ³
furniture / namještaj	6.700.000,00	210,00	saw-dust piljevina
capacities / kapaciteti	8 years / godina		m ³
assumed service life / pretpostavljeni rok trajanja	50 years / godina		wood-shavings blanjano drvo
			m ³
			21,30

Table 3.

Calculation of the annual cash-flow induced by a specific investment project • Proračun godišnjeg novčanog tijeka potaknutog pojedinim investicijskim projektom.

economic prices of outputs in particular districts. By a simple comparison with the actual market prices of the same products it is possible to point out the economic efficiency of

their further production, or decide whether is reasonable to support them by government institutions or not. All these calculations are presented in Tables 4 -13.

Table 4

Investment project of the small-scale furniture production • Investicijski projekt proizvodnje namještaja manjeg obujma

District: Spišská Nová Ves					
Okrug: Spišská Nová Ves					
Investment project: furniture production, small-scale plant with < 60 m ³ per year					
Investicijski projekt: proizvodnja namještaja manjeg obujma, < 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					60 m ³
Market price of furniture / Tržišna cijena namještaja:					161.103,10 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					154.264,22 Sk/m ³
Years	Costs	Revenues	Cash-Flow	Adjusted Revenues	Adjusted Cash-Flow
Godine	Troškovi	Prihodi	Novčani tijek	Prilagođeni prihodi	Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	4.250.000,00	0,00	-4.250.000,00	0,00	-4.250.000,00
1	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
2	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
3	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
4	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
5	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
6	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
7	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
8	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
9	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
10	8.565.985,00	9.670.848,00	1.104.863,00	9.257.653,20	691.668,20
IRR			0,2261136		
IRR = SDR			0,100000091		

Table 5

Investment project of the large-scale furniture production • Investicijski projekt proizvodnje namještaja većeg obujma

District: Spišská Nová Ves					
Okrug: Spišská Nová Ves					
Investment project: furniture production, large-scale plant with > 60 m ³ per year					
Investicijski projekt: proizvodnja namještaja većeg obujma, > 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					210 m ³
Market price of furniture / Tržišna cijena namještaja:					153.276,50 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					126.435,89 Sk/m ³
Years	Costs	Revenues	Cash-Flow	Adjusted Revenues	Adjusted Cash-Flow
Godine	Troškovi	Prihodi	Novčani tijek	Prilagođeni prihodi	Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	9.100.000,00	0,00	-9.100.000,00	0,00	-9.100.000,00
1	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
2	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
3	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
4	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
5	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
6	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
7	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
8	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
9	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
10	25.070.553,00	32.205.029,00	7.134.476,00	26.551.537,00	1.480.983,90
IRR			0,7815746		
IRR = SDR			0,100000127		

District: Čadca Okruh: Čadca					
Investment project: furniture production, small-scale plant with < 60 m ³ per year Investičijski projekt: proizvodnja namještaja manjeg obujma, < 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					60 m ³
Market price of furniture / Tržišna cijena namještaja:					156.240,70 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					155.300,70 Sk/m ³
Years Godine	Costs Troškovi	Revenues Prihodi	Cash-Flow Novčani tijek	Adjusted Revenues Prilagođeni prihodi	Adjusted Cash-Flow Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	4.250.000,00	0,00	-4.250.000,00	0,00	-4.250.000,00
1	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
2	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
3	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
4	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
5	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
6	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
7	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
8	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
9	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
10	8.626.374,00	9.379.104,00	752.730,00	9.318.042,00	691.668,00
IRR			0,1201777		
IRR = SDR					0,10000024

Table 6

Investment project of the small-scale furniture production • Investičijski projekt namještaja manjeg obujma

District: Čadca Okruh: Čadca					
Investment project: furniture production, large-scale plant with > 60 m ³ per year Investičijski projekt: proizvodnja namještaja većeg obujma, > 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					210 m ³
Market price of furniture / Tržišna cijena namještaja:					139.725,70 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					126.862,70 Sk/m ³
Years Godine	Costs Troškovi	Revenues Prihodi	Cash-Flow Novčani tijek	Adjusted Revenues Prilagođeni prihodi	Adjusted Cash-Flow Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	9.100.000,00	0,00	-9.100.000,00	0,00	-9.100.000,00
1	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
2	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
3	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
4	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
5	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
6	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
7	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
8	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
9	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
10	25.160.170,00	29.359.361,00	4.199.191,00	26.641.154,00	1.480.984,40
IRR			0,4502362		
IRR = SDR					0,100000205

Table 7

Investment project of the small-scale furniture production • Investičijski projekt namještaja manjeg obujma

Table 8

Investment project of the small-scale furniture production • Investicijski projekt namještaja manjeg obujma

District: Dolný Kubín					
Okrug: Dolný Kubín					
Investment project: furniture production, small-scale plant with < 60 m ³ per year					
Investicijski projekt: proizvodnja namještaja manjeg obujma, < 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					60 m ³
Market price of furniture / Tržišna cijena namještaja:					151.725,00 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					156.670,35 Sk/m ³
Years	Costs	Revenues	Cash-Flow	Adjusted Revenues	Adjusted Cash-Flow
Godine	Troškovi	Prihodi	Novčani tijek	Prilagođeni prihodi	Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	4.250.000,00	0,00	-4.250.000,00	0,00	-4.250.000,00
1	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
2	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
3	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
4	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
5	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
6	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
7	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
8	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
9	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
10	8.708.553,00	9.108.162,00	399.609,00	9.400.221,00	691.668,00
IRR			-0,0110465		
IRR = SDR					0,100000024

Table 9

Investment project of the large-scale furniture production • Investicijski projekt proizvodnje namještaja većeg obujma

District: Dolný Kubín					
Okrug: Dolný Kubín					
Investment project: furniture production, large-scale plant with > 60 m ³ per year					
Investicijski projekt: proizvodnja namještaja većeg obujma, > 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					210 m ³
Market price of furniture / Tržišna cijena namještaja:					140.150,50 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					128.543,10 Sk/m ³
Years	Costs	Revenues	Cash-Flow	Adjusted Revenues	Adjusted Cash-Flow
Godine	Troškovi	Prihodi	Novčani tijek	Prilagođeni prihodi	Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	9.100.000,00	0,00	-9.100.000,00	0,00	-9.100.000,00
1	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
2	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
3	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
4	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
5	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
6	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
7	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
8	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
9	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
10	25.513.066,00	29.448.569,00	3.935.503,00	26.994.051,00	1.480.985,00
IRR			0,4194483		
IRR = SDR					0,100000030

District: Vel'ký Krtíš					
Okrug: Vel'ký Krtíš					
Investment project: furniture production, small-scale plant with < 60 m ³ per year					
Investicijski projekt: proizvodnja namještaja manjeg obujma, < 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					60 m ³
Market price of furniture / Tržišna cijena namještaja:					164.352,25 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					157.334,80 Sk/m ³
Years	Costs	Revenues	Cash-Flow	Adjusted Revenues	Adjusted Cash-Flow
Godine	Troškovi	Prihodi	Novčani tijek	Prilagođeni prihodi	Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	4.250.000,00	0,00	-4.250.000,00	0,00	-4.250.000,00
1	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
2	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
3	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
4	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
5	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
6	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
7	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
8	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
9	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
10	8.748.420,00	9.865.797,00	1.117.377,00	9.440.088,00	691.668,00
IRR			0,229645356		
IRR = SDR					0,100000024

Table 10

Investment project of the small-scale furniture production • Investicijski projekt namještaja manjeg obujma

District: Vel'ký Krtíš					
Okrug: Vel'ký Krtíš					
Investment project: furniture production, large-scale plant with > 60 m ³ per year					
Investicijski projekt: proizvodnja namještaja većeg obujma, > 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					210 m ³
Market price of furniture / Tržišna cijena namještaja:					138.957,50 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					128.779,71 Sk/m ³
Years	Costs	Revenues	Cash-Flow	Adjusted Revenues	Adjusted Cash-Flow
Godine	Troškovi	Prihodi	Novčani tijek	Prilagođeni prihodi	Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	9.100.000,00	0,00	-9.100.000,00	0,00	-9.100.000,00
1	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
2	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
3	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
4	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
5	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
6	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
7	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
8	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
9	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
10	25.562.728,00	29.198.039,00	3.635.311,00	27.043.739,00	1.481.011,10
IRR			0,383990531		
IRR = SDR					0,100004402

Table 11

Investment project of the large-scale furniture production • Investicijski projekt proizvodnje namještaja većeg obujma

Table 12

Investment project of the small-scale furniture production • Investicijski projekt namještaja manjeg obujma

District: Nové Zámky					
Okrug: Nové Zámky					
Investment project: furniture production, small-scale plant with < 60 m ³ per year					
Investicijski projekt: proizvodnja namještaja manjeg obujma, < 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					60 m ³
Market price of furniture / Tržišna cijena namještaja:					166.855,20 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					143.711,51 Sk/m ³
Years	Costs	Revenues	Cash-Flow	Adjusted Revenues	Adjusted Cash-Flow
Godine	Troškovi	Prihodi	Novčani tijek	Prilagođeni prihodi	Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	4.250.000,00	0,00	-4.250.000,00	0,00	-4.250.000,00
1	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
2	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
3	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
4	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
5	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
6	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
7	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
8	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
9	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
10	7.931.020,00	10.015.974,00	2.084.954,00	8.622.690,60	691.670,60
IRR			0,4809074		
IRR = SDR					0,100000899

Table 13

Investment project of the large-scale furniture production • Investicijski projekt proizvodnje namještaja većeg obujma

District: Nové Zámky					
Okrug: Nové Zámky					
Investment project: furniture production, large-scale plant with > 60 m ³ per year					
Investicijski projekt: proizvodnja namještaja većeg obujma, > 60 m ³ godišnje					
Volume of production / Obujam proizvodnje:					210 m ³
Market price of furniture / Tržišna cijena namještaja:					127.793,10 Sk/m ³
Price at which IRR=SDR=0,10 / Cijena pri kojoj je IRR=SDR=0,10					127.498,02 Sk/m ³
Years	Costs	Revenues	Cash-Flow	Adjusted Revenues	Adjusted Cash-Flow
Godine	Troškovi	Prihodi	Novčani tijek	Prilagođeni prihodi	Prilagođeni novčani tijek
	Sk	Sk	Sk	Sk	Sk
0	9.100.000,00	0,00	-9.100.000,00	0,00	-9.100.000,00
1	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
2	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
3	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
4	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
5	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
6	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
7	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
8	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
9	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
10	25.293.539,00	26.853.515,00	1.559.976,00	26.774.584,00	1.481.045,20
IRR			0,112277		
IRR = SDR					0,100009762

4. RESULTS AND DISCUSSION
4. REZULTATI I DISKUSIJA

The differences between the market prices of outputs and their economic prices, in particular of the analysed projects, are pre-

sented in Table 14. It is obvious, that the affirmative differences indicate the feasibility of undertaking projects under the given conditions in the analysed districts.

DISTRICT OKRUG	SCALE OF FURNITURE PRODUCTION OBUJAM PROIZVODNJE NAMJEŠTAJA	PRICES OF OUTPUT CIJENE IZLAZA		DIFFERENCES RAZLIKE [Sk/m ³]
		MARKET PRICES TRŽIŠNE CIJENE [Sk/m ³]	ECONOMIC PRICES EKONOMSKE CIJENE [Sk/m ³]	
Spišská Nová Ves	small-scale	161 103	154 294	+ 6 809
	niski obujam			
	large-scale	153 216	126 436	+ 26 840
Čadca	small-scale	156 241	155 301	+ 940
	niski obujam			
	large-scale	139 726	126 863	+ 12 863
Dolný Kubín	small-scale	151 725	156 670	- 4 945
	niski obujam			
	large-scale	140 151	128 543	+ 11 608
Veľký Krtíš	small-scale	164 352	157 335	+ 7 017
	niski obujam			
	large-scale	138 958	128 780	+ 10 178
Nové Zámky	small-scale	166 855	143 712	+ 23 144
	niski obujam			
	large-scale	127 793	127 498	+ 295
	visoki obujam			

Table 14

Differences between market prices of outputs and their economic prices in investment projects of furniture production in analysed districts • Razlike između tržišnih cijena izlaza i njihovih ekonomskih cijena u investicijskim projektima proizvodnje namještaja u analiziranim okruzima

These differences when multiplied by the assumed volumes of produced furniture in each district also express the expected net

annual benefit induced by investment in a project to the society as a whole. These benefits are presented in Table 15.

DISTRICT OKRUG	SCALE OF FURNITURE PRODUCTION OBUJAM PROIZVODNJE NAMJEŠTAJA	VOLUMES OF PRODUCTION OBUJAM PROIZVODNJE [m ³]	NET BENEFITS PER UNIT NETO DOBITAK PO JEDINICI [Sk/m ³]	TOTAL NET BENEFITS EXPECTED UKUPNO OČEKIVANI NETO DOBITAK [Sk]
Spišská Nová Ves	small-scale	60	+ 6 809	+ 408 540
	niski obujam			
	large-scale	210	+ 26 840	+ 5 636 400
Čadca	small-scale	60	+ 940	+ 56 400
	niski obujam			
	large-scale	210	+ 12 863	+ 2 701 230
Dolný Kubín	small-scale	60	- 4 945	- 296 700
	niski obujam			
	large-scale	210	+ 11 608	+ 2 437 680
Veľký Krtíš	small-scale	60	+ 7 017	+ 421 020
	niski obujam			
	large-scale	210	+ 10 178	+ 2 137 380
Nové Zámky	small-scale	60	+ 23 144	+ 1 388 640
	niski obujam			
	large-scale	210	+ 295	+ 61 950
	visoki obujam			

Table 15

Expected net annual benefits induced by investments to projects of furniture production in particular districts • Očekivani neto godišnji dobitak potaknut ulaganjima u projekte proizvodnje namještaja u pojedinim okruzima

The results from Table 15 point out that according to the measure of the net expected benefits per 1 m³ of furniture produced, the most efficient investment seems to be a support of the large-scale production in the district of Spišská Nová Ves. This project is also fully acceptable in relation to timber supply in the district presented in Table 1. The second best in this sense is a small-scale production project for the district of Nové Zámky.

However, projects of a small-scale production in the district of Dolný Kubín should be, in this sense, carefully undertaken. And if, only after a thorough evaluation of all the possible risks.

The total net expected projects benefits can also serve as additional criteria in decision-making whether to release money for particular projects or not. But, at higher volumes of furniture produced price flexibility of demand should also be taken in to account.

Efficient investments into the development of the furniture production in the mountainous districts of Slovakia can also help to solve the burning problem of unemployment and so strengthen social stability in the afore-mentioned districts.

**5. REFERENCES
5. LITERATURA**

1. Figurić, M., Jelačić, D., Motik, D.: Methodological approach to investment studies in furniture industry, *Badania dla meblarstwa*, br. 10, Poznan, Poljska, 1997., str. 81-94.
2. Gregersen, H. M. -Contreras, A.H.: *Economic Analysis of Forestry Projects*. FAO Forestry Paper no. 17, Rome, 1979, 193 pp.
3. Henning, CH.: *A Strategy for Agricultural and Rural Adjustment in the Slovak Republic-Terms of Reference for the FAO/TCA Project TCP/SLO/4552A*. Mannheim, Mannheim Centre for European Social Research, 1996, 46 pp.
4. Hajdúchová, I.: Manažment finančných tokov v lesnom podniku. In.: *Les, drevo, životné prostredie, Riadenie lesníckych a drevárskych podnikov v podmienkach trhovej ekonomiky*, Zvolen, Technical University of Zvolen, 1997, p. 45-51
5. Hajdúchová, I.: Finančná analýza lesných podnikov. In.: *Financovanie podnikov lesného hospodárstva*, Zvolen, Technical University of Zvolen, 1994, p. 21-38
6. Klacko, Š.: Finančovanie pestovnej činnosti. In.: *Financovanie podnikov lesného hospodárstva*, Zvolen, Technical University of Zvolen, 1994, p. 113-120
7. Klacko, Š.: Investície do lesa a ich zhodnocovanie v podmienkach Oravy a Zamauria. In.: *Financovanie v lesníctve*, Zvolen, Technical University of Zvolen, 1995, p.103-114
8. Kolenka, I. - Klacko, Š. - Hajdúchová, I.: *Problems of Forest Enterprise Financing during the Transition Period*. The Finnish Journal of Business Economics, Special Edition, 1994, no. 1, p. 101-110
9. Klubica, D.: Nákladovo-produkčná analýza zisku štátnych podnikov lesného hospodárstva na Slovensku. In.: *Les, drevo, životné prostredie, Riadenie lesníckych a drevárskych podnikov v podmienkach trhovej ekonomiky*. Zvolen, Technical University of Zvolen, 1997, p. 25-32
10. Klubica, D.: Perspektívy rozvoja vzťahov lesníctva a drevospracujúceho priemyslu. *Drevo*, 30, 1995, no. 7.8, p. 153-155
11. Matuzsewski, A.: Implementation of Re-structuralization and Repair Changes in Management of Enterprise. In.: *Les, drevo, životné prostredie, Riadenie lesníckych a drevárskych podnikov v podmienkach trhovej ekonomiky*. Zvolen, Technical University of Zvolen, 1997, p. 97-102
12. Polster, P.: Úloha manažerského informačného systému ve finančnej analýze. In.: *Financovanie v lesníctve*, Zvolen, Technical University of Zvolen, 1996,
13. Polster, P.: Informační systémy v lesním hospodárství ČR. In.: *Les, drevo, životné prostredie, Riadenie lesníckych a drevárskych podnikov v podmienkach trhovej ekonomiky*. Zvolen, Technical University of Zvolen, 1997, p. 195-202
14. Smrtík, J. - Abdusalamovová, V.: Cena dreva a vnos z predaja dreva. In.: *Financovanie v lesníctve*, Zvolen, Technical University of Zvolen, 1996, p. 67-84
15. Šišák, L.: Cena sociálných stránok funkcií lesa a její souměřitelnost s cenou ekonomických stránok funkcií lesa. *Lesnictví - Forestry*, 40, no. 3, 1994, p. 85-92
16. Šišák, L.: Ochota potenciálne platit jako metoda ocenování významu sociálných stránok funkcií lesa. *Lesnictví - Forestry*, 39, no. 3-4, 1993, p. 151-160
17. Šupín, M. - Holécy, J. - Drábek, J. - Smrtník, J.: *Wood Processing Study - Veľký Krtíš and Nové Zámky Districts*. The FAO/TCA Project TCP/SLO/4552(A). A Strategy for Agricultural and Rural Adjustment in the Slovak Republic. Zvolen, Technical University of Zvolen, 1996, p. 146
18. Šupín, M. - Paluš, H. - Vasilečko, J.: Perspektívy európskeho trhu s drevom pre LH SR. In.: *Financovanie v lesníctve* 96. Zvolen, Technical University of Zvolen, 99-118
19. Tutka, J.: Cena penazí v lesníctve. In.: *Financovanie v lesníctve*, Zvolen, Technical University of Zvolen, 1996, p. 151-160
20. Tutka, J. - Hladík, M. - Durkovič, J. - Linderová, R.: *Ocenovanie lesov*. Zvolen, Institute for Teaching and Education of Employees in Forestry and Water Economy, 1992, 215 p.