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Value Chain Analysis and Socio Economic Aspects of Non-Wood Forest Products in Central Serbia

Prof Dr Ljiljana Keča
University of Belgrade
Faculty of Forestry

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1. Background

Non-wood forest products (NWFP) in Serbia



Non-timber forest products (NWFPs) are a traditional source of income for households in Central Serbia for generations.



Products

Little data on

- SMEs engaged in NWFPs commercialization
- their marketing activities
- value chain

- wild berries
- fungi
- medical herbs
- honey

Demand for high-quality products of biological origin has been increasing, in accordance with changes in objectives of forest management in Serbia, which are caused by socio-economic development.

1. Background

- The collection and use of NWFPs is widespread in the Western Balkans.
- Lack skills and requirements needed to ensure the collection, processing, transport and marketing of these products.
- **Socio-economic study of NWFPs in Serbia.**
- **Value chain analysis (VCA)** clarify and assist in the understanding of the commercialization of NWFPs by focusing on the whole range of the activities and transfers involved in the production, transport, distribution and promotion of particular commodities.
- **Sensitive to numerous factors.**
- trade of commercially important NWFPs is estimated at 11 billion US\$·year⁻¹ in the world.

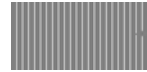
Value chains in the context of NWFPs

- The core requirement in **VCA** is to **break up** the chain of activities that runs from production of basic raw materials to end-use customers into strategically relevant segments or phases, including final disposal after use.
- **“Supply driven chain”** in NWFPs.
- Marketing mix principles - meet the needs of the defined **target group in social, economic and commercial mean**.
- **Market-focused collaboration=VCA, strategic management accounting**.
- “Production-to-consumption” system approach.
- **Promote NWFPs VC:** efficiency production, entry of global market, systemic competitiveness.
- expansion of organic production and now are an integral part of modern concepts of bio-economy.
- The **aim** of the study was to analyze VCs and business relations among the companies engaged in purchasing, processing, and selling NWFPs in Central Serbia.

Facts – TARGETING value chain



Employment to up **100,000** persons



- ✓ Reduce poverty
- ✓ Additional income

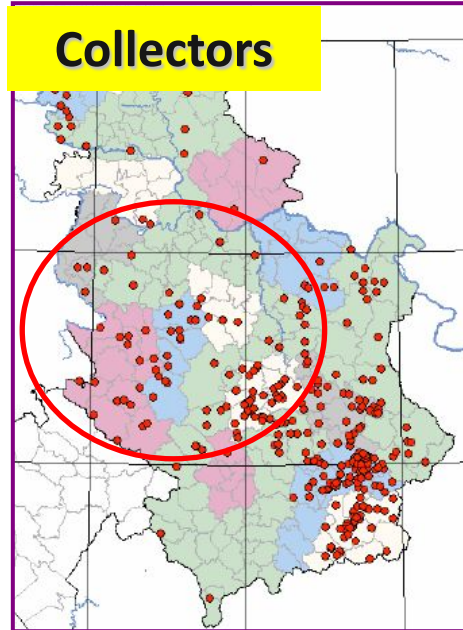


The government establishes a **quota** for the value chain, limiting the total quantity of collecting/exports.

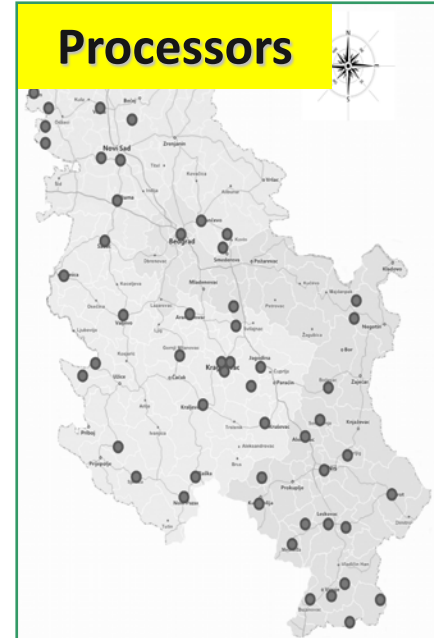
Market

The NWFPs sector in Serbia is a "supply driven chain" that is characterised by a **horizontal based structure** driven by local firms and companies which are dependent mainly on private and commercial capital – **149 SMEs** (2015).
Central Serbia – **63 SMEs**. **Sample - 55 SMEs**.
Area of C. Serbia 26.483 km².

Collectors



Processors



- Growth potential
- Targets for improvement

Value chain analysis

collectors

buyers

processors

sellers



2. Methodology

Interdisciplinary, 6 criteria: **Sample - Criteria**

1. **Chosen** according to Law on Accounting and Auditing, Serbian Register Business Agency, internal documentation of the Institute for Nature Protection, debtors of National Bank
 2. **Buying, processing, placement** SMEs
 3. More than **5 permanently engaged** workers
 4. average annual quantity of purchased raw materials is higher than **100t**
 5. **Placement** on domestic and foreign market
 6. **Private** SMEs.
- (4 STATISTICAL REGIONS in SERBIA) - WHY?

- linear trend/polynom.
- regression
- correlation analysis
- testing
- significance $\alpha = 0.05$.
- Time 2009-2015

Value chain analysis

- identification of the chain participants and their relationships
- horizontal and vertical integration within the chain
- **average annual growth rate – AAGR**, parametric statistics.

Quantitative mthd.

Survey

Income/outcome
Processing capacities
Products
Supply
Export destinations
Prices
Distribution channels
Promotion
Business environment
Collaboration
Associations
Attitudes – non-parametric statistics

The response rate was **87,3%**; in that way the research has the **census research** .

SWOT and A'WOT/Benchmarking

1. conduct classical SWOT analysis
2. each factor is assigned a certain number of points
3. results will be analyzed and graphically presented

Data analysis

Data preparation
Questionnaire&cognitive
Interview,
Computer Assisted
Telephone Interviewing
Coding
Tables of primary data
Statistical analysis
Descriptive statistics
Correlation analysis
(M)ANOVA

Marketing mix

4 Ps

1. **product**,
2. **price**,
3. **promotion**,
4. **place**



3. Results

Purchase stations 550, big 110, in **Central Serbia 49** (big).

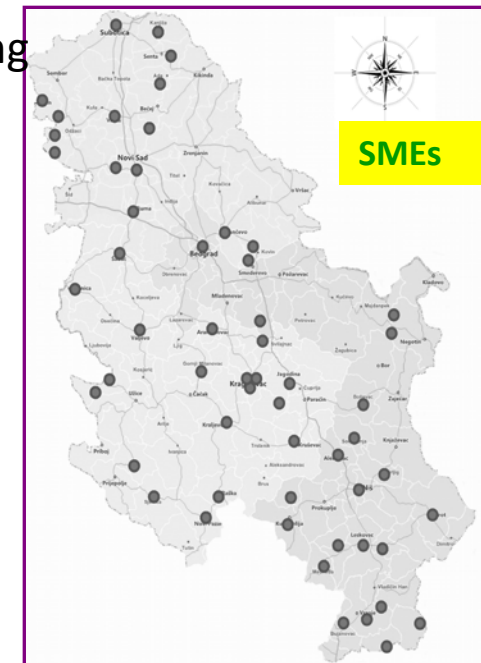
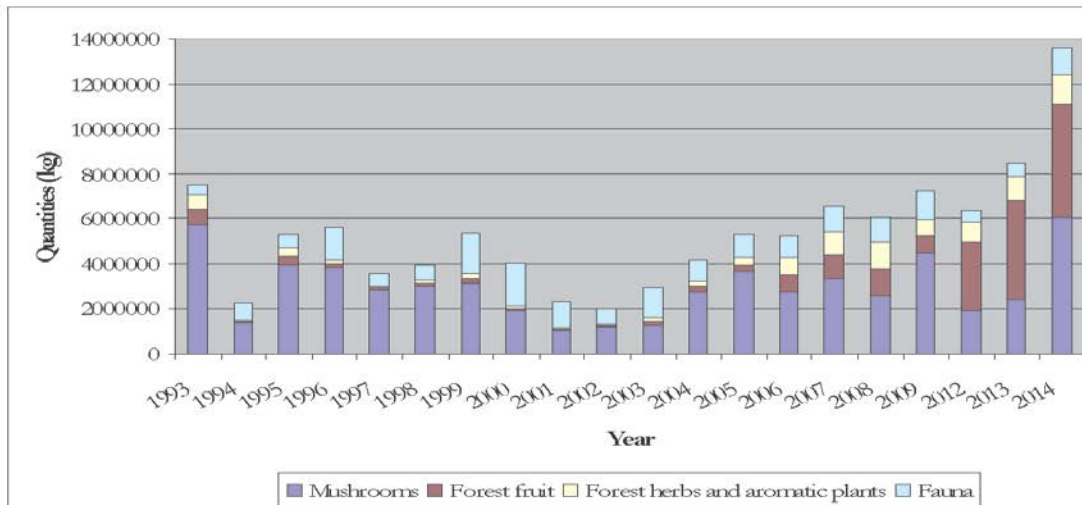
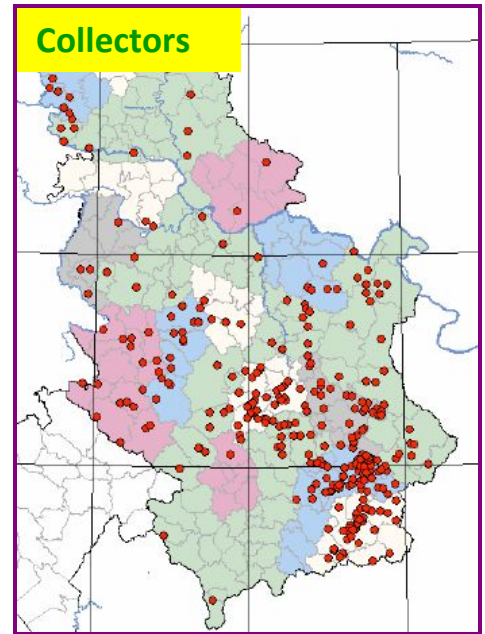
No overlapping of processes. Capacity utilization **94%**.

Quota system limits real quantitative growth.

Export EU: Italy, Germany, Austria, France, Canada, USA.

Import: Western Balkan, Bulgaria, Ukraina.

Local dumping prices, B2B strategy, primary and secondary procesing



3. Results – Central Serbia

Parameter		t	R	F	Y= -260,15x + 525400	
a	525399,77	3,00	0,748	8,944	AAGR (%)	-10,6
b	-260,15	- 2,99				

Table 1: Elements of regression analysis of **purchase** of NWFPs

Products covered by the purchase are: herbs, forest berries, honey and mushrooms.

Parameter		t	R	F	Y= -67,509x + 136122	
a	136121,55	3,94	0,829	15,475	AAGR (%)	-16,0
b	-67,50	- 3,93				

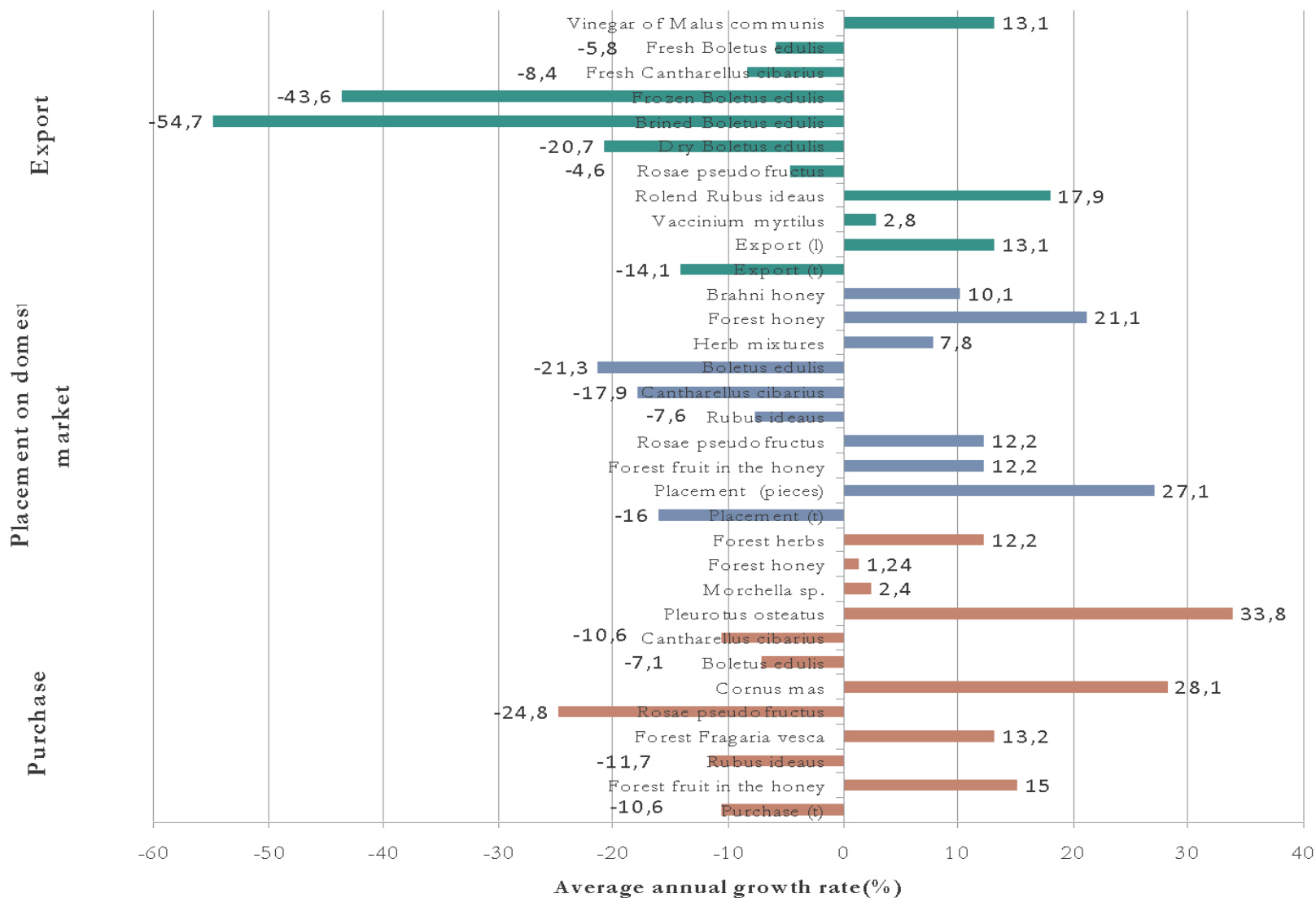
Table 2: Elements of regression analysis of **placement** of NWFPs

Parameter		t	R	F	Y= -254,7x + 513829	
a	513828,68	3,475	0,794	11,980		
b	-254,69	- 3,461			AAGR (%)	- 14,1

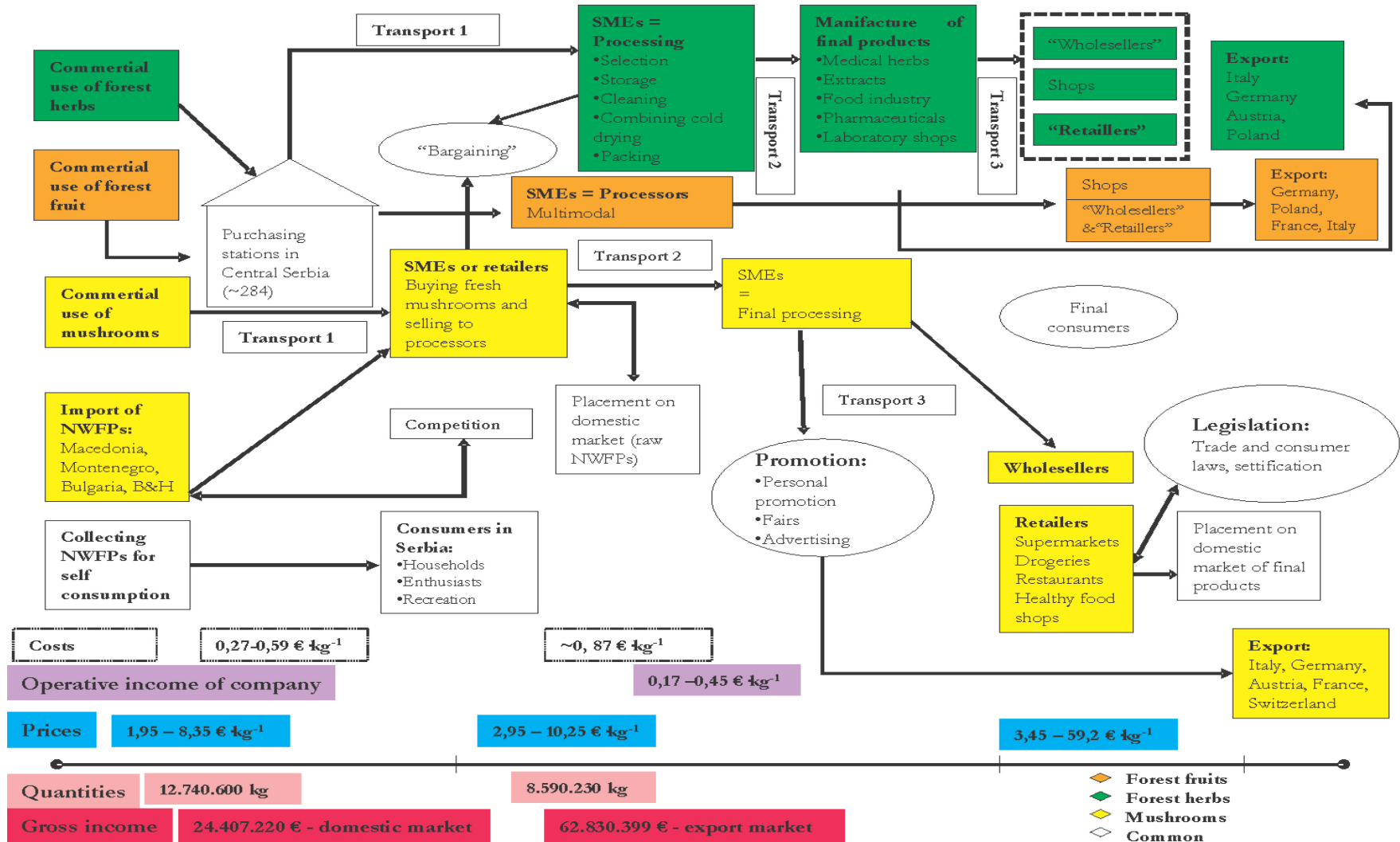
Table 3: Elements of regression analysis of **export** of NWFPs



3. Results – AAGR for Central Serbia

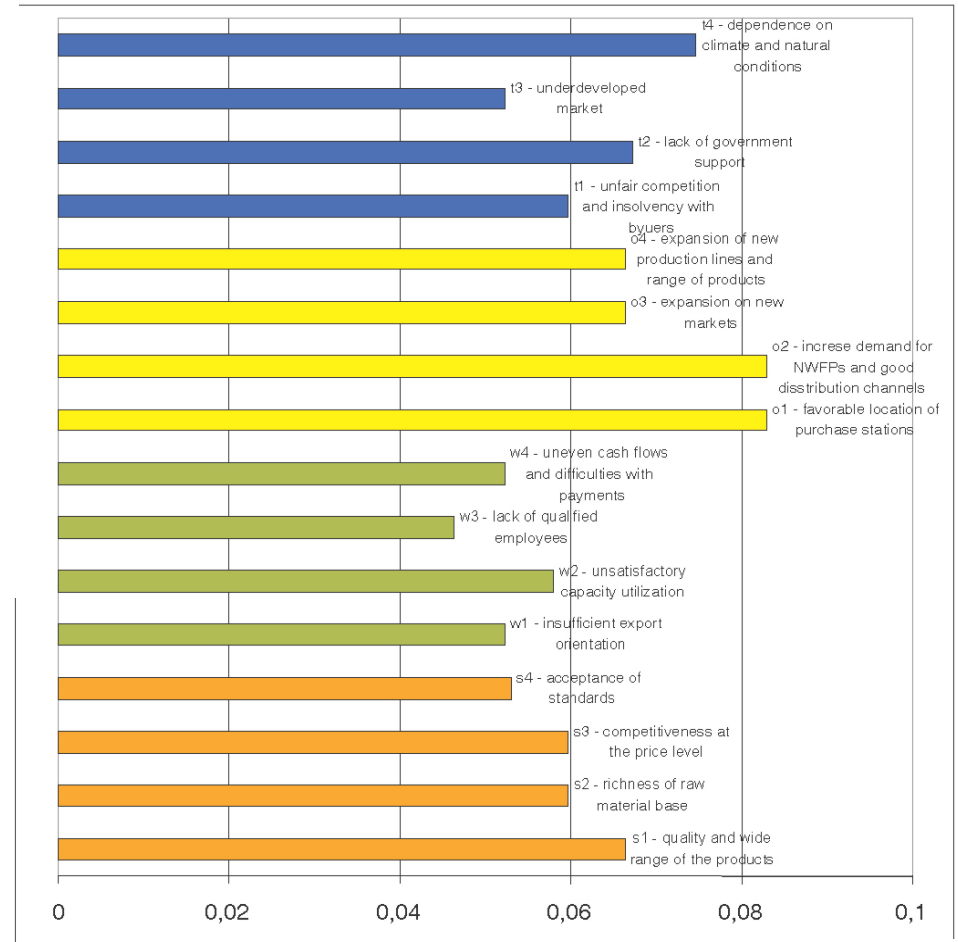


3. Results – VCA for Central Serbia



3. Results – SWOT&A'WOT

S (strengths)	W (weaknesses)
s1 – quality and wide range of the products	w1 – insufficient export orientation
s2 – richness of raw material base	w2 – unsatisfactory capacity utilization
s3 – competitiveness at the price level	w3 – lack of qualified employees
s4 – acceptance of standards	w4 – uneven cash flow
O (opportunities)	T (threats)
o1 – favorable location of purchase stations	t1 – unfair competition
o2 – increase demand in NWFPs	t2 – lack of government support
o3 – expansion on new markets	t3 – underdeveloped market
o4 – new product lines and range of products	t4 – dependence on natural conditions



4. Conclusions

- processing companies are private owned.
- capacity utilization of 93%.
- the main products in C. Serbia are wild berries, fungi, medical herbs.
- Linear regression model of trend of growth of final production on domestic market shows negative average annual growth, as well as purchase and export.
- Export destinations EU countries.
- Purchase price in markets varies, dependent on supply and demand during the year.
- SWOT/AHP analysis shows that external factors (opportunities) have the most significant influence on business of interviewed enterprises.
- reforms of market interventions should be addressed to support medium enterprises for export markets and encourage small companies to intensify business in domestic market.

... Compare wood processing and NWFPs sector



Wood processing industry SMEs **2. 821**
Export **502.9 mil. €**
Destinations: Germany, France, Slovenia
Spain, Montenegro, Croatia
Contribution of export **5.7%**

NWFPs SMEs **149**
Export **62,8 mil. €**
Destinations: Italy, Germany,
Austria, France
Contribution of export **0.7%**
Advantages and potential.



4. Conclusions



Monograph Non-wood forest products Socio-economic and ecological aspects

The book "Non Wood Forest products - Socio-economic and ecological aspects" is intended primarily for researchers who study economic, and socio-environmental components of forestry products. In addition to the scientists and researchers, manuscript is intended for the general public (profession, decision-making in the forestry sector, agriculture and rural development, entrepreneurs, students, etc.) interested in the dynamics and development of the bio-economy, rural development and forestry enterprises, as well as analysis of the market potentials of product development.

The monograph is structured in 10 chapters: Introduction, Materials and methods, Ecological characteristics of NWFPs, Purchase of NWFPs as raw material, Products and prices, Value chain analysis, Institutional and procedural framework relevant to the NWFPs sector, Legal framework related to sector of NWFPs, SWOT / AWOT analysis.

This monograph is built on the basis of knowledge and practical experience of the authors who study the problems of NWFP from different aspects and represents their synthesis, making one whole. The book is the result of pioneering comprehensive research on NWFPs and their economic and ecological domains in Serbia, with special emphasis on original methodological approach and the quantitative and qualitative interpretation of results, which have applicative character.

Ljiljana Keča, Nenad Keča i Milica Marčeta

NEDRVNI ŠUMSKI PROIZVODI

Socio-ekonomski i ekološki aspekti



Univerzitet u Beogradu
Šumarski fakultet



Thank you for attention!

Dr. Ljiljana Keča ljiljana.keca@sfb.bg.ac.rs



Dr Ljiljana Keča, Ao. Univ. Prof. Dr. phil. Associate Professor
University of Belgrade, Faculty of Forestry
Department of Forestry
Chair of Forest Economics, Policy and Organisation
Forest Economics, Trade and Marketing, Forest Policy
1, Kneza Visislava street, Serbia 11030 Belgrade

