

The Monetary Transmission Mechanism in the New Economy: Evidence from Turkey (1997-2006)

Atilla Cifter and Alper Ozun

Abstract

This study aimed to test the money base, money supply, credit capacity, industrial production index, interest rates, inflation and real exchange rate data of Turkey during the years 1997 – 2006. These were tested through the monetary transmission mechanism and passive money hypothesis, using the vector error correction model-based causality test. Empirical findings showed that the passive money supply hypothesis of the new Keynesian economy is supported in part by accommodationalist views and differs from those of structuralist and liquidity preference theories. However, the monetary transmission mechanism has established that long-term money supply only affects general price levels, while production is influenced by interest rates in the new period of the Turkish economy. Empirical findings show that in this new period, interest transmission mechanisms are at the forefront.

JEL: E58, E52, E4, C32

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1. Introduction

Though advocating similar theories in the use of monetary politics, the New Keynesian and the Monetarist Schools differed in their opinions on whether money is active or passive. While the Monetarist School defends the fact that monetary tools, i.e., money supply, is under the control of the Central Bank, the New Keynesian School argues that, as credit control is not tied to the Central Bank, it does not completely control money supply. Defenders of the New Keynesian School put forward the following evidence in support of these claims (Seyrek and others, 2004): (1) The statistical stochastic aspect in money data and the great errors that result from it determine that money is passive; (2) According to general econometric tests, money stock is passive; (3) The passivity of monetary stock derives from the macroeconomic character of the banking system; (4) The passivity of money stock can be explained with many macroeconomic variables. In addition to credit-money supply, whether money is active or passive is also based on the correlation between money, interest, inflation and productivity. During this process in the new economic period, exchange rates also have their place. The New Keynesian view describing

the correlation between money, credit, interest, inflation and exchange rates can be tested through long-term analysis. The econometric methods in long-term analysis are a causality test based on the vector error correction model for cointegrated data or the Granger causality tests for non-cointegrated data. During this study, together with the vector error correction method and the Granger causality test, the monetary transmission mechanism and monetary passivity hypothesis were tested. The second section surveys pertinent literature, the third section outlines the methodology, the fourth section concerns empirical findings, and the fifth section presents the results.

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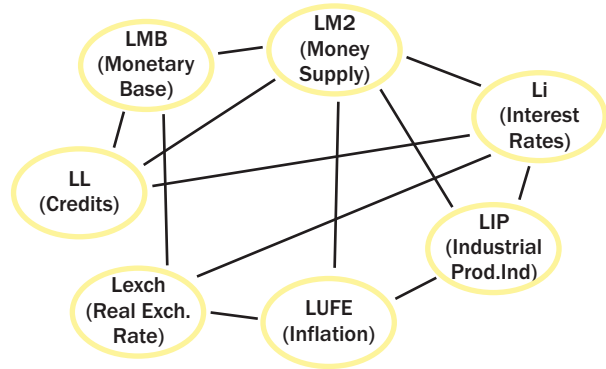
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2. Literature Review and Theory

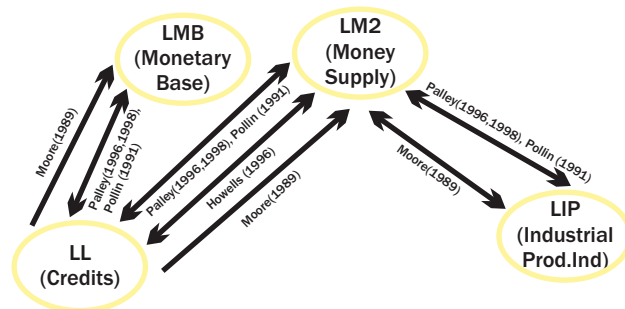
There are three main types of monetary transmission mechanism models found in the literature: the interest rate channel, the asset channel and the credit channel (Seyrek and others, 2004). According to the monetary transmission mechanism, money supply is active and, in the short term, monetary tools and increased money supply reduce interest rates. Hence the liquidity effect is only short-term. The drop in interest rates increases credit value. This situation causes a short-term increase in income. In the long term, the increased price in money supply increases its general level and the real value of money stock declines. According to the Monetarist approach, money supply is active during these processes and is controlled by the Central Bank. According to the Keynesian approach, monetary politics tools affect the monetary base first, then the money supply. Following this, the changes in money supply affect interest rates, which in turn affect investments and then revenues. New Keynesian economics argues that money supply is passive*. Rather than the Central Banks' exported money supply, credit money is determined according to the banks' credit preferences. When economic units use credit, deposits created by credit multiply. The passive money hypothesis presumes that causality moves away from credits towards deposits. Credit demands are set by the preferences of the credit applicants and creditor. For this reason, Central Banks do not have control over credits, and therefore, money stocks (Shanmugan and others, 2003). There are three approaches with regard to passive money stock; accommodationalist, structuralist and liquidity preference. According to the accommodationalists (Moree, 1989) credits are the source of money supply and money base, and that money supply and money revenue (GDP) are cointegrated and interdependent. According to the structuralists (Palley, 1996, 1998; Pollin 1991) credits are the source of money supply, money base and money multipliers and that money supply and money revenue (GDP) are cointegrated and interdependent. Finally, according to liquidity preference theorists (Howells, 1995), credits and money supply are cointegrated and interdependent. The monetary transmission mechanism is shown in Diagram No.1 and the New Keynesian Economical Passive Money Theory is shown in Diagram No. 2. In the new economic period, real exchange rates will also be distinct from general price levels.

For the New Keynesian economy, the first empirical study on passive money was carried out by Pollin (1991). Pollin (1991), obtained data supporting structuralist views for the USA from 1953 – 1988. Vera (2001), obtained findings to support accommodationalist and structuralist views for Spain from 1987 – 1998 by applying Granger causality tests using Money

Multipliers (according to M1, M2 and M3) and credit data. Nell (2000-01) examined the relationships between money supply, money circulation speed and credit using the vector error correction model for South Africa from 1966 – 1997 and found that all new Keynesian approaches (structuralist, accommodationalist and liquid preference theories) were empirically valid.



Graph 1. Monetary Transmission Mechanism



Graph 2. Endogeneity of Money in New Keynesian Economy

Shanmugan, Nair and Li (2003), examined the relationship between money base, money supply, credit and the industrial production index using the vector error correction model and Granger causality test in Malaysia from 1985 – 2000 and reached conclusions that support the findings of accommodationalists and liquid preference theorists. Lavoie (2005) tested the passivity of money according to theoretical and empirical literature for Canada and the USA, and reached conclusions that support accommodationalist views. Ahmad and Ahmet (2006) carried out short and long-term tests on the passivity of money supply for Pakistan from 1980 – 2003 using the Granger causality test. In the short term, they found that empirical findings supported structuralist and liquidity preference theory, but in the long term found that the money base

* The critical evaluation of New Keynesian monetary politics. See Cottrell (1994).

set the credit capacity and showed that the Pakistan Central Bank became active in setting money supply. Gunduz (2001) and Seyrek, Duman and Sarikaya (2004) carried out studies on Turkish data. Seyrek and others (2004) found that data for Turkey from 1968 – 1996 supported the Keynesian transmission mechanism multi-monetarist hypothesis driven by credit. Gunduz (2001) analysed the monthly macroeconomic data dependent VAR (Vector Autoregressive) model and the bank lending channel roles in Turkey. The findings for the period 1986 – 1998 show that the bank lending channel presented limited support for the transmission mechanism.

3. Data and Methodology

3.a.Data

Monthly data was used between January 1997 – June 2006 for the monetary transmission mechanism and passive money supply test. Due to the fact that the Gross Domestic

Product (GDP) was published every three months, the Production Index (PI) was used instead. Because the treasury bond interest rates indicator was not available on a monthly basis before 2002, the 12 month deposit interest rate was used instead. During analyses made for Turkey, IPI was used instead of GNP for national growth and production indicators and deposit interest rates were used instead of treasury bond interest rates. Money Base, Money Supply, Credit Capacity, Industrial Production Index, Interest Rates and Real Exchange Rates were obtained from www.tcmb.gov.tr and inflation rates from www.tuik.gov.tr. Money Base reserves and total Free Market Procedures (FMP) debts have been calculated by the authors. Table 1 shows the unit root tests for the chosen indicators. All series were proven (90%-100%) to contain unit roots. In order to separate the series from unit roots, logarithmic differences have been taken and it has been established that all series are stationary in terms of entry level logarithmic differences (Table 2).

	L ^a	Augmented Dickey-Fuller Test *	Skewness	Kurtosis	Jarque-Bera statistic
R	4	1.35825 {<1.00}	0.625191	0.625191	8.95215
E	3	1.70072 {<1.00}	0.855461	2.56205	14.8155
MB	1	1.59344 {<1.00}	0.884356	2.84869	14.9684
M1	3	1.80713 {<1.00}	0.863718	2.61482	14.8789
M2	3	1.08533 {<1.00}	0.844484	2.68744	14.014
M2Y	3	1.02843 {<1.00}	0.395414	1.99569	7.76173
M3	4	0.86340 {<1.00}	0.847275	2.67047	14.1555
M3Y	2	1.31943 {<1.00}	0.422493	2.02084	7.94562
L	3	1.58811 {<1.00}	1.29503	3.86689	35.4344
Exc	1	-2.6588 {< 1.00}	0.398535	2.33168	5.13939
IP	1	-1.5450 {<0.90}	0.600842	2.68881	7.31921
I	3	-1.3675 {<0.90}	0.178638	1.864	6.73618
UFE	1	0.32292 {<0.99}	0.101448	1.40765	12.2396

R: Reserve Money, E: Emission, MB: Monetary Base, L: Credit Capacity, Exc: Real exchange rate_MPI, IP: Industrial Production Index, i: Interest rate_12 Month, MPI: Manufacturer Price Index:

* Lag lengths have been identified as 12 maximum according to Schwartz Knowledge Criteria. Values inside brackets are the rejected unit root statistics. a Lag length.

Definitions:

Reserve Money = Emission + Bank Mandatory Payments + Bank Unbound Opportunities + Fund Calculations + Non Bank Related Deposits

Monetary Base = Reserve Money + Open Market Activity Debts

M1 = Money in Circulation + Current Deposits at Depository Banks + Central Bank Deposits

M2 = M1 + Fixed Term Deposits at Depository Banks

M2Y = M2 + Foreign Currency Deposit Accounts (TL)

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Table 1.
Level Series, Unit Root Tests and Distribution Specifications

	LMB	LM 2	LL	LIP	LI	LEXC	LUFE
Mean	0.0347	0.0364	0.0336	0.0045	-0.0112	0.0022	0.0275
Mode	0.0377	0.0315	0.0358	0.0045	-0.0050	0.0053	0.0259
Max	0.3384	0.1497	0.1531	0.2238	0.7186	0.1363	0.1341
Min	-0.2467	-0.0532	-0.0772	-0.2209	-0.5579	-0.1577	-0.0228
Std. Deviation	0.1026	0.0347	0.0336	0.0810	0.1275	0.0394	0.0236
Multiplier	-0.1429	0.5159	-0.3160	0.1102	1.1458	-0.6521	0.8737
Oblateness	4.0410	3.9321	4.9116	3.7338	16.609	6.7538	5.7567
J-B	5.4877	9.1042	19.088	2.7642	896.78	74.355	50.159
Probability	0.0643	0.0105	0.0000	0.2510	0.0000	0.0000	0.0000
Observations	113	113	113	113	113	113	113

Table 2
Logarithmic Difference Series Fundamental Statistical Specifications

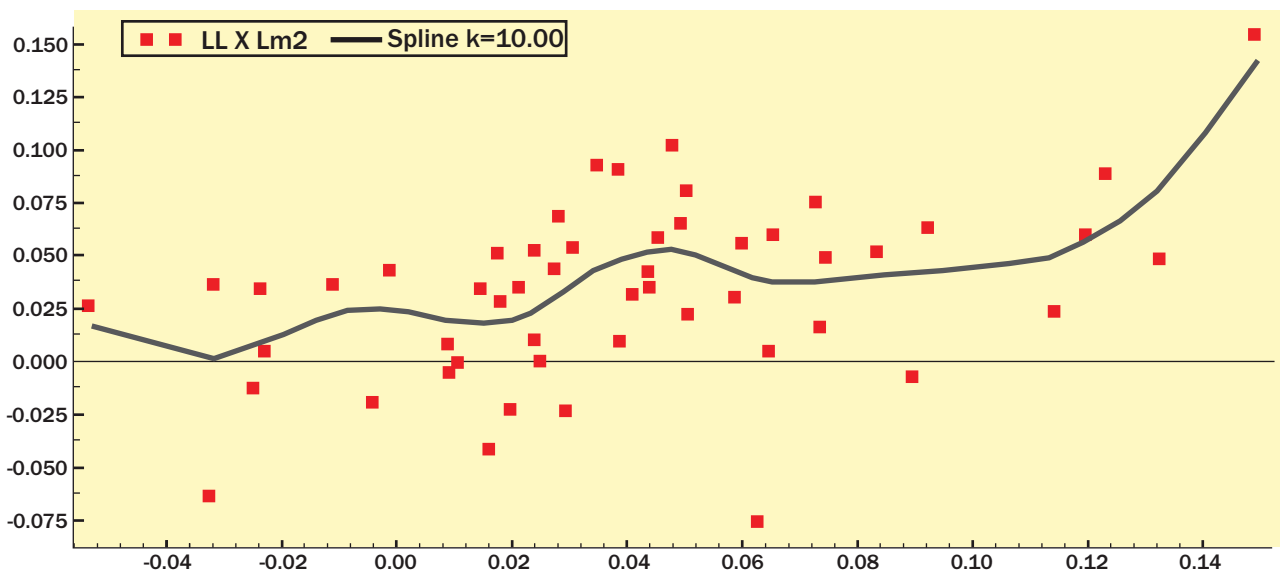
3.b. Methodology

The vector error correction model-based causality test has been selected for the Passive Money Hypothesis test and the transmission mechanism, which in turn is derived from Money Base, Money Supply, Credit Capacity, Industrial Production Index, Interest Rates, Inflation and Real Exchange Rates. Before the vector error correction model is applied, it must be researched as to whether or not the series contain unit roots. In the literature, unit root-stability identification is generally made by using ADF (Augmented Dickey Fuller Test) and P-P (Philips-Perron) tests. The ADF test was developed by Dickey

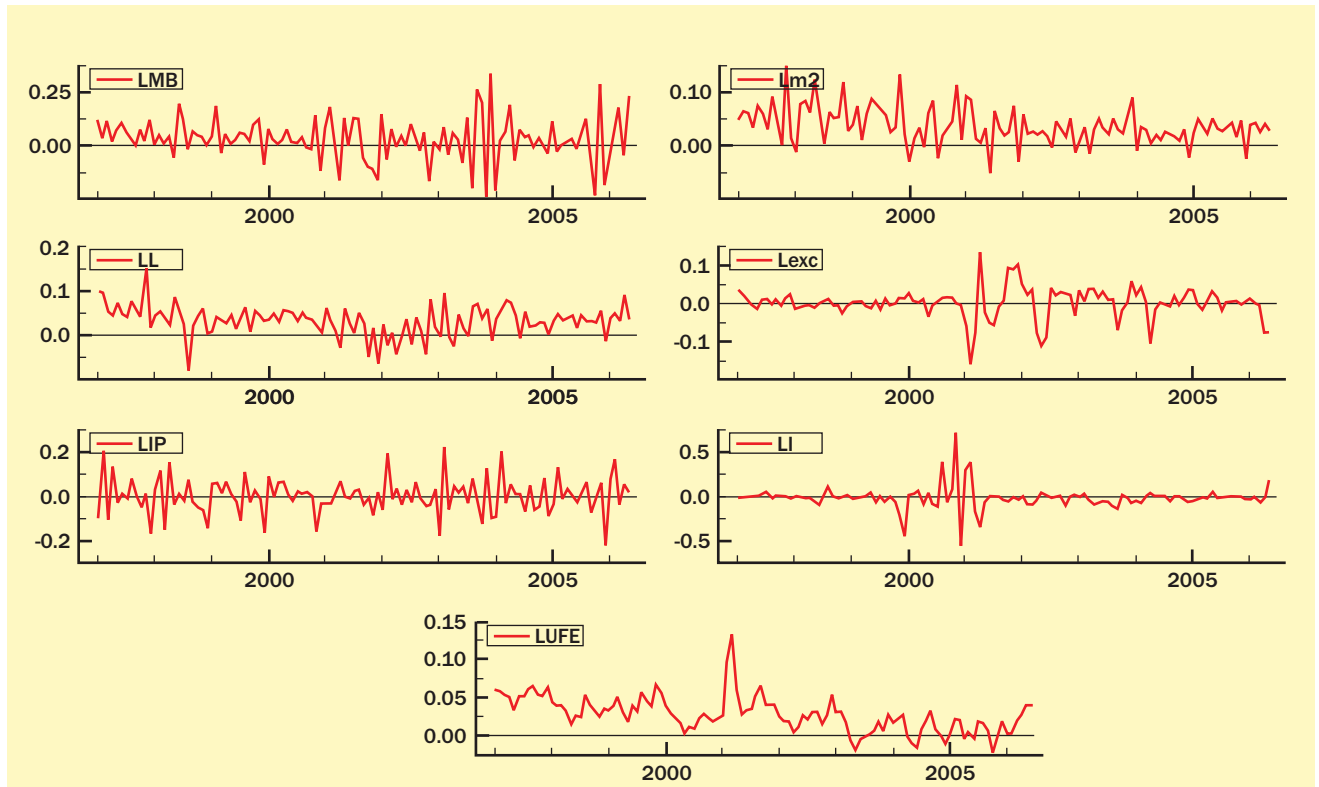
and Fuller (1981) and is used together with Equation No. 1:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \alpha_i \sum_{i=1}^m \Delta Y_{t-i} + \varepsilon_t \tag{1}$$

ΔY_t is the first difference in testing the stability of the variable, t the trend variable and i is the lag difference term. The 'i' lag difference term is added sufficiently for the error term to be a non-correlation series using knowledge criteria.



Graph 3
M2 and Credits Scatter Diagram (Log differenced series)



Graph 4
Series

Another main unit root test used in the literature is the “Phillips-Perron” (P-P) test developed by Phillips-Perron (1988). The P-P test can be applied using Equation No. 2

$$\Delta Y_t = a + cY_{t-1} + d_1\Delta Y_{t-1} + d_2\Delta Y_{t-2} + \dots + d_{p-1}\Delta Y_{t-p-1} + \varepsilon_t \quad (2)$$

ΔY_t is the primary difference of Y series, $a, c, d_1, d_2, \dots, d_{p-1}$ the parameters, t is time, p the lag number and ε_t shows error term. $H_0: c=0$ shows that the series is not stationary, $H_1: c \neq 0$ shows that the series is stationary.

Before examining the relationship of data that is not stationary but at the same level, the series need to be examined to determine whether or not they are integrated. Johansen (1988), Johansen and Juselius (1990) developed the Johansen cointegration test, which is used widely in the literature.

In the following model, a non-trend setting and non-restrictive cointegration test containing a stationary term has been preferred (3)

$$H_1^*(r) : \Pi y_{t-1} + Bx_t = \alpha (\beta' y_{t-1}) + \rho_0 \quad (3)$$

In the Johansen method the cointegration among non-stationary series are identified using trace and maximum eigenvalue statistics (4-5)

$$\lambda_{\text{trace}(r)} = -T \sum_{i=r+1}^k \ln(1 - \bar{\lambda}_i), r = 0, 1, 2, 3, \dots, n-1 \quad (4)$$

$$\lambda_{\text{max}(r, r+1)} = -T \ln(1 - \bar{\lambda}_{r+1}) \quad (5)$$

In the prepared model, if cointegration can be identified between dependent and independent variables, then it can be understood that there is at least one aspect of causality (Granger, 1969). If there is no cointegration between variables, the standard causality test (Granger, 1969) can be applied; and if there is cointegration between variables, then causality can be examined using the vector error correction model (VECM) (Granger, 1988). Engle and Granger (1987) developed the VECM, which is shown in the equation below (6).

$$\Delta y_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta y_{t-i} + \sum_{i=1}^n \alpha_{2i} \Delta x_{t-i} + \sum_{i=1}^n \alpha_{3i} EC_{t-n} + \varepsilon_t \quad (6)$$

The short term causality relationship in the VECM can be tested using the significance of the parameters and the Wald test. The long-term causality relationship can be tested using the ECT-n parameter significance (Shanmugan and others, 2003).

4. Empirical Findings

Table No.3 shows the ADF and P-P unit root test results of the logarithmic difference series. All series are stationary to a 99% level of significance,

Variables	L ^a	t-statistic	P-P Test t-statistic
LMB	0	-16.0154 {<0.01}	-16.5017 {<0.01}
LM 2	2	-4.11103 {<0.01}	-10.6736 {<0.01}
LL	2	-4.32343 {<0.01}	-9.62207 {<0.01}
Lexc	1	-6.99893 {<0.01}	-6.85118 {<0.01}
LIP	4	-8.85429 {<0.01}	-16.5786 {<0.01}
Li	2	-5.17817 {<0.01}	-12.6571 {<0.01}
LUFE	0	-4.14952 {<0.01}	-4.27729 {<0.01}

MB: Monetary Base, L: Credit Capacity, Exc: Real Exchange Rate_MPI, IP: Industrial Production Index, i: Interest rate_12 Month, MPI: Manufacturer Price Index
 * D Lags have been identified as 12 maximum according to Schwartz Knowledge Criteria. Values inside brackets are the rejected unit root statistics. a Lag length.

Table 3
 ADF and P-P Unit Root Tests (Logarithmic difference has been taken)*

The unrestricted Johansen cointegration tests demonstrating the passive money hypothesis and the monetary transmission mechanism test can be found in Table Nos. 4 and 5. All series are cointegrated at a secure level of 95-99%. Due to the fact that the series are all cointegrated, the vector error correction model-based causality test has been applied to all hypotheses.

	L ^a	H ₀	λ_{Trace} Stat	λ_{Max} Stat
LMB& LL	4	r=0 r<=1	45.0642 {<0.01}* 10.0775 {<0.05}	34.9867 {<0.01}* 10.0775 {<0.05}
LM2&LL	4	r=0 r<=1	25.0972 {<0.01}* 10.1851 {<0.05}	14.9121 {<0.1} 10.1851 {<0.05}
LM2& LIP	4	r=0 r<=1	55.9499 {<0.01}* 12.6431 {<0.025}	43.3068 {<0.01}* 12.6431 {<0.025}
LMS&LIP	4	r=0 r<=1	57.3502 {<0.01}* 8.25947 {<0.1}	49.0907 {<0.01}* 8.25947 {<0.1}
LMB&LL&LIP	4	r=0 r<=1 r<=2	93.6593 {<0.01}* 40.1302 {<0.01}* 9.35016 {<0.05}	53.529 {<0.01}* 30.7801 {<0.01}* 9.35016 {<0.05}
LM2&LL&LIP	4	r=0 r<=1 r<=2	63.5928 {<0.01}* 22.6443 {<0.025} 9.42012 {<0.05}	40.9484 {<0.01}* 13.2242 {<0.2} 9.42012 {<0.05}

Values inside brackets are significance values. Lags have been identified as 12 maximum according to Schwartz Knowledge Criteria.
 * Hypothesis of H0 is rejected at %1 significance. a Lag length.

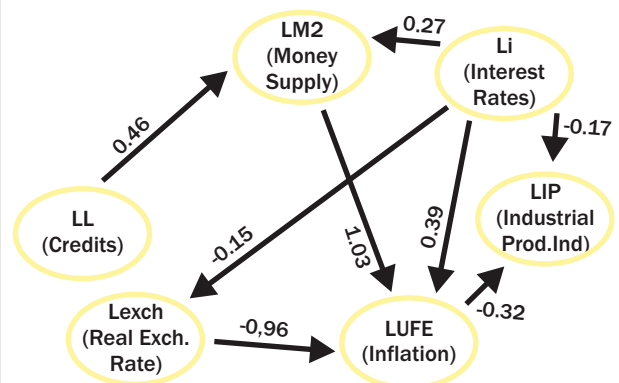
Table 4
 Unrestricted Johansen Cointegration Test (Endogeneity of Money Hypothesis)

	L ^a	H ₀	λ_{Trace} Stat	λ_{Max} Stat
LM2& LI	4	r=0 r<=1	28.5057 {<0.01}* 12.2016 {<0.025}	16.3041 {<0.05} 12.2016 {<0.025}
LM2&LIP	4	r=0 r<=1	55.9499 {<0.01}* 12.6431 {<0.025}	43.3068 {<0.01}* 12.6431 {<0.025}
LM2&LUFE	4	r=0 r<=1	26.8229 {<0.01}* 5.79668 {<0.5}	21.0262 {<0.01}* 5.79668 {<0.5}
LM2&LExc	4	r=0 r<=1	45.6645 {<0.01}* 14.5233 {<0.01}	31.1411 {<0.01}* 14.5233 {<0.01}
ML2&LL	4	r=0 r<=1	25.0972 {<0.01}* 10.1851 {<0.05}	14.9121 {<0.1} 10.1851 {<0.05}
LI&LIP	4	r=0 r<=1	75.0987 {<0.01}* 18.001 {<0.01}	57.0977 {<0.01}* 18.001 {<0.01}
LIP&LUFE	4	r=0 r<=1	63.2395 {<0.01}* 6.54211 {<0.2}	56.6974 {<0.01}* 6.54211 {<0.2}
LUFE&LExc	4	r=0 r<=1	38.3893 {<0.01}* 6.02494 {<0.2}	32.3643 {<0.01}* 6.02494 {<0.2}
LExc&LL	4	r=0 r<=1	40.4699 {<0.01}* 9.77352 {<0.05}	30.6964 {<0.01}* 9.77352 {<0.05}

Values inside brackets are significance values. Lags have been identified as 12 maximum according to Schwartz Knowledge Criteria.
 * Hypothesis of H0 is rejected at %1 significance. a Lag length.

Table 5.
 Unrestricted Johansen Cointegration Test (Monetary Transmission Mechanism)

The causality between credit-monetary base, credit-monetary base-IP, credit-money supply and credit-money supply-IP for the passive money test was examined using the vector error correction model (Table No.6). The results show that there is causality towards credit=>Monetary Base and Credit=>Money Supply. This situation supports in part the views of the accommodationalists in the new Keynesian approach (this is supported completely because there was no Money Supply=>IP causality found). Table No.8 shows the monetary transmission



Graph 5.
 Monetary Transmission Mechanism (Turkey)

	Short-term Effect	Long-term Effects	VECM	
	Wald test:	EC _{t-1}	Short-term	Long-term
DEPENDENT Var:LMB				
LL	8.28649 [0.0040] *	0.853448 [0.005]*	LL=>LMB	LL=>LMB
LL	8.77713 [0.0124] **	0.861413 [0.006]*	LL=>LMB	LL,LIP =>LMB
LIP		0.192875 [0.457]	LL#>LMB	
DEPENDENT Var:LM2				
LL	4.25987 [0.0390] *	0.462158 [0.041]*	LL= > Lm2	LL= > Lm2
LL	3.93154 [0.1400]	0.419147 [0.097]**	LL=>LM2	LL,LIP #>LMB
LIP		0.244108 [0.318]	LL#>LM2	
DEPENDENT Var:LL				
LMB	0.0020319 [0.9640]	0.0099965 [0.964]	LMB#>LL	LMB#>LL
LM 2	2.42909 [0.1191]	0.432127 [0.122]	LM2#>LL	LM2#>LL
LMB	1.8055 [0.4055]	0.0057303 [0.981]	LMB#>LL	LMB,LIP #>LL
LIP		0.391690 [0.211]	LIP#>LL	
LM 2	3.14705 [0.2073]	0.511034 [0.081]**	LM2=>LL	LM2,LIP #>LL
LIP		0.120232 [0.602]	LIP#>LL	
DEPENDENT Var:LIP				
Lm2	2.31045 [0.1285]	-0.366596 [0.131]	LM2#>LIP	LM2#>LIP

* %1, ** %5 significant level of acceptance respectively.
Values inside brackets are t-stats. Lag length is determined as 4.

Table 6 .
Causality Tests Based on Vector Error Correction Model
Endogeneity of Money

mechanism vector error correction model test. According to Table No.8, long-term causalities can be found in Diagram No.5. Eight causality directions were identified: Credits=>Money Supply, Interest Rates=>Money Supply, Interest Rates=>Real Exchange Rates (negative), Interest Rates=>Inflation, Interest Rates=>IP (negative), Money Supply=>Inflation, Real Exchange Rates=>Inflation, Inflation=>IP (negative). These results show that money supply is the cause of inflation in the long term (influence factor 1.03), that credits affect money supply (influ-

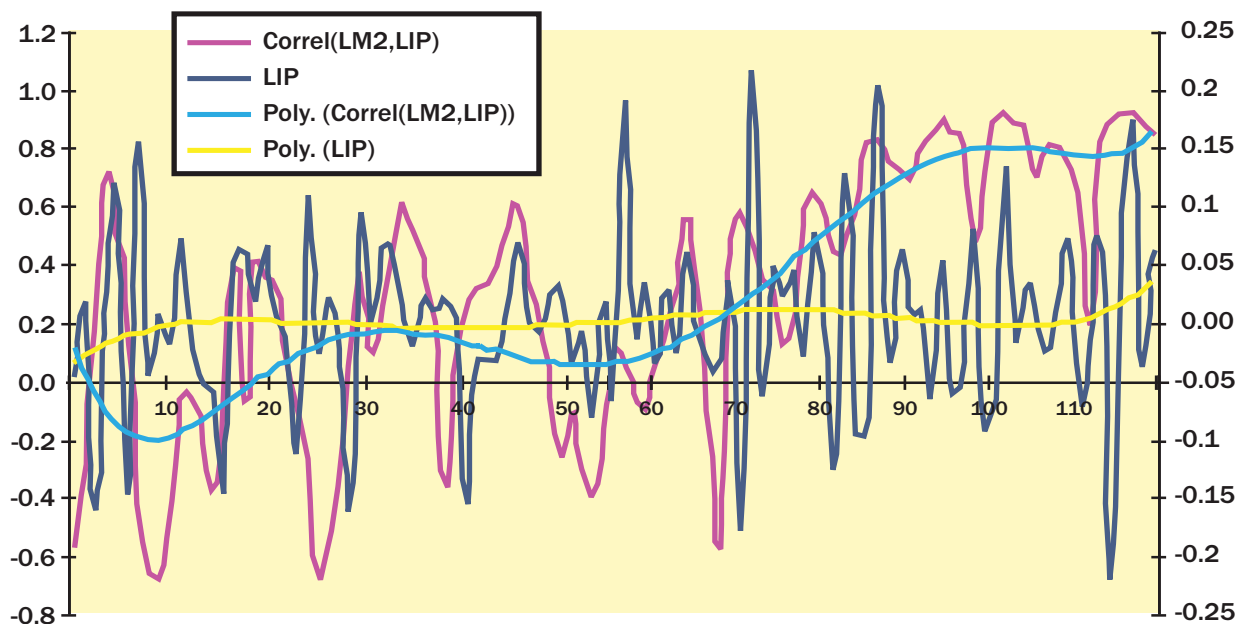
	Short-term Effect	Long-term Effects	VECM	
	Wald test:	EC _{t-1}	Short-term	Long-term
DEPENDENT Var:LM2				
Li	7.31782 [0.0068] *	0.276316 [0.008]*	Li=> Lm2	Li=> Lm2
DEPENDENT Var:LI				
LM 2	0.0034883 [0.9529]	0.0426212 [0.953]	LM2# > LI	LM2# > LI
DEPENDENT Var:LIP				
LM 2	2.31045 [0.1285]	-0.366596 [0.131]	LM2# > LIP	LM2# > LIP
DEPENDENT Var:LUFÉ				
LM 2	17.9812 [0.0000] **	1.03013 [0.000]*	LM2=> LUFÉ	LM2=> LUFÉ
DEPENDENT Var:LM2				
Lexc	0.0030329 [0.9561]	-0.0135914 [0.956]	LExc#> LM 2	LExc#> LM2
DEPENDENT Var:LExc				
LM 2	1.12743 [0.2883]	-0.248525 [0.291]	LM2#> Lexc	LM2#> Lexc
DEPENDENT Var:LM2				
LL	4.25987 [0.0390] **	0.462158 [0.041]*	LL=>LM2	LL=>LM2
DEPENDENT Var:LL				
Lm2	2.42909 [0.1191]	0.432127 [0.122]	LM2#>LL	LM2#>LL
DEPENDENT Var:LIP				
LI	4.76484 [0.0290] **	-0.174685 [0.031]*	Li=> LIP	Li=> LIP
DEPENDENT Var:LIP				
LUFÉ	0.606543 [0.4361]	-0.167911 [0.438]	LUFÉ#> LIP	LUFÉ#> LIP
DEPENDENT Var:LUFÉ				
Lexc	5.00403 [0.0253] *	-0.967069 [0.027]*	Lexc=> LUFÉ	Lexc=> LUFÉ
DEPENDENT Var:LL				
Lexc	0.929813 [0.3349]	-0.281147 [0.337]	LExc#> LL	LExc#> LL
DEPENDENT Var:LUFEL				
LI	4.33088 [0.0374] **	0.390938 [0.040]*	Li=> LUFÉ	Li=> LUFÉ

* %1, ** %5 significance level of acceptance respectively.
Values inside brackets are t-stats. Lag length is determined as 4.

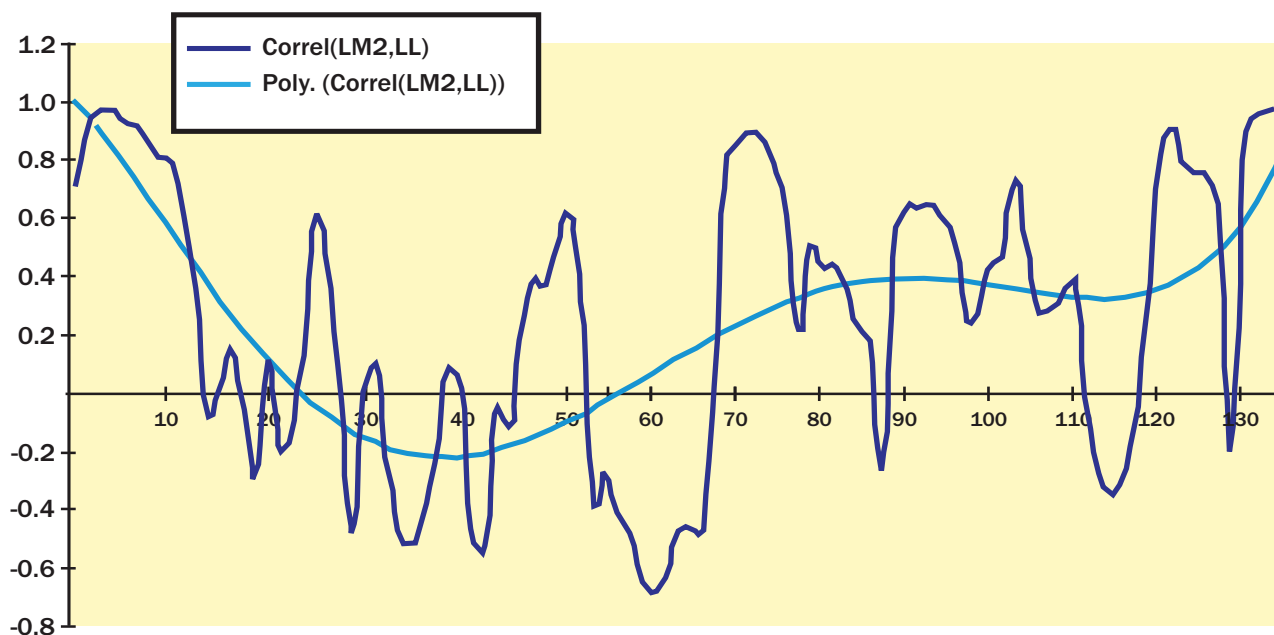
Table 7.
Causality Tests Based on Vector Error Correction Model-
Monetary Transmission Mechanism

ence factor 0.46), that money supply does not affect inflation rates but that interest rates affect money supply (influence factor 0.27) and that real exchange rates affect inflation in a negative and dominant way (influence factor -0.96). Also, it has been found that IP is affected by interest rates but not affected by money supply. This situation conforms neither to the monetary school nor the new Keynesian school views. The Central Bank's choice of interest rates as the main indicator and means of identifying net internal assets after the 2001 crisis is

one reason for this situation. Another reason is that in the new economic period factors influenced the real economic activity through credits (consumer credits, business credits and credit cards) and interest rates. Diagram No.6 shows the difference in correlation between money supply and IP and Diagram No.7 shows the difference in correlation between money supply and credits. Because correlation is also under the influence of cyclic effects, causality was tested with the vector error correction model.




Graph 6. Dynamic Correlation (LM2, LIP, 4 Lags)



Graph 7. Dynamic Correlation (LM2, LL, 4 Lags)

5. Concluding Remarks

This study was conducted to test the money base, money supply, credit capacity, industrial production index, interest rates, inflation and real exchange rate data of Turkey during the years 1997 – 2006. These were tested through the monetary transmission mechanism and passive money hypothesis using the vector error correction model-based causality test. Empirical findings show that the passive money supply hypothesis of the new Keynesian economy is supported in part by accommodationalist views, and do not conform to the structuralist and liquidity preference theories. However, according to the monetary transmission mechanism, it has been established that long-term money supply only affects general price levels, and that production is influenced by interest rates in the new economic period. Empirical findings show that in the new economy, period interest transmission mechanisms are brought to the forefront. During the monetary transmission mechanism test, it was decided to leave in the forefront. During the monetary transmission mechanism test, it was decided to leave in the Markov regime variant, which takes into account cyclic effects, a vector error correction model proposed for future studies 

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Institutions and Economic Performance: An Overview of Empirical Research with the Main Focus on Transition Economies

Adnan Efendic and Geoff Pugh

Abstract

The New Institutional Economics integrates the theory of institutions into mainstream economics. Institutions are formally and informally the "rules of the game" in society. As such, institutions structure economic activity and influence its outcomes at both micro and macro levels. This paper reviews the empirical literature, focussing on its relevance to transitional economies. We conclude that institutions matter profoundly for economic growth and development. However, although empirical research has increased understanding of the role of institutions in the economy, many questions remain open, especially for transition economies. Knowledge gaps that invite further investigation include: transmission channels between institutions and national output; the issue of mutual endogeneity between institutions and economic growth; the structure and size of the institutional framework and its influence on economic performance; and the links between success in integration with the EU of transition economies, financial support from the EU and the quality of institutions.

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1. Introduction

The New Institutional Economics contributes to explaining economic growth and development by considering not only standard factors of production but also institutions. Neo-classical theory assumes that the institutional framework within which markets operate exists and operates well. However, both institutional theory and the recent experience of transitional economies remind us that *market-promoting institutions cannot be taken for granted*, neither at the macro level of the political and legal systems which, together with social norms such as trust and reciprocity, determine the efficiency - even the possibility - of exchange, hence of all market relations and national economic growth, nor at the micro level, where laws, social norms and organisations influence the efficiency of markets in goods and services, labour and capital. Many empirical studies explore the role of institutions in the economy, including some that are focused on transition countries (TCs). Researchers apply a whole range of methodologies, each of which has particular strengths and weaknesses. However, a common conclusion of empirical research is that *institutions do matter in explaining economic differences between countries*.

The following sections present the theoretical background, discuss the empirical research in general and on TCs in particular, discuss methodological problems and knowledge gaps in the literature, and finally offer some concluding thoughts and observations.

2. Institutions and economic performance – the theoretical background

The New Institutional Economics integrates the theory of institutions into mainstream economics. Institutions are the

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“rules of the game” in society, they may be formal or informal, and they determine both the costs of production and the efficiency with which markets operate. Neoclassical theory explains the functioning of the market but on the assumption that transactions do not impose costs. However, institutions should be included in economic models to account adequately for transactions costs (North, 2006): for example, law, non-corrupt institutions of contract enforcement, and norms of trust and reciprocity enable transactions to take place that otherwise would be too costly – even impossible – to accomplish. Another example is the institution of money, without which market relations would be limited to costly barter transactions. Consequently, economic models – for example, the production function approach to economic growth - omit an important explanatory variable if they do not account for institutional differences across countries (Gwartney et al. 2004).

Market economies can not work well without efficient non-market institutions. Which institutions matter for economic growth is less known. In spite of the fact that the institutional framework is not uniquely determined between different countries, Rodrik (1999) differentiates five general types of market-supporting institutions relevant to economic growth: property rights institutions; regulatory institutions; institutions for macroeconomic stabilisation; institutions for social insurance; and, finally, institutions of conflict management.

The channels through which institutions affect income are also still largely unexplored. However, some empirical research suggests that the largest impact of institutions is through their effects on factor productivity (Eicher et al. 2006). The quality of a country’s institutions substantially determines its level of human and physical capital, incentives for investment, and the productivity of its resources (Gwartney et al. 2004).

A theoretical explanation of institutional change and economic performance in TCs has been advanced by Hare (2001). He argues that an adequate institutional framework is an important precondition for success in the transition process and sustained economic growth. At the first stage of transition, huge institutional reform is needed. Unfortunately, mainstream economic theory did not at first recognize the importance of the institutional framework. It was assumed that the necessary institutional structure would be established rapidly. This proved to be incorrect. Instead, it became apparent that if a country lacks important institutions, or if its institutions operate in a manner not conducive to market relations, then business activity and national economic performance are impaired or even devastated.

Empirical work in institutional economics is not a straightforward task. It is important to know the historical background of the institutional framework. In addition, researchers should explain the level of abstraction at which they operate. For example, cross-country comparisons involve a high level of abstraction, while a case study approach focusing on the concrete features of specific examples involves relatively little. Finally, it is very important to investigate the effects of institutional change on the economic environment as well as the potential causes of institutional change (Alston, 1996).

Empirical researchers that focus on the role of institutions in explaining economic growth and economic differences among countries include Scully 1988; Moers, 1999; Harvylyshyn et al. 2000; Sachs, 2001; Rodrik et al. 2002; Asane et al. 2003; Gwarntey et al. 2004; Chousa et al. 2005a and 2005b; Redek et al. 2005; and Eicher et al. 2006. A common characteristic of the conclusions reached by all of these papers is that institutions are an important factor in explaining differences in economic development between countries. In the following subsections we present some representative research findings.

3. *Institutions and economic performance in empirical research*

An interesting paper is Rodrik, et al. (2002) with the striking title: “Institutions Rule: The Primacy of Institutions over Integration and Geography in Economic Development”. The authors find that the quality of institutions is the most important factor in explaining differences in economic performance between countries. The analysis includes samples of up to 140 countries and estimates the following regression model (subscript *i* indexes countries 1,...,N; and *Ln* denotes natural logarithm):

$$Ln y_i = \mu + \alpha INST_i + \beta INT_i + \gamma GEO_i + \varepsilon_i \tag{1}$$

Institutions are measured using variables that capture rule of law and protection of property rights (INST) according to the methodological approach of Kaufmann, Kraay and Zodio-Lobaton (2002, cited in Rodrik et al. 2002). The variable Integration (INT) is measured using two approaches - the ratio of trade/nominal GDP and trade/GDP estimated from a gravity model. Geography (GEO) is denoted as the distance from the equator. The final term is the standard error term (ε_i). The coefficients on Institutions, Integration and Geography all have the expected sign according to their economic explanation and they are all statistically significant (or very close to significant). The model explains more than 50 percent of between-country variation

in income. Countries with stronger institutions, more open economies and more distant from the equator are more likely to have higher levels of national income. The authors use a variety of alternative indicators to proxy geography, institutions and integration but they always find that *the quality of institutions is the main factor that explains income differences between countries*.

The New Institutional Economics assumes that it is necessary to 'restate the traditional production function' in empirical research (North, 2006). Some authors apply this approach using the output of institutions as an "additional factor of production" or include institutions as a "natural extension" of the production function (e.g. Assane et al. 2003; Gwartney et al. 2004; Redek et al. 2005; Eicher et al. 2006). For example, Assane et al. (2003) estimate the following regression model:

$$GDP_i = \beta_0 + \beta_1(ph.cap)_i + \beta_2(lab.gr)_i + \beta_3(hum.cap.for)_i + \beta_4(ecc.fr)_i + \beta_5(inst)_i + \beta_6(inst \cdot ecc.fr)_i + \varepsilon_i$$

(2)

The authors analyse a sample of 110 countries as well as sub-samples representing countries with different levels of development. The variables are: *ph.cap* - physical capital formation (output share of real investments); *lab.gr* - labor force growth (growth of the working-age population); *hum.cap.for* - human capital formation (human development index); *ecc.fr* - economic freedom (the socioeconomic liberty index). The institutional framework (*inst*) is represented by two variables. The first, *institutional efficiency*, is the unweighted average of nine indicators of government performance: the higher the value of institutional efficiency, the higher the "quality" of institutions. The second, *institutional quality*, is based on political risk ratings published in the *International Country Risk Guide*. Political risk is an unweighted average of 13 indicators of government performance. The results from estimating the model are significant for the whole sample as well as for two sub samples – less developed countries and medium developed countries. The model explains around 88 percent of national (i.e., between-country) variations in levels of income. The estimated coefficients suggest that human capital formation is the most important factor in explaining economic development among countries. Nevertheless, other variables are also very important in explaining economic development, including the institutional framework and institutional quality. In conclusion, they find that *a model with institutional variables is stronger in explaining economic growth than one without institutional variables*.

4. *Institutions and economic performance in empirical research – the case of transition countries*

After the first 'Mid Decade' of transition, interesting research emerged on economic performance and structural and institutional reform in transition economies. Sachs (2001) concludes that after the first five years of the transition process, rapid systematic transformation had been successful. Five years had been sufficient to establish the institutions of market economies and to achieve positive economic growth in some TCs. Sachs (2001) used the European Bank for Reconstruction and Development (EBRD) indices to measure the institutional performances of TCs in comparison with developed market economies. EBRD indices cover nine areas: large-scale privati-

zation; small-scale privatization; enterprise restructuring; price liberalization; trade and the foreign-exchange system; competition policy; banking reform; security markets; and legal rules on investment. Using those indices, he created an overall index of reform progress (IRP) as a simple sum of these sub-indices. He estimated two models:

$$GROWTH(1995)_i = \beta_0 + \beta_1(IRP)_i + \varepsilon_i$$

$$GROWTH(1989-1995)_i = \beta_0 + \beta_1(IRP)_i + \varepsilon_i$$

(3)

The estimated regressions suggest that both economic growth in the year 1995 as well as average annual growth in the period 1989-1995 are positively correlated with the overall reform progress. The estimated coefficients in both regressions are statistically significant and have the expected positive sign. Even though the success of TCs on average was positive after five years of transition, the author emphasizes that the success of those countries varies between the particular aspects of transition measured by the EBRD indices. The liberalization of the economy seems to be the most successful aspect of transition while the most difficult one was privatization, especially large-scale privatization. He also concludes that at the begin-

ning of the transformation process structural and institutional reforms examined together had produced ‘many losers, as well as winners’. Indeed, after more than fifteen years of transition, some countries still have problems in achieving their pre-transition level of development and obviously do not conform to the estimated model. Finally, the ‘simple sum’ of different structural, institutional and other indices as a proxy for overall success in the transition process may be questionable. A simple average does not tell us much about overall success, given that even one problematic area can impede the economic progress of a country.

Chousa et al. (2005a) developed a new formula to measure institutional efficiency using the shadow economy to reflect institutional efficiency/inefficiency:

$$I = \frac{1 - \left(\frac{H}{GDP} + \frac{B}{GDP} \right)}{\hat{H}/\hat{GDP}} \quad (4)$$

The variable H is the shadow economy, B is the volume of barter trade, and \hat{H}/\hat{GDP} highlights the average indicator for the OECD economies. The main advantage of this indicator over the weighted indices is that here the “weights” are set by the market itself. The authors’ regression model is estimated from panel data compiled from 20 TCs over the period 1990-2000 (where i indexes countries $1, \dots, N$ and t indexes years $1, \dots, t$):

$$\begin{aligned} \ln(GDP)_{it} = & \beta_1 \ln(INSTIT)_{it} + \beta_2 \ln(YEARS.COMM)_{it} \\ & + \beta_3 DEMOC.IND_{it} + \beta_4 FDI_{it} + \varepsilon_{it} \end{aligned} \quad (5)$$

The independent variables are institutional efficiency (INSTIT), years under Communism (YEARS.COM) (to reflect the initial conditions of the reform process), democratization index (DEMOC.IND) and FDI inflow (FDI). The regression explains 92 percent of the variation of GDP as the dependent variable. The estimated coefficients from this model suggest that “good” institutions help transitional countries grow faster and to achieve conditional convergence. All of the independent variables in the regression make a significant contribution to economic growth, but the most important factor is “institutions”.

Finally, Redek et al. (2005) report panel analysis for 24 TCs over the period 1995-2002 in particular investigates the contribution of institutional quality to economic performance. Their maintained hypothesis is that better institutions mean better economic performance. Their index for institutional quality is obtained from the Heritage Foundation database. This index measures overall institutional quality by evaluating ten aspects of institutions: trade policy; fiscal burden of government; gov-

ernment intervention in the economy; monetary policy; capital flows and foreign investment; banking and finance; wages and prices; property rights; regulation; and informal market activity. Their estimated regression model is:

$$\begin{aligned} \ln Y_{it} = & \beta_0 + \beta_1 INST_{it} + \beta_2 INSTlag(1)_{it} + \beta_3 INV_{it} + \\ & \beta_4 B.DEF_{it} + \beta_5 INFL_{it} + \beta_6 FDI_{it} + \varepsilon_{it} \end{aligned} \quad (6)$$

where Y – GDP; INV , $B.DEF$, and FDI - respectively domestic investment, the budget deficit and foreign direct investment as a percentage of GDP; and $INFL$ - inflation. Specification without institutional variables yields poor results. However, after respecification to include institutions, the estimated model explains 51 percent of the variation of GDP (Y), while the estimated coefficients on the variables of interest are all highly significant and have the expected sign. In particular, the estimated coefficients reveal a strong output effect not only from current institutional quality (INST) but also from past institutional quality (INSTlag(1), the first lag of institutional quality). Overall, the results suggest that *the better the institutional quality, the higher the level of national output*. Moreover, both the quality of institutions and the speed of reform are important in explaining different economic outcomes in TCs.

5. Institutions and economic performance in empirical research – shortcomings and possible directions for future empirical analysis

A common conclusion of the presented studies is that institutional differences help us to understand differences in economic development between countries. Although institutions do not produce output, they do affect indirectly the level of output (Eicher et al. 2006).

The existing research implies that the quality of institutions may be measured using the following methodologies: institutional development indices, other relevant indicators, or questionnaires. Most research is based on existing institutional development indices that measure structural reform and institutional efficiency (Havrylyshyn, 2000; Sachs, 2001; Selowsky et al. 2001; Rodrik et al. 2002; Assane et al. 2003; Redek et al. 2005). Using indices such as the EBRD transition index, the Freedom House index, the Heritage Foundation index, the Indices of Economic Freedom, and the World Bank and Euro-money indices, researchers establish indices that capture the quality of the institutional framework. This ‘institutional index’ is then in-

cluded in econometric analysis, which is mainly implemented by ordinary least squares (OLS) methodology.

Even though this approach is predominant among empirical researchers, a potential shortcoming is the assumption that the institutional framework in different countries has the same structure and size. For example, institutions for macro-economic stabilisation (i.e. monetary policy institutions) may differ significantly among different countries. Four TCs have a Currency Board as their monetary regime that enables them to get a high rank in measurements of the efficiency of their monetary institutions. Yet, other transition countries have different monetary policy arrangements. Although the main institutional difference among transition countries may be the Currency Board regime, this issue is not considered in empirical research (Nenovsky et al. 2002). Moreover, the size of the institutional framework also varies considerably between TCs.

Institutional development indices are based on the judgement of outside experts and may be subjective and contain perception bias (Havrylyshyn, 2000). Instead, Chousa et al. (2005a) argue that the best reflection of institutional efficiency/inefficiency may be the shadow economy. The problem with this approach is that levels of grey economy 'acceptable' for different countries may vary. The other problem is that institutions are responsible for 'other' outputs that may not be best represented by the shadow economy. Finally, some authors (Brunetti et al. 1997) use existing surveys (e.g., the World Bank and EBRD *Business Environment and Enterprise Performance Survey*) and construct indicators for institutions using relevant questions. However, this approach is limited by problems generally associated with questionnaires, such as lack of relevant questions, observations, and sampling issues.


An unresolved problem that poses both conceptual and technical difficulties to researchers is the potential endogeneity of institutions and/or institutional development. The corresponding challenge is to measure the impact of institutions on income and growth while taking into account four possible outcomes with respect to causation: (1) institutions and growth (income) are uncorrelated; (2) better institutions cause higher economic growth; (3) higher economic growth causes better institutions; and (4) mutual or reverse causality between growth and institutions (i.e., better institutions favour growth while growth favours the development of good institutions).

To analyze different national institutional frameworks and the role of institutions in explaining differences among TCs, it may be important to take into consideration differences that exist with respect to the integration process with the EU. Some empirical research for TCs implies that the highest quality of

institutions and the best economic performances are shown mainly by TCs that are today members of the EU. Those TCs that are current EU members have received the highest level of financial support from the EU, which has been instrumental in improving the institutional framework. The possible problem of correlation between quality of institutions, success in integration with the EU and financial support from the EU is still unexplored.

6. Concluding remarks

Analysis of existing research implies that the quality of institutions may be measured using questionnaires, institutional development indices or other relevant indicators. Most research is based on existing institutional development indices, especially for TCs. However, in spite of different approaches to measuring institutional quality, the available empirical research on cross-country differences suggests that *institutions do matter for economic growth and development*.

Our short presentation of methodological differences in the empirical research suggests a number of persistent knowledge gaps and a corresponding need for additional research into the quality of institutions and their impact on the economy, especially for TCs. In particular, it would be instructive to extend and deepen analysis of the following areas: identification of the institutions that matter most for economic growth; interactions between institutions within different national institutional frameworks; transmission channels between institutions and national output; the structure and the size of the institutional framework and its corresponding influence on economic performance; causal relationships between the quality of institutions (institutional change and development) and income (economic growth and development); and the correlation between financial support from the EU, quality of institutions and economic development in TCs. 

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Investment Climate and Foreign Direct Investment Trends in the South Caucasus and Central Asia

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Abstract

This paper analyzes and compares investment climates and trends in the South Caucasus and Central Asia. The analyses and comparisons were conducted in view of the impacts of transitional progress, economic development, and the energy reserves from these regions on the inflow of foreign direct investment. Improvement of the investment climate by accelerating the transition process and reducing investment risks can be seen as the most important determinants of FDI inflows into the countries of these two regions. Structural diversification of South Caucasian and Central Asian natural resource-based economies would be essential in ending dependence on the energy and mining sectors and would have positive long-term effects on economic growth and the investment climate, and attract other, additional types of FDI.

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1. Introduction

Central Asia and the South Caucasus are regions with strong development potential based on the availability of energy and natural resources, an educated work force, technological infrastructure and strategic geographic location. Yet since their independence the countries of these regions have faced major challenges: the heritage of a centrally planned system, lack of integration into the world economy, weak institutional development, the absence of trade and infrastructure links within the region, and the slow pace of reforms designed to promote governance and private sector development. Progress has been uneven concerning the modernization of their economies. Institutional capacities have not followed the pace of new legislation and there is still a perception of high risk for business transactions. Up to now there was no coherent strategy to enhance regional cooperation. Bilateral and multi-lateral institutions are active in these regions, but their efforts are largely carried out on an individual country basis.

The South Caucasus is a small region with about 16 million people, a total GDP of approximately US\$ 23.9 billion and GDP per capita of US\$ 1.478. It consists of three small countries, Armenia, Azerbaijan and Georgia, each with similar levels of economic development (table 1).

Central Asia is a large territory with low population density. Its population of 59.2 million inhabits an area that exceeds the size of Western Europe. Its total GDP is about US\$ 81.3 billion, while its average GDP per capita is US\$ 1.408. The five Central Asian countries, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan, differ substantially in terms of size, population and level of economic development. With a GDP per capita of app. US\$ 3.700, Kazakhstan is the most developed country of the region, while GDP per capita in the other four countries varies from US\$ 1.283 in Turkmenistan to US\$ 356 in Tajikistan (table 1).

2. Macroeconomic performance in the South Caucasus and Central Asia

The South Caucasus and Central Asian regions comprise the poorest and least developed republics of the former Soviet Union. They gained independence after the break-up of the Soviet Union in the second half of 1991.

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Country	Population 2005	GDP Per Capita (in US\$, 1993)	GDP Per Capita (in US\$, 2005)	GDP (US\$million), 2005	Investment/GDP (in%, 1995)	Investment/GDP (in%, 2005)
Armenia	3,2	125	1499	4903	16,2	30,0
Azerbaijan	8,4	173	1521	12561	14,9	53,0
Georgia	4,6	163	1385	6395	4,0	27,0
Caucasus	16,2	161	1478	23859	11,9	41,0
Kazakhstan	15,1	328	3714	56088	23,3	28,0
Kyrgyzstan	5,1	195	476	2441	20,4	20,0
Tajikistan	6,5	122	356	2326	17,0	14,0
Turkmenistan	6,5	517	1283	6774	n/a	25,0
Uzbekistan	26,0	233	546	13667	24,0	25,0
Central Asia	59,2	273	1408	81296	22,3	27,0
SEE	51,1	1140	4181	213188	18,3	24,1
CEE	72,9	2593	8091	667860	20,1	22,8

Source: EBRD Transition Report 2006; World Bank WDR 1995 and 2007.

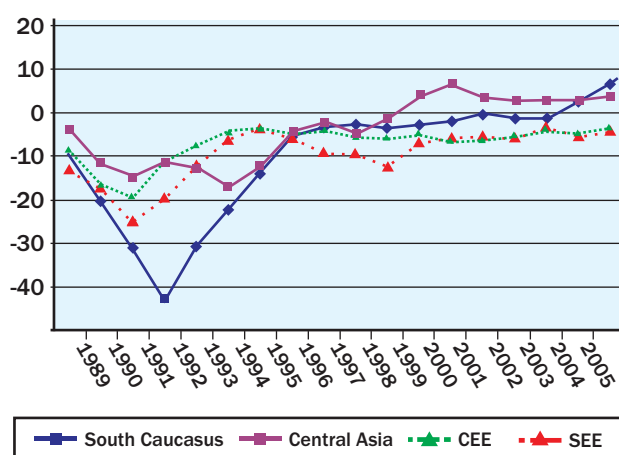
Table 1.
Basic indicators for South the Caucasus and Central Asia

The South Caucasus was strongly affected by ethnic conflicts during and after the break up of Soviet Union, while Central Asia experienced less dramatic consequences from its disintegration.

All the countries from these two regions underwent extremely difficult conditions in the early years of their independence and post-communist political and economic transformation. They inherited ineffective, fragmented, low-income command economies and disrupted productive, financial and trade links.

The South Caucasus went through a deeper recession than any other transitional region. The recession lasted until 1995 and was marked by a drastic decline in GDP and investment. The regional GDP in 1995 stood at only 33 percent of its 1989 level, with an investment rate of only 11.9 per cent of the regional GDP (charts 1, 2 and 3).

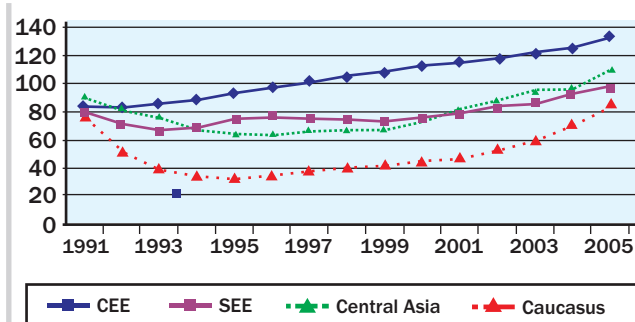
A certain level of political stabilization of the region resulted in the acceleration of the transition process in the mid 1990s, and has been followed by an intensive growth in investment and GDP (chart 1 and 3). Despite permanent and intensive GDP growth since 1996 (8.9%), the regional GDP in 2006 stood at 86 per cent of its 1989 level.



Source: EBRD Transition Report 2001 and 2006

Chart 1.
Real GDP Growth, 1989-2006 (in %)

Central Asia experienced a gradual but longer transitional recession. It resulted in the contraction of regional GDP in 1995 to 64 per cent of the region's pre-transition GDP, while its investment rate in 1994 was 17.2 percent of the regional GDP.

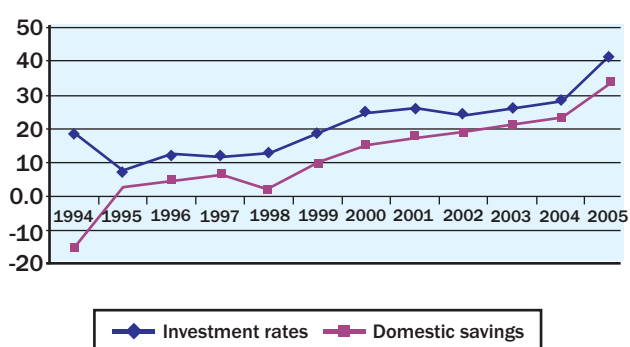


Source: EBRD Transition Report 2006 and UN ECE. (2004). Economic Survey of Europe 2004, No.2, New York – Geneva: United Nations Economic Commission for Europe

Chart 2.
Real GDP growth by region, 1990-2005, (1989=100)

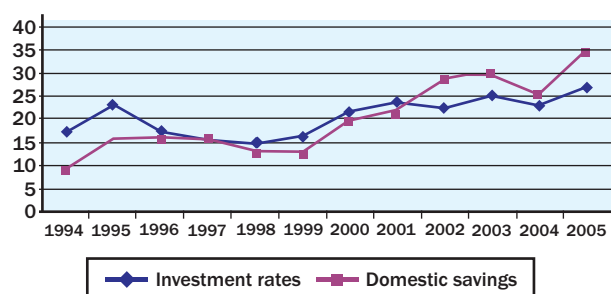
The region achieved a certain level of liberalization and macroeconomic stabilization in 1999, followed by accelerated growth and intensified investment activity during the last seven years, with an average GDP growth rate exceeding 8 per cent, and investment rates of about 23.5 per cent of GDP. Such favorable trends resulted in complete recovery of the pre-transition levels of regional GDP, which in 2005 stood at 111 per cent of its 1989 level. (charts 1, 2 and 4).

The South Caucasus has been characterized by a consistent savings – investment gap (chart 3), not only due to a low level of domestic savings during the 1990s, insufficient to cover even the low investment rates from that period, but from continuously increasing investment rates over the last several years as well.



Source: World Development Report various years, WWW database, EBRD database, National statistics

Chart 3.
The South Caucasus, Savings - investment gap, 1994-2005



Source: World Development Report various years, WWW database, EBRD database, National statistics

Chart 4.
Central Asia, Savings - investment gap, 1994-2005

In Central Asia the savings - investment gap accrued only periodically, and was much smaller in comparison with the South Caucasus.

Energy-rich countries, such as Azerbaijan and Kazakhstan, have much higher domestic savings due to attracting significant FDI in the energy sector. Consequently, they are registering consistent growth in energy-related revenues.

3. Foreign Direct Investment and other Capital Inflows into the South Caucasus and Central Asia

Foreign capital inflows have been of crucial importance for the initiation and acceleration of the transition processes in the countries of the South Caucasus and Central Asia. These inflows played an important role in filling the significant savings - investment gap, since low domestic savings in the early years of transition were a limiting factor for more intensive investment activity in the region, the necessary precondition for accelerated progress in transition and economic performance for both regions.

Official inflows have been unevenly distributed across these two regions. South Caucasian countries received a relatively modest amount of official capital in the early 1990s, but since 1995 their inflows radically increased, providing these countries with additional capital during the extremely difficult period of their political and economic transformation. Since 2000, Azerbaijan has received the predominant part of this capital. In Armenia its inflow has consistently decreased, while in Georgia outflow has been exceeding inflow.

The South Caucasus received more official capital in absolute and per capita terms than Central Asia.

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Armenia	0	0	0	118	168	131	118	92	99	78	74	65
Azerbaijan	0	103	54	182	50	88	68	184	207	163	226	355
Georgia	0	0	17	40	160	137	67	21	-98	-22	-65	-43
The South Caucasus	0	103	71	340	378	356	253	297	208	219	234	378
Kazakhstan	0	-33	525	473	-206	-178	601	-33	-369	-866	238	-1237
Kyrgyz Republic	0	61	14	250	358	0	0	8	-3	6	13	-9
Uzbekistan	34	810	-139	215	511	-311	202	144	86	110	147	202
Central Asia	34	838	400	938	663	-489	803	119	-286	-751	398	-1044
SEE	724	365	1064	815	1397	1269	808	852	1117	754	1545	1129

Source: IMF WEO database.

Table 2.
Total official inflows, net (in million USD)

South Caucasian countries received a relatively modest amount of official funding in the early 1990s. This substantially increased in 1995 and eventually stabilized at an average inflow of 300 million per year over the past ten years (Table 2).

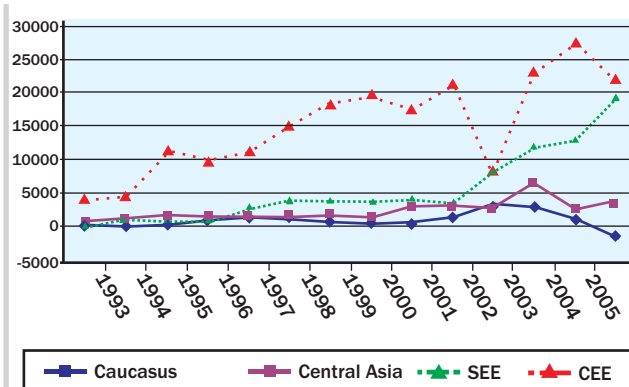
Central Asia received a considerable amount of official capital until 1996. Since 1997, however, this capital played an important role only in Uzbekistan, where official capital still exceeds the level of its FDI inflow.

Due to their poor investment climate as a result of high political risks and a slow progress in transition, these two regions experienced a low level of FDI inflows during the early 1990s.

Along with some progress in transition and political and macroeconomic stabilization, FDI inflows have accelerated and in 1996 significantly surpassed the inflow of official funding into both regions. The FDI into the South Caucasus and Central Asia has been mainly "resource seeking," as most of these countries are rich in natural resources or are transit routes for strategic oil and natural gas export pipeline routes.

FDI inflows into the South Caucasus in the early 1990s were practically non-existent due to high investment risks related to ethnic conflicts, poor progress in transition and macroeconomic instability.

Nevertheless, a certain level of political and economic stabilization of the region achieved in 1995 resulted in the acceleration of FDI inflows in the second half of 1990s, mostly related to FDI in Azerbaijan's energy sector and the construction



Source: EBRD Transition Report 2003 and 2006

Chart 5.
FDI inflows, 1993– 2006 (in million US\$)

of an oil pipeline linking the Caspian Sea in Azerbaijan with the Georgian Black Sea port of Supsa, the first among a number of huge investments in the South Caucasus energy transport infrastructure. Due to this energy-related FDI and several large privatizations (Tbilisi electric power distribution system, Armentel, etc), the regional FDI in 1998 amounted to almost US\$ 1.5 billion. After a period of stagnation and even decline (1999-2001), FDI inflows in the South Caucasus accelerated between 2001-2004, recording maximum levels in 2004 due mostly to two big regional projects related to the construction of oil and gas pipelines in Azerbaijan and Georgia (Shiells, R. Clinton, 2003).

The construction of the Baku-Tbilisi-Ceyhan (BTC) oil pipeline, which started in early 2003 and was completed in 2005, has been the most important infrastructure project in the region.

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006 Projection
Armenia	1	8	25	18	52	221	122	104	70	111	121	217	255	220
Azerbaijan	0	22	330	627	1115	1023	510	149	299	1048	2353	2351	458	-2124
Georgia	0	8	6	54	236	221	62	153	80	130	335	503	415	390
Caucasus	1	38	361	699	1403	1465	694	406	449	1289	2809	3071	1128	-1514
Kazakhstan	473	635	964	1137	1320	1143	1468	1278	2861	2463	2210	5548	1721	2500
Kyrgyzstan	10	38	96	47	83	87	38	-7	-1	5	46	131	101	89
Tajikistan	9	12	10	18	18	25	21	24	9	36	32	272	36	60
Turkmenistan	79	103	233	108	108	62	125	131	170	276	226	330	320	300
Uzbekistan	48	73	-24	90	167	140	121	75	83	65	70	189	211	250
Central Asia	619	861	1278	1400	1696	1457	1773	1501	3122	2845	2584	6470	2389	3199
SEE	274	645	725	1148	2921	3974	3618	3628	4302	3587	8219	12023	13011	19345
CEE	3925	4580	11422	10023	11217	15098	18329	19689	17497	21504	8417	23147	27509	22071

Source: EBRD Transition Report 2003 and 2006

Table 3.
FDI inflows, 1993– 2006 (in million US\$)

The direct investment in its construction amounted to US\$ 3.6 billion, with an enormous amount of capital invested in related projects. The pipeline's route extends from Baku, via Tbilisi in Georgia, to Ceyhan on the Turkish Mediterranean coast, providing easier access to Azeri oil and creating the possibility for this pipeline to extend and connect to the Kazakhstan Caspian region oil fields.

The South Caucasus gas pipeline (Baku-Tbilisi-Erzurum), constructed parallel to the BTC from Azerbaijan through Georgia to the Turkish-Georgian border, where it will connect the Turkish gas network, is estimated to cost about US\$ 1 billion. From 2007, it will export natural gas from Azerbaijan.

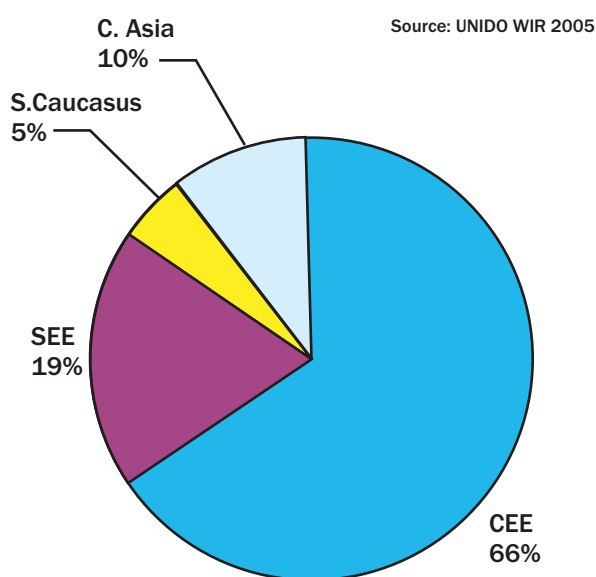


Chart 6.
FDI stock per region, 2005

Most Central Asian FDI has been in Kazakhstan – specifically in the extraction and transport of oil and gas from the Caspian region fields. The development of the three major oil fields in Kazakhstan (Tengiz, Karachaganak and Kashagan) has given rise to an influx of new investment and infrastructure development.

After the finalization of huge FDI energy-related projects in Azerbaijan and Kazakhstan, FDI radically decreased in both regions in 2005. It is estimated that in 2006 the South Caucasus will record negative FDI inflows, due to an outflow of FDI from Azerbaijan of more than US\$ 2.0 billion.

The regional distribution of FDI among South Caucasian countries has been unequal (table 3 and chart 7), as Azerbaijan, the only energy-rich South Caucasian country with significant oil and gas reserves, attracted about 74 per cent of the regions' FDI. Even though Georgia is not rich in natural resources, the

country benefited a great deal from its important geographic position as a transit point linking the energy-rich Caspian region with Europe. The three large pipelines– BTC, SCP and Baku-Supsa– traverse Georgia and have strongly affected the level of FDI in the country, with record levels of US\$ 503 million in 2004 and US\$ 415 million in 2005. On the other hand, Armenia attracted about 10 per cent of the regional FDI, most of it related to privatization.

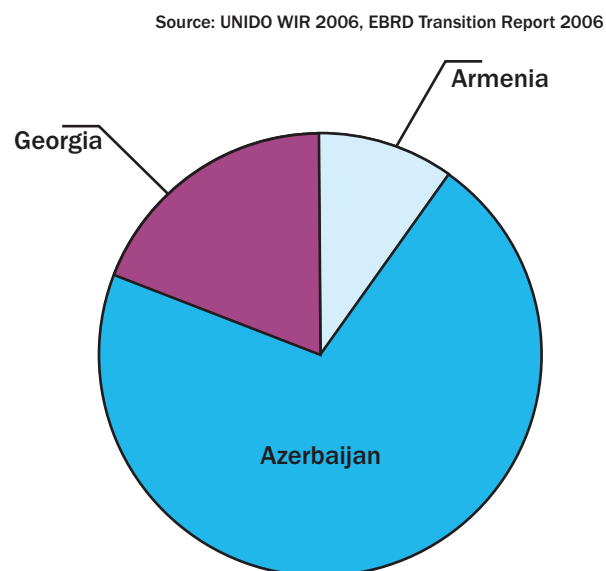


Chart 7.
The South Caucasus FDI stock breakdown by country, in 2005

FDI inflows in Central Asia have been more intensive in the early 1990s compared to the South Caucasus. Their growth was relatively stable, without severe setbacks. These inflows have been highly concentrated (chart 8), as 83 per cent of the regional FDI went to Kazakhstan, the one country with significant oil and natural gas reserves. Kazakhstan's FDI stock is the largest among all the countries from these two regions, while Tajikistan has the smallest.

Most of Kazakhstan's FDI has been invested in the extraction and transport of oil and gas from the Caspian region fields. The development of the three major oil fields in Kazakhstan (Tengiz, Karachaganak and Kashagan) has given rise to an influx of new investment and infrastructure development. In addition to FDI in the oil and gas sector, Kazakhstan attracted considerable foreign participation in the extraction of other natural resources, as well as in power, telecom and other public utilities sectors.

Turkmenistan attracted a lesser– though still considerable – amount of FDI, primarily in its energy sector.

Uzbekistan is a country rich in natural resources, such as natural gas, gold, silver, copper, oil and uranium, and is one of

the top ten natural gas-producing countries in the world, but still lags far behind Kazakhstan and even Turkmenistan in terms of FDI inflow. Uzbekistan's leading oil and natural gas projects are significantly smaller and markedly less developed than those in Kazakhstan.

The Kyrgyz Republic received relatively modest FDI inflow, mostly in the Kumtor gold mine.

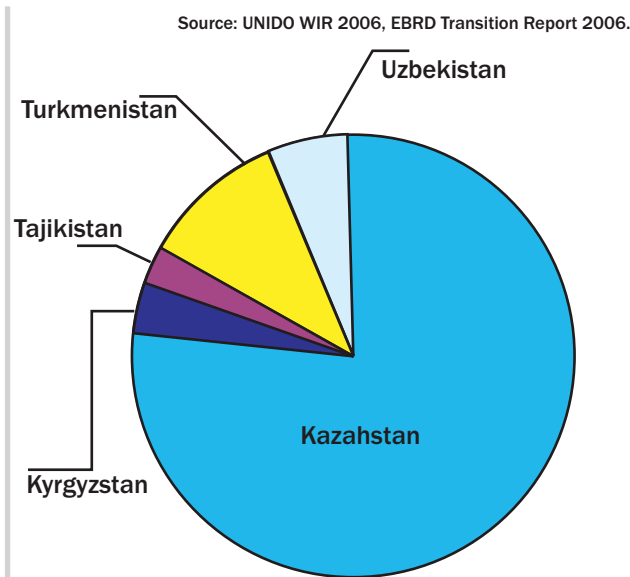


Chart 8. Central Asia FDI stock breakdown by country, in 2005

The unstable political situation in Tajikistan was one of the main reasons for its very low level of FDI.

The FDI stock per capita in South Caucasus and Central Asia was US\$ 851 and 482, respectively (Chart 9). However, the differences among the countries from these two regions were much more extensive, varying from US\$ 1.225 and US\$ 1.568 in energy-rich countries such as Azerbaijan and Kazakhstan, to only US\$ 51 in Uzbekistan.

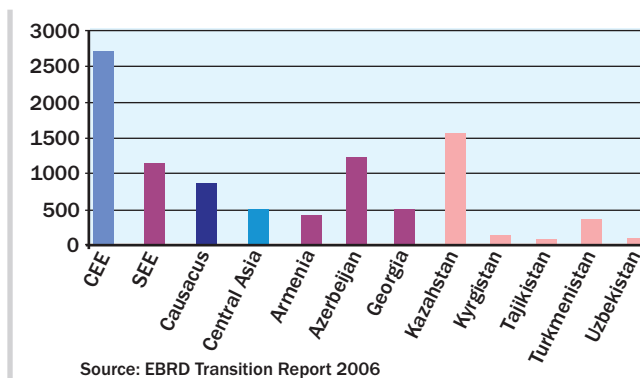


Chart 9. FDI Stock per capita, 2005 (in US\$)

In terms of FDI stock per GDP, there are enormous differences between and within the regions. The FDI inward stock per GDP in Central Asia and South Caucasus by the end of 2005 was 34.2% and 74.5%, respectively. The differences among the individual countries varied from 110.5% in Azerbaijan to only 8.2% in Uzbekistan (Chart 10).

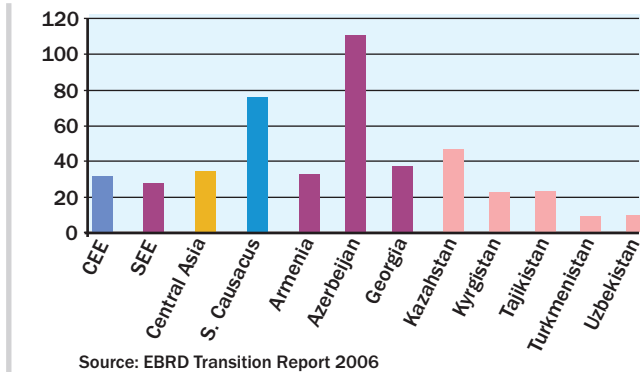


Chart 10. Inward FDI Stock as a Percentage of GDP, 2005

4. Investment climate in the South Caucasus and Central Asia

The South Caucasus and Central Asia have several advantages for attracting FDI, and their identification is important for the development of their FDI strategies. In spite of some differences between the regions, they have a number of similar advantages important for attracting private foreign capital.

The most important advantages for attracting FDI into the South Caucasus are:

- Endowment in natural resources as a potential for further resource related FDI;
- Cheap and productive labor;
- Internal and external liberalization;
- Achieved macroeconomic stabilization, high growth rates and good prospects for long term sustainable growth;
- FDI in energy infrastructure as a catalyst for other related FDI (Azerbaijan and Georgia).

The predominant part of FDI in this region has been resource-seeking, mostly invested in energy production/extraction (Azerbaijan) and energy export infrastructure (Azerbaijan and Georgia). As the region's energy reserves are mostly located in Azerbaijan, this country has good prospects for attracting

foreign capital for the further development of its Caspian oil and natural gas fields. In addition to the South Caucasus gas pipeline, which is almost finalized, new investment in the energy export infrastructure can be expected, including the extension of the BTC pipeline and its connection with Kazakhstan's oil fields in the Caspian Sea region.

FDI in energy extraction and energy infrastructure has already been a catalyst for related FDI (Azerbaijan and Georgia), with especially positive effects on the development and growth of the construction and service sectors.

In spite of the importance of the energy sector, which has the potential for further inflows, economic diversification remains a challenge for attracting investment. One of the region's comparative advantages is the availability of cheap and productive labor. The labor costs in this region are much lower, not only in comparison to CEEB – new EU member countries – but in comparison to SEE countries as well. In addition to low labor costs, macroeconomic stabilization, growth prospects and economic liberalization are important preconditions for attracting export-oriented, labor-intensive FDI.

Due to its favorable strategic position, the South Caucasus is becoming an important link between East and West, not only as a corridor for oil supply from Caspian oil fields, but as a region that will connect the trade and transport routes between East and West, thus making a significant contribution in terms of strengthening regional cooperation and boosting prosperity.

The most important advantages for attracting FDI into Central Asia are:

- *Endowment in natural resources as a potential for further resource-related FDI;*
- *High growth rates;*
- *Huge FDI in the energy sector as a catalyst for other related FDI;*
- *Cheap and productive labor.*

Central Asia is endowed with abundant natural resources, including oil, natural gas, coal and metal ores. These resources are unequally distributed across the countries of this region. Kazakhstan is an energy-rich country with huge reserves of oil and natural gas, but is also rich in coal, iron, chrome, gold and other metal ores. Uzbekistan and Turkmenistan are rich in natural gas and coal and have some reserves of oil. The Kyrgyz Republic is rich in gold and hydropower, while Tajikistan, in addition to hydropower, has some reserves of uranium, petroleum,

coal, gold and silver.

Huge FDI in the energy sector and other extraction industries can be a catalyst for other related FDI, with important multiple effects for economic development in the region.

Cheap and productive labor, high growth rates and some progress in transition can be considered a good precondition for attracting more diversified, labor-intensive FDI. Nevertheless, this can only be considered a potential advantage, due to a number of barriers for the realization of these advantages, including poor physical infrastructure and lack of regional co-operation.

Barriers to FDI inflows in the South Caucasus and Central Asia

Despite the differences between the South Caucasus and Central Asia, and their constituent countries, they share a number of similar obstacles that adversely affect the quality of their investment climates.

Countries	Private sector share of GDP	Small Scale Privatization	Institutional Reforms	Large-scale privatization	Governance & enterprise restructuring	Competition policy	Infrastructure	Interest rate liberalization	Non-bank financial institutions
Armenia	75	4.2	2.6	3.7	2.3	2.3	2.3	2.7	2
Azerbaijan	60	3.9	2.1	2	2.3	2	2	2.3	1.7
Georgia	70	4.2	2.5	3.7	2.3	2	2.3	2.7	1.7
Caucasus	65	4.1	2.4	3.1	2.3	2.1	2.1	2.6	1.8
Kazakhstan	65	3.8	2.6	3	2	2	2.7	3	2.7
Kyrgyz Rep.	75	4.2	2.3	3.7	2	2	1.7	2.3	2
Tajikistan	50	3.8	1.7	2.3	1.7	1.7	1.3	2.3	1
Turkmenistan	25	1.9	1	1	1	1	1	1	1
Uzbekistan	45	2.7	1.9	2.7	1.7	1.7	1.7	1.7	2
Central Asia	50	3.2	1.9	2.5	1.7	1.7	1.6	2	1.7
SEE	65	4.1	2.6	3.3	2.7	2.1	2.4	2.5	2.3
CEEB	75	4.3	3.3	2.9	2.7	3.5	3.3	3.7	3.3

Source: EBRD 2006.

Note 1: Ranging from minimum 1 = no or little progress to maximum 4+ = standards of advanced industrial economies.

Table 4.
EBRD transition indicators, 2006

Experience shows that similar barriers to FDI inflows are more or less present in both regions:

- *High investment risks;*
- *Underdeveloped institutional infrastructure due to slow progress in institutional reforms;*
- *Underdeveloped physical infrastructure;*
- *Unfavorable legal environment - governance and corruption problems;*
- *Weak regional cooperation;*
- *Relatively small size of domestic markets and low purchasing power.*

Even though relatively high investment risks characterize the countries of both regions, they are more severe in South Caucasian countries due to unsolved political and territorial disputes still present in the region. Since private foreign capital is very sensitive to security and the general political environment, it is crucial for these countries to find peaceful solutions to existing political tensions. This is an important precondition for regional cooperation.

Countries	Infrastructure reform	Electric power	Railways	Roads	Telecommunications	Water and waste water
Armenia	2.3	3.3	3.0	2.3	2.7	2.0
Azerbaijan	2.0	2.3	2.3	2.3	1.7	2.0
Georgia	2.3	3.0	3.0	2.0	2.7	2.0
S. Caucasus	2.2	2.9	2.4	2.2	2.1	2.0
Kazakhstan	2.7	3.3	3.0	2.0	3.0	2.0
Kyrgyz Rep.	1.7	2.3	1.0	1.0	3.0	1.7
Tajikistan	1.3	2.0	1.0	1.0	2.3	1.0
Turkmenistan	1.0	1.0	1.0	1.0	1.0	1.0
Uzbekistan	1.7	2.3	1.7	1.0	2.0	1.7
Central Asia	1.7	2.7	1.5	1.2	2.3	1.5
SEE	2.4	3.0	2.7	2.4	2.9	2.2
CEEB	3.2	3.3	3.3	2.8	3.4	3.2

Source: EBRD 2006.

Note 1: Ranging from minimum 1 = no or little progress to maximum 4+ = standards of advanced industrial economies.

Table 5.

EBRD infrastructure transition indicators, 2006

Slow progress in institutional reforms in the South Caucasus and Central Asia still poses a serious problem (Table 4). Weak institutional infrastructure, lack of entrepreneurial capacity and lack of competition policy in both regions are generating a number of obstacles for the improvement of the business and investment environment, and are crucial impediments to private sector development and long term prosperity.

Physical infrastructure is underdeveloped in both regions. All Central Asian countries, with the exception of Kazakhstan, are lagging far behind other countries in transition in almost all utilities sectors. A lack of adequate roads, export energy infrastructure and railways, and the poor quality of existing ones, together with inadequate water supply, are important obstacles to FDI in Central Asia. Inadequate export energy infrastructure is a serious impediment to increased gas production and exports not only in Uzbekistan, but also from other Central Asian countries rich in natural gas, such as Kazakhstan and Turkmenistan.

Weak institutions present an obstacle to good governance, resulting in poor implementation of laws, development of informal processes and widespread corruption in both regions.

Transparency International's Corruption Perception Index identifies high levels of corruption throughout the South Caucasus and Central Asia, greatly exceeding corruption levels in CEE and SEE countries (Table 6).

Country rank 2005	Country	CPI 2005 score
93	Armenia	2.9
130	Azerbaijan	2.4
99	Georgia	2.8
	The South Caucasus	2.7
111	Kazakhstan	2.6
130	Kyrgyzstan	2.2
93	Tajikistan	2.2
130	Turkmenistan	2.2
93	Uzbekistan	2.1
	Central Asia	2.3
	SEE	3.1
	CEEB	5.1

Source: Transparency International's Corruption Perception Index, 2006.

Note 1: CPI 2006 score relates to perceptions of the degree of corruption as seen by business people, academics and risk analysts, and ranges between 10 (highly clean) and 0 (highly corrupt).

Table 6.

Transparency International's Corruption Perception Index, 2006

Note ¹: CPI 2006 score relates to perceptions of the degree of corruption as seen by business people, academics and risk analysts, and ranges between 10 (highly clean) and 0 (highly corrupt).

The country rankings range from Armenia in 88th place (out of 168 countries) to Tajikistan in 144th place and Turkmenistan in 155th place. Azerbaijan, Georgia and Kazakhstan have managed to reduce their corruption levels in 2005 in comparison to 2004, while the Kyrgyz Republic and Uzbekistan worsened their positions.

Private foreign capital is sensitive to legal uncertainty, especially to high levels of corruption. The creation of a favorable legal and regulatory environment for business activities is of the utmost significance.

Weak regional cooperation and integration is characteristic of both regions. The disintegration of the Soviet Union resulted in a sharp decline in trade between the former Soviet republics in the early 1990s. While intra-Soviet trade has exceeded 80 percent of the total Soviet trade for the non-Russian republics in 1990, intra-CIS trade accounted for only 33 per cent of the total CIS trade in 1994 and fell further to 25 per cent in 2002 (Elborgh-Woytek, Katrin, 2003). This decline was more dramatic in the South Caucasus than in Central Asia, as the share of their trade with CIS countries in 2002 on average amounted to only 22 per cent, while this share in the Central Asian countries was considerable, and exceeds 45 per cent of their total trade (Kokko, Ari and Patrik Gustavsson, 2004). Trade among the ex-Soviet republics is especially important for the small and landlocked countries of the Central Asian region due to their poor infrastructure and their difficulties integrating into the world market.

The South Caucasus has a history of conflicts that strongly affects regional political and economic cooperation. Apart from political and infrastructural obstacles, a number of institutional, bureaucratic and structural barriers to intra-regional trade and investment exist in the region. The EU has developed a vision of regional cooperation through The Wider Europe Initiative, launched in 2003 by the European Commission. The World Bank, EBRD and other IFIs are active in the region facilitating and re-establishing trade among these countries.

Regional cooperation in Central Asia is jeopardized by its weak institutions, trade barriers and underdeveloped physical infrastructure. An improvement of their intra-regional cooperation, especially on economic issues such as trade, transport infrastructure and investment, would have positive effects on economic growth and inflow of FDI (Linn, Johannes, 2005).

Membership in the WTO is of great importance, not only for trade acceleration and liberalization in general, but also intra-regional trade, reducing the number of tariff and non-tariff barriers among these countries.

Countries	Applied	Working parties	Member
The S. Caucasus			
Armenia	1995		Feb. 2003
Azerbaijan	1997	4 meetings, 1997-06	
Georgia	1996		June 2000
Central Asia			
Kazakhstan	1996	8 meetings, 1997-05	
Kyrgyz Republic	1993		1998
Tajikistan	2001	2 meetings, 2004-05	
Turkmenistan	Not applicable		
Uzbekistan	1994	3 meetings, 2002-05	

Source: WTO website, www.wto.org

Table 7.
Status of WTO accession of South Caucasian and Central Asian countries

Accession to the WTO progressed more in the South Caucasus, as Georgia and Armenia are already members of WTO, and Azerbaijan intensified its efforts to speed up the process. This process has been much slower in Central Asia, as at present only the Kyrgyz Republic is a member of WTO. However, Kazakhstan advanced well in the accession process, and has good prospects of becoming a member of the WTO in the near future. Uzbekistan and Tajikistan already started the accession process, but are still lagging behind Kazakhstan. Turkmenistan is the only country that has not applied for WTO membership.

In the last fourteen years a number of bilateral and regional trade agreements have been signed. The Commonwealth of independent states (CIS), created in December 1991, includes all the countries of the former Soviet Union except the Baltic states. The CIS was established to create a regional economic union. Its goals include:

- forming a common economic space grounded on the free movement of goods, services, labor force, capital;
- coordinating monetary, tax, price, customs, external economic policies;
- bringing together methods of regulating economic activity

¹ CIS – Commonwealth of independent states which includes all the countries of the former Soviet Union except the Baltic states.


- *creating favorable conditions for the development of direct production relations.*

A number of other regional organizations and trade agreements have been established and signed, mostly related to free trade among the countries of these regions (Central Asian Economic Union –CACO; Economic Cooperation Organization –ECO, CIS, EAEC etc), but these organizations are characterized by weak institutions, and the implementation of these agreements is still at an early phase.

5. Conclusions

Improvement of the investment climate by accelerating the transition process and reducing investment risks can be recognized as the most important economic policy related determinants of FDI inflows into the countries of these two regions. However, further progress in regional and international integration and the elimination of widespread corruption through the introduction of integrity programs in the public sector and diminished bribery in business transactions are also important preconditions for accelerating and diversifying FDI inflows.

Structural diversification of South Caucasian and Central Asian natural resource-based economies would be essential in ceasing dependence on the energy and mining sectors and would have positive long-term effects on economic growth, the investment climate and the attraction of other types of FDI in addition to current FDI, which is mostly related to natural resources.

The creation of national funds in natural resource-based economies, similar to those that already exist in Kazakhstan and Azerbaijan, by saving part of the revenues from oil and other extraction industries, might be used to support institutional reforms and the development of the private sector, and encourage PPPs in the development of the necessary physical infrastructure in all the countries from these two regions. 

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How to Gain Success in SME? A Case Study of a region in the Czech Republic.

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Abstract

Small and medium sized entrepreneurship (SME) is often considered a contemporary phenomenon. Why have so many authors dedicated their work to this field? The main reason is that SME influences society and contributes to the economic development of its region. This analysis emphasizes endogenous factors for success. The situation in the Moravia-Silesian Region (the northeast region of the Czech Republic) in which we applied factor analysis on a research sample supported our hypothesis. Moreover, we used VRIO analysis to clearly interpret our research findings.

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1. Introduction

Factors with the power to change current trends in regional development can be divided into two groups according to the environment of their origin – exogenous and endogenous. The EU's definition of small and medium sized entrepreneurship is only a quantitative measurement, an effort to classify a business unit in the market using statistical methods and tests. Gaining an inside qualitative approach to entrepreneurship seems more important for entrepreneurship development and factor analysis of its primary influences..

The main reason for the present work is to share my own research findings in the SME field. Its principal purpose is to identify and describe the endogenous factors which characterize the standard business behavior in a chosen region. The region examined here comprises a territory with the second lowest entrepreneurship activity rate in the Czech Republic (Czech Statistical Office, 2005) given the theory that "SME units are closely connected with the region where they were born". We have to examine entrepreneurship by focusing on the potential of a business unit (what it could offer to society or the market; supply side) and resources for activity development (financing, human resources) in the context of the dynamics and turbulence of the business environment. All these factors cause important changes in strategic entrepreneur behavior (Slávik, 2005).

The analysis is based on statistical data analysis on a descriptive level, representing the quantitative research area (frequency, average values in a one dimensional space; cross tabs with Cramer's contingency coefficient - V); as well as multidimensional statistic methods in the qualitative research area using Principal Components Analysis (PCA). All collected data were processed in SPSS for Windows, ver. 11.5.

Based on the findings of the empirical study, conclusions are made by means of a synthesis of bibliographical sources and the results of the individual factor research defining barriers in the SME sector, especially emphasizing internal factors

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(under the active influence of a business unit). The VRIO strategic method of internal business analysis has been used to classify and interpret the established factors (Barney, 1991) as a source for strategy planning to become more competitive in a globalized business environment.

2. Entrepreneurship Success Evaluation

The measurement of entrepreneurship success is a long term process. The process of the optimal utilization of sources and potential was found for the first time in the work of Ricardo (1817), whose ideas were expanded by Penrose (1959) and Wernerfelt (1984). We can include Barney (1986) in this group of authors for his attempts to establish analytic methods to find and interpret business behavior and factors influencing market position and success based on an empirical study.

Barney's theory first poses the question of why some businesses are more successful than others. He compares the strategy types commonly used by business units. The main factor affecting company behavior in a market is imperfect competition. Strategy preparation and its implementation in this business situation could cause growth in the strategy's costs. The tool, identified by Barney, for improvement of the situation is specified as the market of strategic factors dependent on managerial skills and their effective combination and utilization. (Barney, 1986, p.1231).

Barney maintains that each strategic factor bears a different benefit or opportunity for an entrepreneur. We may illustrate his idea as a logical sequence below:

Different strategic factors =>

Product markets in imperfect competition =>

Higher benefits for competitors...

Following Barney's theory, this sequence highlights the important fact that entrepreneurs have no other option than to evaluate their strategic steps, information sources and their own business potential. He emphasizes confrontation between endogenous activity monitoring and internal source analysis. Barney's conception was criticized and then modified by Dierickx and Cool (1989), who made some recommendations and corrections in its strategic factor analysis. They maintained there existed another factor influencing strategic behavior – a support policy on the part of the government influencing the combination of strategic factors used over the observed time.

They recommend the following items be included in the analysis:

- o Seasonal economic fluctuation connected with capital market and capital cost; demonstrating the economic rule stating that over time yields decline in value (in the case of costs taken as constant),
- o Effective utilization of total assets – accumulation of assets results from good asset management,
- o Capital and asset connection – accumulation is determined by the variability of capital, which influences debt ratio due to the use of alternative financial resources,
- o Decline in asset value – all assets lose their value by depreciation and wear and tear,
- o Causal ambiguity (Lippman, Rumelt, 1982) - comes from the Stochastic theory of the accumulative process of strategic activities.

According to this approach, it is necessary to define strategic steps as factors which bring a competitive advantage to each business unit in the market. Barney connected all factors and recommendations in his analysis, calling these VRIO. As resources he defined finances, human capital, individuality and managerial skills. Capacities, by contrast, he referred to as "internal abilities", which coordinate and derive benefit from these (for the analytical scheme of his ideas, see table 1).

Question of Value	Question of Rarity	Question of Imitability	Question of Organization	Competitive position	Economic contribution
No	/	/	No	Disadvantage	Low
Yes	No	Yes	/	Comparative Advantage	Normal
Yes	Yes	No	/	Temporary Advantage	Higher
Yes	Yes	Yes	Yes	Long-term Advantage	Very High

Source: Barney, 1997: 163, modified by auth

Table 1.
VRIO scheme

We can connect the VRIO parameters with a part of the SWOT analysis as a more popular method for strategic planning, especially strong and weak point comparison (see table 2)

Question of Value	Question of Rarity	Question of Imitability	Question of Organization	Strength (S) or Weakness (W)?
No	/	/	No	W
Yes	No	Yes	/	S
Yes	Yes	No	/	S, comparative advantage
Yes	Yes	Yes	Yes	S, long term advantage

Source: Barney, 1997: 163, modified by author

Table 2.
VRIO and S-W array

According to Barney's theories, this means that capacities or resources which are valuable, imperfectly imitable or rare bring long term advantages in the market, and the economic benefits to society exceed the normal value. Business prosperity is only appraisable in the context of long term analysis (Barney, 1997: 164).

3. Application of the theory to the Moravia-Silesian Region

The Moravia-Silesian (MS) Region is situated in the north-eastern part of the Czech Republic. The Czech government classifies it as a region with low development tendencies, along with the northwestern region of Ústecko. This classification came from the most recent economic analysis, which stated that the region would not improve in the long term forecast. To be more specific, we may compare the annual GDP rate per one inhabitant in the region at 6 981€ (CZSO, 2005), with the GDP rate per one Czech inhabitant of 8 503 €. Both regions have the highest unemployment rate in the Czech Republic. The situation is the result of an unfinished process of economic restructuring. (Plan of National Development 2007-2013, p. 103) After 1990, the impact on the region from changes in the economic structure, industry revitalization and the decline of coal production was severe (large companies in heavy industry- the region's main historical specialization- were shut down). The current unemployment rate is 14.22% in 3Q/2006 (CZSO, 2006).

Other authors call this region a dynamic region or a region in progression. Improvements to the environment, infrastructure renovation and the completion of the process of privatization could be an impulse for foreign investors, such as Hyundai. The region has prepared many industrial zones to attract companies and support the transfer of advanced technologies.

The analysis for the SME description was collected in the abovementioned region during 2005 and early 2006 and the questionnaire was distributed to 1 800 units; we obtained 1 199 responses by personal visit. We computerized all the data using a statistical method. The main emphasis was placed on the relationship between factors influencing business activities in the region.

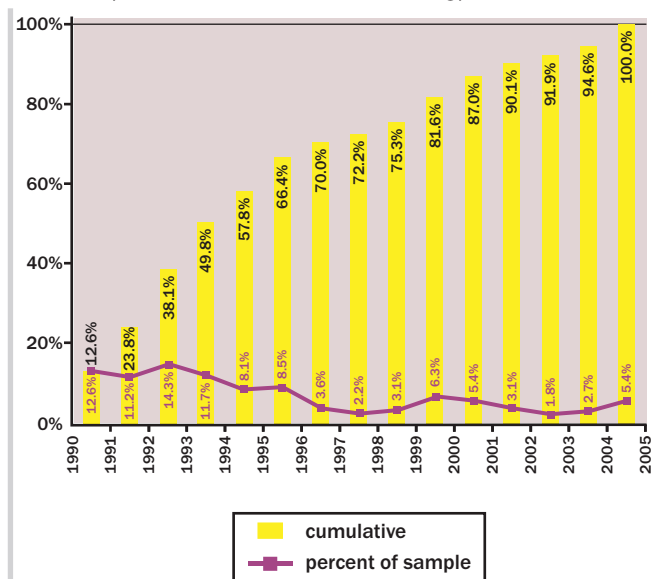
Company type	Number	Percentage Share
Micro (under 10 employees)	633	52.8 %
Small (11-49 employees)	354	29.5 %
Medium (under 250 employees)	212	17.7 %
TOTAL	1199	100 %

Source: Barney, 1997: 163, modified by author

Table 3.
Research sample

The size of the research sample corresponds to 0.52 % of registered business units in the region in 2005 (229 242), but the Czech Statistical Office (CZSO) states in their SME study that only two thirds of these units actively carry out business activities (CZSO, 2005). Therefore, the percentage of the research sample could cover about 0.8% of all registered units.

The first factor we addressed was that of time, which could influence business behavior today. The period of operating in the regional market could show a relationship between the competitiveness of SME units and their effective work with capacities and resources. The graph below shows that more than 65% of examined units had been established before 1995. It demonstrates that owners know their business environment sufficiently and have discovered a strategy to survive in the



Graph 1.
Research sample – SME by year of founding

market. On the other hand, only 20.6% of units in the sample were set up between 1995 and 2000; in the last four years it was a mere 13%. Following the time factor, it seems there is a tendency for new units to be established at a slower rate. CZ have the highest SME unit rate per 1000 inhabitants- in 2005 it was 230.8 (Kozak, 2006). These were mainly self employed persons.

We can divide units according to the scope of their business activities into enterprises operating in the following sectors: agriculture (2.2%), industry and production (45.7%), business (26.5%) and services (25.6%).

3.1 Quantitative Research Area

The main research goals were to describe entrepreneurial behavior under exogenous factor influence. These factors try to stimulate business activities in the region. The main research hypotheses were (in percentage share of the sample):

- o Entrepreneurs prefer job-creation support (50%) and ways of increasing their customer base (60%),
- o The main reason for closing down businesses is a lack of financial resources (70% of the respondents),
- o The main information source is not official statistics and analyses; this represents a decline in the quality of information received.

The frequency of individual factors in the research sample was used to identify individual factors. For relation determination we applied Cramer's contingency coefficient V (Cramer, 1946), which represents the rate of most suitable association between two nominal variables. To interpret coefficient results we used Cohen's coefficient V interpretation (1988)– a figure exceeding 0.5 signifies a strong dependence between variables; 0.5-0.3 average dependence; 0.3-0.1 low dependence and a figure below 0.1 zero dependence (Hintošová, Rimarčík, 2005).

Taking Advantage of the Business Support System

Taking into consideration exogenous factors, the support system plays an important role. Several areas which could motivate entrepreneurs to use this type of financing source have been identified. The main reason why entrepreneurs prepare their projects is to expand from local markets to another region (72%), followed by new customer base building (65%), job creation activities (45%), acquiring quality certificates (30.5%) and export support (29%). On average entrepreneurs identify 2-3 factors as useful for development.

We were able to prove the hypothesis in the area of business support only partially, because the most important support area is expanding or finding new opportunities in other markets within the region (72%), followed by finding a new customer base (65%). Job-creation was not as preferred as we supposed in our hypothesis. From another point of view, we confirmed the average dependence between export support and the acquisition of certificates (Cramer V =0,312; P<0,001), where the influence of the EU quality regulations is evident.

Factors Leading to the Closing down of Businesses.

An exogenous factor which traditionally causes the end of business activities is a low supply of start up capital (69%). In this case the set hypothesis has been proven true. The second factor comes from an increase in competition in the sector of their business activities (40.4%). Another factor with lower significance was identified as bureaucracy when doing business (25%) and the quality of the business environment (16%). Gained factors could motivate SME owners positively; they could help them to become interested in the integration opportunities and take advantage of business cooperation. Financing availability and the quality of the business environment suggested an average dependence relationship. (Cramer V=0,360; P<0,001).

Impact of Information Quality and Sources

The last factors we examined were the sources and quality of business information available to SME owners. The initial hypothesis has been proven here, specifically that the best information source is one's own systematic sources (72%), then manager informal affiliations (65%), followed by official statistics (43.9%) and custom-made analyses (22%); on average two information sources are used.

In the area of information quality and reliability we have verified that these aspects have worsened since the EU accession (Cramer V=0,554; P<0,001) and many SME owners find information supply chaotic. The rate of association between these two periods has fallen by 10.2 % in comparison with the period before EU accession (Cramer V=0,617; P<0,001).

3.1 Factor Analysis

To get more sophisticated results and to identify dominant tendencies, we used PCA with a VARIMAX rotation (factor loading minimization); the applicability of data was examined by Bartlett's test of sphericity for values from the results under P<0.05; for other data we used the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) with the recommended minimum value of 0.6 (Sharma, 1996).

In the questionnaire we used a scale from one to six representing the time needed for entrepreneurs to respond to changes in certain factors (1-immediately, 6-period exceeding one year). Below we have analyzed endogenous factors such as managerial skills and competencies, strategy implementation, etc.

Managerial Skills (MS)

The research area covered 9 factors from a classic approach based on management functions, including corporate culture and the coordination skills of the unit owner. In 61% of examined units (KMO=0.854) the equation below represents the adequacy of managerial skills, where communicative activities are the most flexible; scale value 1.87 (up to one month).

$$MS = f(M), f(A) \tag{1}$$

where

f (M)... "Manager Factor", influenced mainly by organizing skills (0.846) and planning skills (0.789)

f (A)... Atmosphere Factor as the factor influencing social environment (0.855)

The research has proven that planning and organizational skills are very closely connected and guarantee the success of the strategy implementation as presented in the Classical school of management (correlation = 0.674, Cramer V= 0.529; P<0.001).

Strategic planning and its correction in time axis.

The examined area was divided into two parts based on the hypothesis that EU accession had an influence on SME behavior in the market, consisting of 4 strategy components – marketing and human resource planning, financial and production plans. The level of data relevancy was more than 62% (KMO=0.816) in both cases.

1. Before the EU accession (2002-2004)

PCA found only one dominating factor; all strategy was based on a marketing approach (0.818), where the correlation is 0.667 and Cramer V=0,462; (P<0.001). The factor identified as a cause for changes in planning was financial planning – scale value of 3.46 (4.5 months).

2. After the EU accession (2004-2006)

The result seems to be the same. PCA found only one dominating factor; all the strategy is based on a marketing approach (0.843) with the most flexible being the financial area – a scale value of 3.24 (3.75 months).

After a comparison of the results we established that there was a growing trend of strategy dependence on a marketing approach after EU accession (correlation 0.693, Cramer V= 0.438; P<0.001). This means that dynamics are on the rise by 5.6% compared with pre-accession planning.

4. Discussion

As stated above, the VRIO method was used to classify the resulting factors which lead to the improvement of competitiveness and the growth of advantages for an SME unit.

The V.R.I.O. model (Barney, 1991) looks for a competitive advantage of the entrepreneur’s sources, which derive from the implemented analysis of endogenous factors. Each resource must answer the criteria and questions according to Barney. The advantage arises from resources, which have all four attributes (Cahlík-Sovina, 2003):

Capacity or resource	Creates value?	Rare?	Imitable?	Exploits a success of SME?	Competitive position	Economic Contribution
SME specialization	Yes	In some ways	Yes	In some ways	Comparative Advantage	Normal
Customer relationship management application	Yes	In some ways	Yes	In some ways	Comparative Advantage	Normal
Image perception	Yes	Yes	Yes	In some ways	Long-term advantage	Very High
Financial sources	Yes	In some ways	Yes	In some ways	Disadvantage	Low
Experience and knowledge	Yes	Yes	In some ways	In some ways	Long-term advantage	Very Low

Table 4. Factor comparison by VRIO application in MS region

- o V (valuable) – ability to bring added value; sources, activities or processes which do not bring any advantage represent an economic disadvantage,
- o R. (rare) and I. (imperfectly imitable) – imitability is based on different factors, such as unique materials or the abilities of available human capital,
- o O (organization) – success depends on the organizational ability to exploit the advantage sufficiently. Without this attribute, you lose any advantage you may have.

SME units in the MS Region are easily imitable (international chains and network, identical products) and their main specializations are not rare. We may state that factors under the VRIO model are endogenous, such as managerial skills and the management of human resources, because they bring new ideas, innovative thinking and create a unique position for the unit in the market. They may take advantage of better dynamics and flexibility to changes in the business environment. The knowledge factor in SME development is closely connected to creating a good image and customer satisfaction. It is possible to state that the approach to the customer is the most important factor according to the VRIO analysis approach definition, and that this might be one of the most significant advantages for SME development.

Other unpredictable factors resulting from the current turbulent business environment may negatively or positively influence the long term sustainability of an advantage. Due to their existence, over time opportunities may change into disadvantages because of the growth of dynamics, as proven in the research (about 6%).

5. Conclusion

Although we aim for a precise factor analysis, all the methods employed have their limitations and imperfections. The VRIO method, for example, does not take into account rapid changes or unpredictable circumstances which could cause significant changes in the entrepreneur's behavior. Gaining a competitive advantage in one market during a certain period does not necessarily result in the same development or outcome in another selected market. Moreover, we have to unify the analysis methodology (Antón-Pomeda, 1999):

Branch->sub->branch->company->department->process.

On the other hand, factor analysis or VRIO analysis application tries only to describe current processes and trends, to discover factors influencing business behavior to be adopted by real business units to support their creativity and strategic direction. Factors presented here should be divided into three main groups:


- o Innovative potential included in the strategy; future training activities, management of human resources – all closely connected with endogenous factors,
- o Dynamics and flexibility to changes in the business environment; these relate to the managerial skills, experience and knowledge of the SME unit team to completely determine the development of their company,
- o Exogenous factors influencing the quality of information and financial sources necessary for development.

To summarize the level of strategy planning, we may claim that the main strategic power is in the hands of owners and managers (80 %), including the whole area of information and power over the entire business unit. When owners want to predict their future development, they trust mainly their own experience and scientific methods (70%) against empirical studies or expert methods (30%). The most frequent changes are observed mainly in production and finance planning (Hintošová, Rimarčík, 2005).

Examples of differences in strategic planning:

- o Small companies have a simple linear organizational structure; the main power is in the hands of the owner. They depend on their sense of opportunities in the market,
- o Adaptability depends on customers' needs – when they have a small customer base, its influence on behavior increases,
- o SME companies are closely connected with the region; their behavior mirrors regional problems,
- o SME units build their customer relationship approach into their strategy,
- o SME units have to work with limited sources in their region,
- o The definition of success is often influenced by the owner's vision, dreams and values,
- o Negative attitude towards strategy planning

- ☒ Preference for short term planning.

These weaknesses could be bypassed by SME units through a proactive approach to improving their managerial skills or exploiting strategy methods useful to them personally, and emphasizing information base building that would enable them to connect training, research and experience in order to maximize profit. Considering the influence of financial support from the government, it is easier for the government to prepare grants rather than improve the business environment radically and, in doing so, provide the same opportunities for every entrepreneur. 

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Tourism Master Plans An Effective Tourism Destination Management Tool in SEE

Sanja Cizmar and Sandra Lisjak

Abstract

This paper examines the hypothesis that in SEE transitional economies there are two key success factors to insure the successful development of tourism. The first factor is the building up of an active role of government in structuring a state tourism strategy focused on increasing the international competitiveness of the given country's tourism sector. This would speed up the process of tourism development in a sustainable way, since the preservation of space and benefits for the local population should be the main strategic goals of future tourism development in SEE. The second success factor is the elaboration of tourism development master plans at a local level within the country, carried out with the broad involvement of stakeholders with a strong orientation towards pragmatic implementation. This paper uses the case study of Croatia, the most successful country in terms of tourism in SEE.

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1. Introduction

Since the 1980's we have used the definition of tourism as "... a basic and most desirable human activity deserving the praise and encouragement of all peoples and all Governments." (Burkart and Medlik, 1982, p. 59). Knowing that tourism is both a supreme good of modern civilization and a challenging economic sector that can have a serious impact on a significant part of the economic structure of a country or a region, it is worthwhile to understand how this fact is recognized in the transitional economies of South East Europe through its governments' influence on the development of tourism activity.

2. SEE: The Economic Framework

The degree of a government's active role in strategic planning and development of tourism depends heavily on the social and economic situation in the country or region.

SEE is defined by the European Commission as a diverse region consisting of nine countries located in the south-east corner of Europe, with a total area of 647.6 km² and with 55.2 million inhabitants. This is a significant territory which includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR Mace-

donia, Moldova, Romania Serbia and Montenegro (The European Commission, 2007.). From the 1990's onwards, these countries have gone through military and political conflicts as well as economic crises. During the 1990's the region faced the transitional problems of inadequate economic growth, loss of investor confidence and declining living standards among its local populations. However, during the last couple of years there has been significant social and economic improvement in the region. Today, economic growth has resumed, institutions for the emerging democracies and market economies are being created and strengthened, regional trade links are being restored, private investment is slowly growing and the prospects for poverty reduction have improved (The European Commission, 2007.).

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	Albania	Bosnia And Herzegovina	Bulgaria	Croatia	Macedonia FYR	Moldova	Romania	Serbia And Montenegro
Surface area (sq. km.)	28.750	51.210	111.000	56.540	25.710	33.840	238.400	102.200
Population total , 2005	3.1 mio.	3.9 mio.	7.7 mio.	4.4 mio	2.0 mio.	4.2 mio	21.6 mio	8.2 mio
Population growth annual 2006	0.6 %	-0,1 %	-0.3 %	0.0 %	0.2 %	-0,3 %	-0.2 %	0.3 %
GDP (current \$)	\$ 8.4 bill.	\$ 9.4 bill.	\$ 26.6 bill.	\$ 37.4 bill.	\$ 5.8 bill.	\$ 2.9 bill.	\$ 98.4 bill.	\$ 27.1 bill.
GDP growth (annual %)	5.5 %	5.3 %	5.5 %	4.2 %	4.0 %	7.0 %	4.1 %	6.0 %
GNI per capita, Atlas method	\$ 2.580	\$ 2.440	\$ 3.450	\$ 8.060	\$ 2.830	\$ 880	\$ 3.830	\$ 3.280
Inflation, GDP deflator (annual %)	3.5 %	3.6 %	3.9 %	3.1 %	3.0 %	7.0 %	12.0 %	17.4 %

Source: World Development Indicators Database World Bank, <http://devdata.worldbank.org> , April 2006

Table 1.

Key Development Indicators of South East Europe Countries (2005)

Despite its encouraging socio-political and economic development, the region's countries remain uneven, with different economic structures, intensities of growth, levels of living standards and prospects for integration into the EU. Bulgaria and Romania joined the EU on January 1, 2007. The stabilisation and association process is the EU's policy framework for the Western Balkan countries: Albania, Bosnia and Herzegovina, FYR Macedonia and Montenegro. Croatia, which has started accession negotiations in October 2005, remains part of the process (The European Commission, 2007.). Integration with the European Union is an important factor for the further development of tourism in the countries of SEE.

Macroeconomic performance shows that SEE has a total GDP of US\$216.2 billion. Croatia has the highest GNI per capita, 2 or more times higher than in any other SEE country. The highest economic growth presently exists in Moldova and Serbia.

In evaluating the present degree of economic development in SEE countries and their future prospects, it should be noted first that most of its countries began the transition process with some basic elements of a market economy, and in recent years a strong revival of market forces is underway throughout the region. SEE should continue its progress in reform; the EU's Stabilisation and Association Process plays an important role in encouraging key aspects of this (EBRD, 2006). However, the reform agenda still includes many open issues that must be resolved in the future, such as restructuring enterprises, strengthening competition authorities, lowering market entry barriers, developing financial institutions and upgrading infrastructure networks (EBRD, 2006).

In line with the varying macroeconomic situations in different SEE countries, there are varying degrees of impact travel & tourism will have on the region's individual national economies. Measured by Tourism Satellite Accounts (WTTC, TSA Research,

	Albania	Bosnia And Herzegovina	Bulgaria	Croatia	Macedonia FYR	Romania	Montenegro
Economic activity that generate T&T (in mio.)	\$ 1.853,2	\$ 1.392,2	\$ 6.725,6	\$ 12.368,5	\$ 610,2	\$ 7.071,5	\$ 521,5
Contribution of T&T industry to GDP	3.8 %	3.6 %	4.6 %	9.2 %	1.5 %	1.9 %	9.4 %
Direct and indirect impact of T&T economy to GDP	11.9 %	11.8 %	16.0 %	20.1 %	6.8 %	4.8 %	15.7 %
Direct employment of T&T ind. (% of total empl.)	3.1 %	2.9 %	4.0 %	10,6 %	1.5 %	5.8 %	10.0 %
Employment of T&T economy (% of total empl.)	9.6 %	9.5 %	13.6 %	23.1 %	6.3 %	6.9 %	16.8 %
World ranking - Relative contribution to national economy (out of 174 countries)	68	69	43	30	139	162	44
World ranking - Growth forecast (out of 174 count.)	10	21	105	5	56	4	1

Source: WTCC Tourism Satellite Accounting Research 2006, <http://www.wtcc.org> ,2007
Note: TSA Research for Moldova and Serbia is not available.

Table 2.

Impact of Travel and Tourism in Southeast Europe Countries (2006)

2006), Croatia has the strongest economic activity generated by travel & tourism in the region (US\$ 12.3 mil. in 2006), which is at least twice that of any other SEE country. In Croatia, travel and tourism make the highest contribution to the national GDP, and offer the highest share of employment of any country in the region. It is worthwhile to point out that, according to the same survey, out of 174 surveyed countries, Montenegro is ranked first in terms of forecasted travel and tourism growth. According to the same criteria, Romania is ranked 4th, and Croatia 5th, while other SEE countries have much lower T&T growth prospects.

3. Hypothesis

Keeping in mind the present economic situation of SEE, which is still marked by transitional features, as well as the impact of tourism on national economies and the growth prospects of various SEE countries, two key success factors emerge as the most important in insuring successful tourism development. First, it is of utmost importance for government to have an active role in the structuring of state tourism strategy. It should be focused on increasing the international competitiveness of its tourism sector. This would speed up the process of tourism development in a structured and sustainable way, and control the direction of its development, since the preservation of space and benefits for the local population should be one of the main strategic goals of future tourism development in SEE. The second factor of success is the elaboration of tourism development plans on a local level within the country, structured around the broad involvement of stakeholders with a strong orientation towards pragmatic implementation. In such circumstances, the tourism development master plan becomes an effective tool to achieve the challenging tourism development goals in the mid-term.

4. Literature Review

4.1. Planning

Planning is necessary to provide order and structure to human activities. According to Veal (1994), the problems of rapid urbanisation in the United Kingdom during the late 18th century provoked what are now seen as the roots of modern planning. Although actions then were mainly reactive, while today they are more proactive (Gunn, 1988) we are still in need of a holistic approach to planning (Butler and Hall, 1988).

According to Gunn (1988) and Williams (1998), the response to the urbanisation in the United Kingdom in the late 18th century in the form of Town and Country Planning, marks the beginning of modern Western planning. The aims of the Town and Country planning to minimise the negative impacts of urban development in terms of social and environmental issues, modern planning today shares as underlying principles. Furthermore, social and economic dimensions have been added to planning in recent years (Gunn, 1988):

Planning is a multidimensional activity and seeks to be integrative. It embraces social, economic, political, psychological, anthropological, and technological factors. It is concerned with the past, present and the future (Rose, 1984, in Gunn 1988, p.16)

However, the process of planning itself is not a straightforward process - it heavily relies on values, especially on the values of the local community (Gunn, 1988; Veal, 1994), which strongly suggests that planning should reflect the values of stakeholders and interest groups. Planning is also political (Gunn 1988), reflected in the need of governance in order for its implementation. Another necessary characteristic of today's planning is its continuity - planning needs to be continuous in order to incorporate new conditions in the process. Lang (1986), highlighted the differences between conventional planning and strategic planning, where the latter is practical as a process which implies action, rather than a static state (in Gunn, 1988).

As Williams (1998, in Leberman and Mason, 2002) and Gunn (1988) have stated, without planning there is the risk that an activity will be unregulated, formless or haphazard and likely to lead to a range of negative economic, social and environmental consequences. In short, the absence of planning leads only to malfunction and waste.

4.2. Planning in tourism

Tourism is seen by many as the world's largest industry, and as such it stimulates migrations of people, exploits resources, and impacts the environment, economy, and societies of the sites themselves. Tourism demands careful planning. In contrary to planning (or Town and Country Planning as it was originally known in Britain) tourism studies and tourism management have a much more recent history, and have only intensely evolved over the past few decades (Lavery, 2002).

In its earlier stages, tourism planning was essentially physical or land-use planning, with little or no consideration

of issues relating to conservation or sustainable development (Lavery, 2002). Only in recent years have we seen recognition of the need for sustainable tourism development (in terms of economic, social and environmental impacts). Williams (1998) suggests that today, experiences around the globe imply that unplanned tourism development has negative impacts on tourism destinations. Furthermore, many authors (Gunn, 1988; Williams, 1998; Jenkins, 1991) argue that tourism planning is a necessary activity for all countries in order to develop tourism in a sustainable way. However, planning in tourism shows similar issues to those of planning in general, especially in the sense that both often views issues in isolation and that both are still rather reactive.

The key objectives of tourism planning, according to Williams (1998, in Leberman and Mason, 2002) include a framework for shaping and controlling the physical patterns of development, conservation of resources, as well as a framework for marketing destinations.

Planning in tourism is not a simple process, particularly because it requires various approaches – it can be done on a national, regional as well as a local level, which brings up issues of coordination (Williams, 1998). An additional complexity of tourism planning arises from the fact that it involves a variety of stakeholders - public bodies, the private sector, land owners, and many other user groups (Veal 1994; Williams, 1998), and is therefore difficult to operationalise.

Bearing all of this in mind, it is evident that tourism planning requires a policy, and in order to implement the plans we need governance (Fennell, 1999; Gunn 1988). The problem arises as from the view of governments that the responsibility of tourism policy lies with the private sector (Lickorish, 1991). Tourism planning and policy, in fact, is the responsibility of both the public and private sectors (Williams, 1998). This is one of the reasons why tourism planning is not as effective as planners would like it to be (Gunn 1988).

4.3. The role of the Government in tourism planning and development

The significance of tourism as a mechanism for economic development is recognised around the world. Cooper et.al. (1996) add that it is an investment opportunity that few governments can afford to miss. This view is supported by Gunn (1988), who states that this relatively recent phenomenon is increasingly demanding the attention of governments and citizens who previously regarded tourism with indifference.

Even though tourism is often (uncritically) referred to as a positive contributor to the economic, social and cultural development of destinations, it is necessary to consider its impact on the receiving or host communities (Jeffries, 2001). During the 1980's more focus was put on new concerns in OECD countries – regional development, rural development and job creation, and the acknowledgement at the policy-making level of the potential positive as well as the negative impacts of tourism development (Jeffries, 2001).

Gunn (1988) states that only planning can avert the negative impacts of tourism. In other words, if tourism is to bring benefits, the concept of planning is necessary. However, planning must be implemented by all the stakeholders in tourism, and not only the planners (Gunn, 1988).

Furthermore, the last decade has seen an increased focus on the analyses and promotion of the non-economic benefits of tourism. The Guide for Local Authorities on Developing Sustainable Tourism (1998b, in Jeffries, 2001) states that carefully planned, developed and managed tourism could bring sustainable benefits to local communities, some of which include the following:

Tourism requires the development of adequate infrastructure, such as roads, water supply, electric power, waste management and telecommunications.

Tourism can provide new markets for local products such as agricultural and fishery products, arts and handicrafts and manufactured goods, and thereby stimulate other local economic sectors.

The overall environmental quality of an area may be improved as a result of tourism because tourists prefer to visit attractive, clean and non-polluted places. Land use and transportation patterns may also be improved because tourism serves as a catalyst for redevelopment.

Jeffries (2001, p.24-25) further lists the reasons for the attractiveness of tourism to governments, especially in the economically developing world, because of the opportunities inherent to the industry – its size, recent growth and a growing potential for future development; ubiquity; significance for the economy; conferment of potential economic values in natural, cultural and other heritage resources; contribution to the quality of lives of virtually all residents; and the relatively low pollution output of servicing organisations, compared to other major sectors of the economy.

It is clear, therefore, that tourism should elicit the governments' interest, and that it also requires governments' interven-

tion. Even though policy documents, high-level reports and statements from ministries often regard the economic development of tourism as mainly a matter for the private sector, experience shows the crucial need for government intervention. Lickorish (1991, p.136-137) argues that sensible tourism planning is often handicapped by policy mistakes, confusion and lack of accepted leadership:

The government role is crucial. No one else can represent the whole community which is inevitably involved in large scale modern tourist development. Governments must decide policy, set the necessary rules, and accept public responsibility for the fair condition of trade, welcome and hospitality.

Thus, the public sector has the role of an operator, investor and trader, entrepreneur as well as a marketer, but also a strategic planner for long term development (Lickorish, 1991).

From the views presented here, it is also evident that even though governments play an indispensable role in tourism planning, the planning process increasingly involves a mix of private and public sector responsibilities, partnerships that provide more effective and sustainable results in tourism (Gunn, 1988).

(Covin and Slevin, 1991; Zahra and Pearce, 1994). Managers of both small and large-sized enterprises should, therefore, make creating an appropriate climate for intrapreneurship a top priority (Carrier, 1996). CE is especially important for larger organizations; while in smaller companies the boss or top management team represents the entrepreneurial spirit, in larger, more diffuse entrepreneurial firms it assumes the form of an entrepreneurial climate, or general atmosphere. Thus, the entrepreneurial action of the individual employees of a large organization - i.e. intrapreneuring (Pinchot, 1985) is attributed to a significant increase in a larger firm's performance (Antoncich and Hisrich, 2001) with the assumption that a large firm's natural advantage of economies of scale has been replaced by the economies of scope, or the organizational capacity to train and innovate.

5. *Tourism in SEE: The Strategic Perspective*

5.1. *Tourism Positioning*

In elaborating the hypothesis of the need for a strong governmental role in the strategic planning of future tourism development in SEE, we should first analyse the present status of the tourism positioning and competitiveness of its constituent countries.

In general, one should assess the SEE countries as "new," emerging tourism destinations, offering the international market tourism based on natural and cultural resources rather than artificially developed tourist attractions (which are still rare in this region). This is visible in the tourism positioning of these countries. In order to find out the current tourism positioning of SEE countries relative to the market, we have conducted an ad hoc internet survey using each country's official tourism web sites (<http://www.albaniantourism.com>, <http://www.bhtourism.ba>, <http://www.bulgariatravel.org>, <http://www.croatia.hr>, <http://www.exploringmacedonia.com>, <http://www.romaniatourism.com>, <http://www.serbia-tourism.org>, <http://www.turism.md>, <http://www.visit-montenegro.com>, 2007). The survey revealed that the following tourism slogans of SEE countries are currently in use:

- **ALBANIA - The Last Secret**
- **BOSNIA AND HERZEGOVINA - The Heart-shaped Land**
- **CROATIA - The Mediterranean As It Once Was**
- **MACEDONIA FYR - Cradle of Culture, Land of Nature**
- **MONTENEGRO - Breathtaking Beauty**
- **ROMANIA - Come as Tourist, Leave as a Friend**

Bulgaria, Moldova and Serbia do not communicate with the tourist market on the basis of clear positioning (slogan), but position themselves based on the diversity of tourism experiences.

The tourism logos, i.e., the visual identity of SEE countries for tourists, support the declared positioning of these countries. The SEE countries can be grouped into three categories according to the pillars of their tourism positioning. While some (Albania, Bulgaria, Montenegro) use the "sun and sea" as the basic USP in their visual identities, the other SEE countries emphasise the diversity of natural resources in visual communication with the market (Croatia, Macedonia, Moldova, Romania, Serbia). Only Bosnia and Herzegovina uses the hospitality

of its people as its basic tourism USP.

5.2. Tourism Organization Structures and Tourism Strategic Planning

As far as state tourism organization structures in SEE are concerned, all the countries have ministries which are in charge of the implementation of state development policies in tourism. It is a common praxis that the ministry in charge of tourism is a department in the ministry with a broader mission (for example, economy or culture, youth and sports or sea, transport and development or trade, services etc.) (<http://www.mkrs.gov.al> , <http://www.mi.government.bg>, <http://www.mmtpr.hr>, <http://www.economy.gov.mk> , <http://www.turism.md> , <http://www.vlada.cg.yu>, <http://www.turism.ro>, <http://www.minttu.sr.gov.yu>, January 2007). However, in all of the SEE countries such ministries are responsible for implementing state development policy in the field of tourism and coordinating the activities of the ministries and other public institutions. In some countries the national tourism marketing and advertising activities (as assistance to the activities of the regional, local and branch tourist organizations) are also part of the ministry's responsibilities (for example in Bulgaria), while in other countries, the National Tourism Board is in charge of national marketing and promotional tourism activities (for example in Croatia).

Based on such organisation structures, the strategic planning of tourism development is, in SEE countries, mostly under

Tourism positioning based on sun and sea product



Tourism positioning based mostly on diversity of natural tourism attractions



The Mediterranean
As It Once Was



Tourism positioning based on hospitality



Source: Official tourism web sites of SEE countries (<http://www.albaniantourism.com>, <http://www.bhtourism.ba>, <http://www.bulgariatravel.org>, <http://www.croatia.hr>, <http://www.exploringmacedonia.com>, <http://www.romaniatourism.com>, <http://www.serbia-tourism.org>, <http://www.turism.md>, <http://www.visit-montenegro.com>), January 2007

Figure 1.
SEE COUNTRIES' TOURISM VISUAL IDENTITY

the jurisdiction of the state ministry in charge of tourism. Therefore, in recent years, most state ministries in SEE have begun preparing strategies or master plans for tourism development in their countries. In some cases, such master plans or other strategic documents have been a part of international technical assistance or EU-aid programmes that aim at identifying a clear path of sustainable tourism development and building the capacities needed for the implementation of such plans. These strategic development projects, usually financed largely by the UNWTO (through its missions) or various EU-aid programmes, have constituted practical steps by the EU in assisting candidate and potential candidate countries in their preparations for joining the European Union. Such projects have the objective of preparing a comprehensive, integrated national tourism development policy, strategy and action programme that will provide guidance for the sustainable development of tourism in the country. Usually, the elaboration of a national tourism development strategy is the starting point for such projects, including product development strategy, legal framework improvement, institutional reform, human resources development, marketing improvement and natural resources protection. The main strategic objectives of such technical assistance projects carried out in SEE over the past two decades have been to build up a stronger and more efficient tourism sector in the country, to optimise the socio-economic benefits of tourism, alleviate poverty, to preserve, conserve and enhance cultural and natural heritage and involve local communities in the development process, and to foster public-private sector partnership (<http://www.world-tourism.org>, January 2007).

5.3. Tourism Competitiveness and Tourism Development Master Plan

If we apply Porter's concept of competitiveness to tourism in SEE, we can see that there is still a huge effort needed to establish satisfactory competitiveness among SEE countries' on the international tourism market.

As defined by the Concise Oxford Dictionary, competitiveness means to strive for superiority in a quality. This seems a very simple concept. However, the attempt to measure competitiveness reveals the ambiguity of this definition, because competitiveness is both a relative and a multidimensional concept (Ritchie and Crouch, 2003).

In terms of tourism competitiveness, most of the traditional reviews have focused mainly on the economic dimensions of destination strength and performance, which are only two of its several dimensions (Ritchie and Crouch, 2003, p.2): *what makes a tourism destination truly competitive is its ability to increase tourism expenditure, to increasingly attract visitors while*

Source: Adapted from Porter, 1990

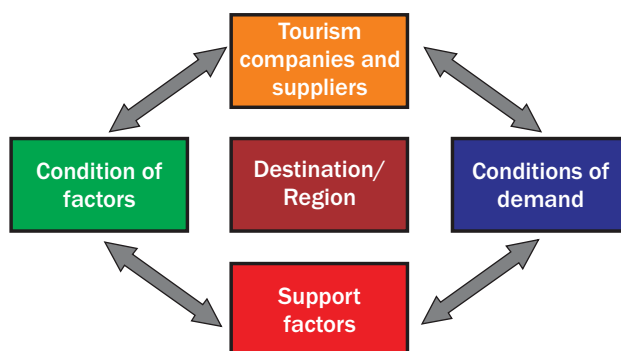


Figure 2.
The Competitiveness Diamond

providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations.

Even though there seems to be no generally accepted definition of competitiveness- which can be viewed as a macroeconomic phenomenon (Porter, 1990)- for the purpose of this article and our views on the importance of government support in building competitiveness, we can add the view of Baker (1987, in Ritchie and Crouch, 2003, p.13) that 'Competitiveness - as much a cultural undertaking as an economic or political one - requires changing minds as much as changing policies.'

Considering the multidimensional nature of tourism competitiveness and its application to tourism, we offer the above diagram, adapted from Michael Porter (1990), who structured a national 'competitive diamond' in order to explain the determinants of national advantage in particular industries.

Applied to tourism in SEE, Porter's competitive diamond shows that the present status of tourism competitiveness in the region is inherited from non-market economies before the period of transition. Therefore, in order to establish a satisfactory level of tourism competitiveness in SEE, a huge effort is needed for the improvement of all four competitive forces.

Keeping in mind this elaboration of tourism competitiveness, a tourism development master plan could be used as an appropriate planning tool in building up the tourism competitiveness of a country or a region only if it is carried out according to a bottom-up principle by including the wide structure of local stakeholders in the process of its preparation.

Experience shows that tourism master plans, as regulatory documents, are common in countries that are in transitional phase from non-market to market conditions (Palman, Cizmar,

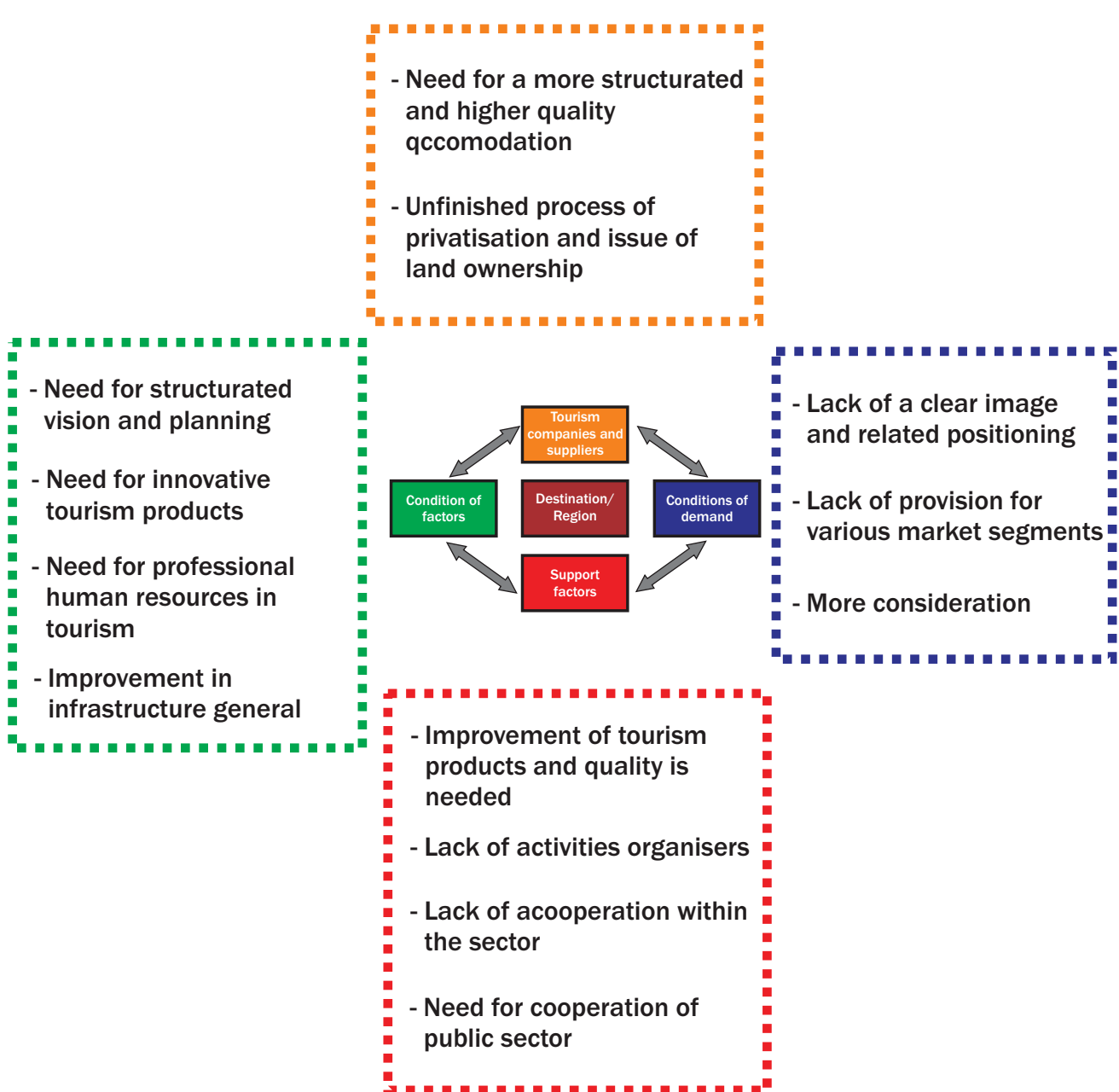


Figure 3.
The Tourism Competitiveness Status of the SEE Region

2004). They are also carried out for underdeveloped regions in developed market economies, thus creating regulatory frameworks to stimulate more intensive tourism development with available resources. In these cases, master plans focus on the tourism development of a specific zone that is not used for tourism purposes. They may also aim at repositioning a tourist area that is underperforming in terms of business results. However, it is common that developed market economies do not require master plans as stimulators of tourism development because they possess the developed general economic policies and pre-existing capacities (effective management structures

responsible for tourism development) needed for tourism development guidance and implementation. In this context, when a country is at the very beginning of tourism development, or when it is in a phase of major change in its own social and economic systems, there is an obvious need for a master plan, since this represents an institutionalized platform according to which stakeholders can build a competitive tourism sector in their area (Dragicevic, 2006). Since the whole of SEE is still undergoing a process of socio-economic transition, a master plan represents the most effective strategic tool of tourism development.

6. *Tourism Development Master Planning: The Case of Croatia*

Since Croatia is, in terms of its tourism and travel economy size, the most developed country in SEE, its patterns of tourism strategic and master planning should be used as a valuable example. Let us explore its approach to strategic and master planning at both the state and local levels.

Although traditionally a tourism oriented country, from the establishment of Croatia as an independent state at the beginning of the 1990's, and especially in the post-war period (the late 1990's) the Croatian Government has identified tourism as its economic sector of major strategic significance. Therefore, on a state level, from the 1990's onwards, the Croatian Government has made significant efforts to strategically define the future development of tourism in the country. From 1993 onwards, four different documents on tourism development strategy have been formulated, with three in the period from 2002 to 2003 (DEG - 2002; Institut za turizam - 2002; McKinsey - 2003; Hotel Partner - 2003) aiming to design a high quality, modern and innovative tourism supply that would increase the competitiveness of Croatian tourism in international markets (Ministry of Tourism, 2003). With these efforts of Ministry of Tourism, the strategic framework of Croatia's future tourism strategy has been set. Concurrently, the Croatian National Tourism Board initiated and ordered the preparation of the Strategic Marketing Plan of Croatian Tourism for the period from 2001-2005 (THR and Horwath Consulting Zagreb, 2001). This strategic marketing plan designed the tourism positioning of the country under the slogan "The Mediterranean as It Once Was", and has set up product development and marketing strategies which, in their implementation phase, proved a great success.

It should be pointed out that all of the above-mentioned strategic documents formulated a state-level tourism strategic framework. There are several key success factors in Croatia's international tourism market success connected with the elaboration of a master planning process initiated at the beginning of the new millennium (from 2000 onwards). They are as follows:

1. **BOTTOM-UP PRINCIPLE APPLIED IN SEVERAL**

LOCALITIES: Starting with the most important tourist region of Croatia, Istria (with importance measured by its tourism economy size), several local master plans have been prepared and elaborated in the last five years. The localities of Istria, Primorsko-goranska, Sibensko-kninska, Split-Dalmatia (all of them situated on the Adriatic coast) have prepared their own master plans. Several other continental localities' tourism master plans

are currently under way.

2. HIGH INVOLVEMENT OF STAKEHOLDERS: The most important factor of success was the approach that was chosen in the process of preparation and elaboration of most of these local master plans. The broad network of stakeholders has been involved in a numerous series of workshops that were held in the cities, towns and villages across the localities where master planning has been carried out. This broad involvement principle has insured that all the important initiatives of different stakeholders have been analysed and, if aimed at increasing the county's tourism competitiveness, included in the Action Programme defined by each master plan.

3. MASTER PLAN STRUCTURE AND FOCUS: Most of the abovementioned tourism master plans have been focused on the development of key determinants of competitiveness: vision and positioning, product plans, competitiveness plans, investment plans and action plans.

4. PRAGMATIC AND IMPLEMENTATION-ORIENTED: The other significant element of success is the fact that most of these tourism local master plans are very pragmatic and implementation-oriented. For example, the first local tourism master plan developed in Croatia was based on the abovementioned principles. The Istrian master plan (THR and Horwath Consulting Zagreb, 2003) realised over 50% of its investments within the first three years of its implementation. Investment in services and competitiveness has already been exceeded, with another six years to go. Investment in accommodation is almost there, while investment in infrastructure has been well-exceeded (Napier, 2007).

7. *Conclusion*

Since South East European countries still feel the consequences of their transitional periods, the active role of governments in the strategic guidance of future tourism development can both affect its more intensive development and control the sustainability of tourism development and its impacts on the local population's welfare. Besides the need to set a state tourism strategy, in order to build tourism competitiveness in transitional economies (such as those in SEE), the key success factor is the design of a series of tourism master plans at a lower (local) level. In order to be an effective tool of tourism development planning, the master plan should be designed based on the following principles: a bottom-up principle, high involvement among all stakeholders, structure and focus on the key determinants of competitiveness, and a pragmatic, implementation-oriented approach. 

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Capital Budgeting Practices: A Survey of Croatian Firms

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Abstract

This paper reports the results of a mail survey of capital budgeting practices among Croatian firms and compares the results with those from similar studies in the USA, UK, Sweden, and other European countries. It is based on a questionnaire sent to 200 firms selected from 400 of the best Croatian firms (special edition of «Privredni vjesnik») and to 34 banks from a ranking of Croatian banks (special edition of «Privredni vjesnik»). The response rate was 25,21%. The goal of the empirical survey was to determine the present application of quantitative capital budgeting methods, cost of capital and cash flow estimation, risk analysis and application of a real options approach in capital budgeting practices in Croatian firms. This is the first empirical survey of Croatian capital budgeting practices that has been undertaken.

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1. Introduction

This empirical survey was undertaken with a selected sample of shareholding firms and other legal forms of business organization in Croatia. The goal of the empirical survey was to determine the present application of quantitative capital budgeting methods, cost of capital and cash flow estimation, risk analysis and application of a real options approach. The observed units included real economic entities structured by the industry, the size of the revenue, number of employees, and ownership. The specific industry was banking. The 234 questionnaires were sent to a selected sample of the public and private share holding companies and other forms of business organizations in financial and non-financial sectors. The survey was undertaken with these sample entities because their success represents the current level of use for capital budgeting applications. From the rankings of the 400 best Croatian firms (special edition of «Privredni vjesnik») 200 non-financial firms were selected and questionnaires sent to their financial managers. Because of the dominant position of banks in the financial industry, banks were seen to best represent this sector, and questionnaires were sent to 34 general managers of the highest-ranked banks in Croatia (special edition of «Privredni

vjesnik). The questionnaire was divided into two groups of questions: the first group consisted of general questions about the firm, while the second group concerned its capital budgeting process.

2. Profile of the Surveyed Firms

The survey had a response rate of 25% for the selected non-financial firms (50 out of 200). The response rate from the banks was 26,47% (9 out of 34). The total response rate was 25,21% (29 out of 234).

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The firms that responded belong to different industries (Figure 1). Forty-one percent of the firms were manufacturers. Two percent of the firms were involved in manufacturing and tourism, and three percent involved in manufacturing, transportation and energy. The non-manufacturing firms were spread across other industries, including transportation and energy (8%), finance and banking (15%), tourism (7%), pharmaceuticals (5%), or other industries (19%).

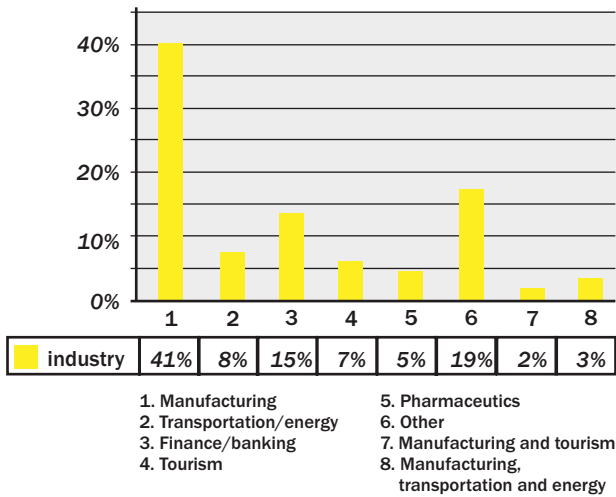


Figure 1. Industry

Figure 2 presents the size of the firms according to total revenue. 24% of the sample firms have a total revenue of less than 250 million kuna, 17% have a total revenue from 250 – 500 million, 17% have a total revenue from 500 - 750 million, 8% have a total revenue from 750 - 1.000 million, and 34% have a total revenue of more than 1 billion kuna.

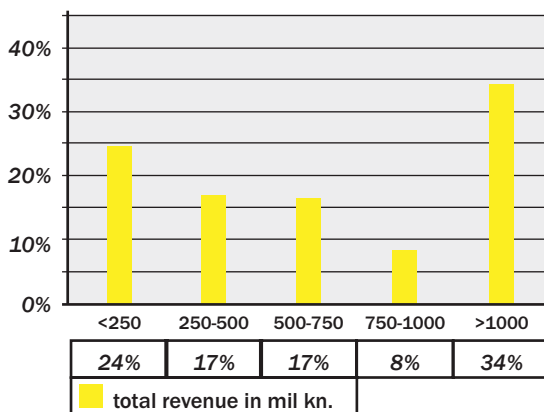


Figure 2. Total revenue in millions kuna

According to their number of employees, 41% of the sample firms have less than 500 employees, 17% of firms have from 500 - 1.000 employees, 20% have from 1.000 - 3.000 employees, 7% have from 3.000 - 5.000 employees, and 15% of the firms have more than 5.000 employees (Figure 3).

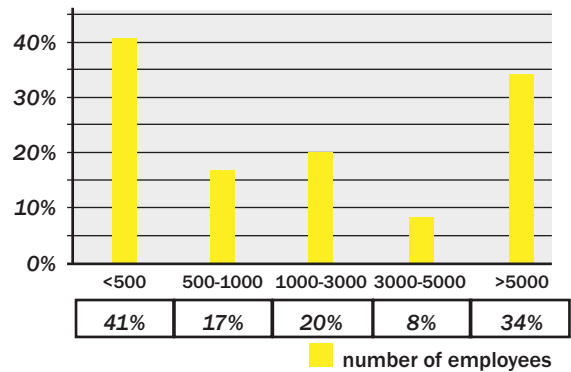


Figure 3. Firms according to the number of employees

According to their ownership, of the 59 firms responding to the survey, 69% are organized as a corporation (share holding company), 19% as limited liability companies, while 12% are state owned firms.

Figure 4 shows foreign sales as a percentage of total revenue. 37% of the sample firms realize foreign revenues of 1 – 25%, 12% realize 25 – 50%, 19% realize more than 50%, and 15% of the sample firms realize only domestic revenues. 17% of the firms did not respond to this question.

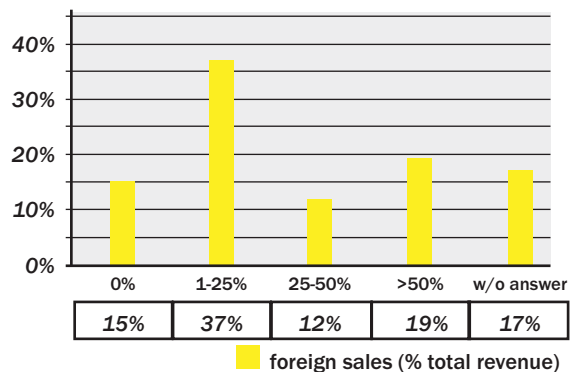


Figure 4. Foreign sales (% of total revenue)

3. Capital Budgeting Practices

The survey showed that 56% of the sample firms have departments for long-term investments, 42% do not have departments for long-term investments, while 2% did not answer the question. 49% of the firms have separate departments for project forming and analysis, 49% do not have separate departments for project forming and analysis, while 2% did not answer. Regarding a formal Capital Budgeting Manual, just 25% of the firms have a Capital Budgeting Manual, while 75% do not. The firms that have a Capital Budgeting Manual indicated the following items defined in the Manual (Table 1).

Items defined in Manual															
Investment idea candidates	X	X	X	X	X	X	X	X	X	X				X	X
Gathering data process	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Cash flows forming	X	X	X	X	X	X	X	X		X	X	X			
Cost of capital	X	X	X	X	X	X	X	X	X	X	X	X			
Project risk	X	X	X	X	X	X	X	X	X	X	X				
Decision making rules	X	X	X	X	X	X	X		X		X	X		X	
Investment evaluation and ranking	X	X	X	X	X		X		X					X	X

Table 1.
Capital Budgeting Manual define

3.1 Capital Budgeting Methods

One of the goals of this survey was to determine the capital budgeting methods most commonly used by Croatian firms. The respondents were asked to score how frequently they use different capital budgeting techniques (i.e., sometimes, often, always, never). When evaluating investment projects, Croatian firms use a variety of capital budgeting techniques. Their responses are summarized in Exhibit 1.

	Some times	Often	Always	Never
Internal Rate of Return	6 (10%)	7 (12%)	35 (59%)	11 (19%)
Payback Period	5 (8%)	11 (19%)	33 (56%)	10 (17%)
Net Present Value	6 (10%)	14 (24%)	25 (42%)	14 (24%)
Discounted Payback Period	14 (24%)	8 (14%)	16 (27%)	21 (36%)
Profitability Index	5 (8%)	14 (24%)	13 (22%)	27 (46%)
Annuity Method	13 (22%)	6 (10%)	6 (10%)	34 (58%)
Modified Int. Rate of Return	15 (25%)	3 (5%)	2 (3%)	39 (66%)
Accounting Rate of Return	12 (20%)	7 (12%)	5 (8%)	35 (59%)

Exhibit 1.
Capital Budgeting Methods in Use

Figure 5 shows that 10% of the firms sometimes use net present value, 24% often, 42% always use NPV, while 24% of firms never use net present value.

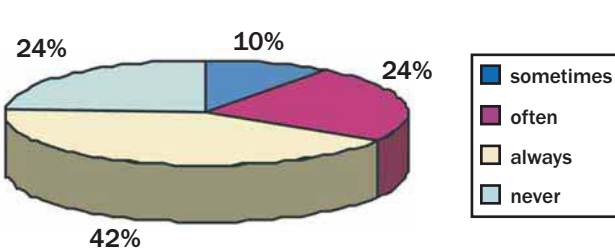


Figure 5.
Use of NPV

A survey by Farragher, Kleiman and Sahu (1999) of 128 American companies showed that 78% use net present value. Graham and Harvey (2001) surveyed 392 CFOs and found that 74,93% use net present value. European surveys show different results. For example, Drury and Tayles (1996), in their survey of 278 firms in Great Britain, found that 43% of firms use net present value. Sandahl i Sjögren (2003), in their survey of 128 firms in Sweden, found that 52% of firms use net present value. Lazaridis (2004), found that just 11,39% of 56 firms in Cyprus use net present value for project evaluation.

Figure 6 shows that 10% of the firms sometimes use internal rate of return (IRR), 12% use IRR often, 59% of firms always use internal rate of return, while 19% of firms never use internal rate of return for project evaluation.

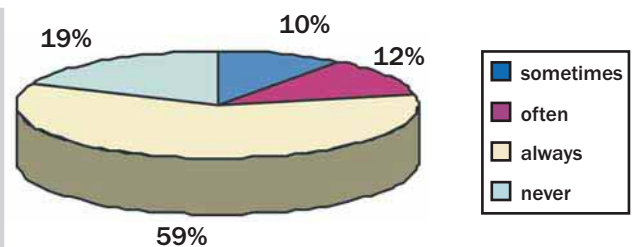


Figure 6.
Use of Internal Rate of Return for project evaluation

Farragher, Kleiman and Sahu (1999) found that 80% of U.S. firms use internal rate of return, and Graham and Harvey (2001) found that 75,61% of the firms use IRR. Drury and Tayles (1996) found that in Great Britain 57% of the firms use IRR. In Sweden 23% of the firms use IRR according to Sandahl and Sjögren (2003), and according to Lazaridis (2004), in Cyprus just 8,86% of the firms use IRR.

Figure 7 shows that payback period is sometimes used in 8% of the firms, 19% often, 56% always, while 17% of the firms never use payback period when evaluating investment projects.

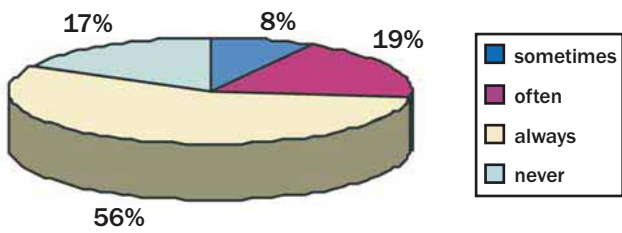


Figure 7.
Use of payback period for project evaluation

Farragher, Kleiman and Sahu (1999) found that 52% of U.S. firms use payback period, and Graham and Harvey (2001) found that 56,74% of the firms use payback period. In Sweden, 78% of the firms use payback period (Sandahl and Sjögren, 2003). In Great Britain 63% of the firms always use payback period (Drury and Tayles, 1996), and in Cyprus 36,71% of the firms use payback period (Lazaridis, 2004).

Figure 8 shows that 24% of the firms sometimes use discounted payback period, 14% often, 27% always, while 36% never use discounted payback period when evaluating investment projects.

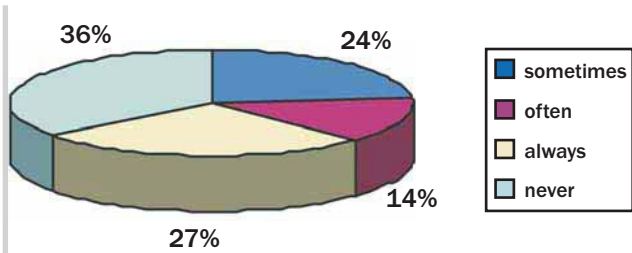


Figure 8.
Use of discounted payback period

Graham and Harvey (2001) found that 29,45% of American companies always use discounted payback period. In Great Britain 42% of the firms always use discounted payback period (Drury and Tayles, 1996).

Figure 9 shows that 8% of the firms sometimes use profitability index, 24% often, 22% always, while 46% never use profitability index.

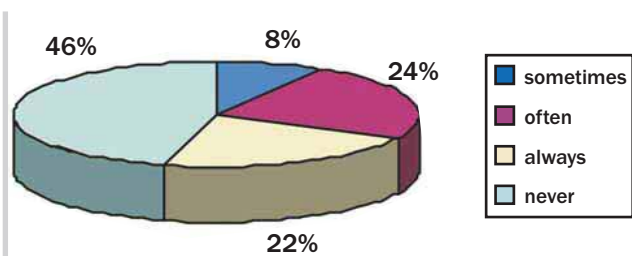


Figure 9.
Use of profitability index

When evaluating investment projects, 22% of the firms sometimes use an annuity method, 10% often, 10% always, while 58% never use an annuity method (Figure 10).

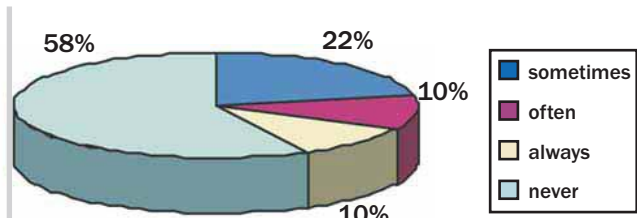


Figure 10.
Use of annuity method

Figure 11 shows that 25% of the firms sometimes use modified internal rate of return, 5% often, 3% always, while 66% of the firms never use MIRR when evaluating investment projects.

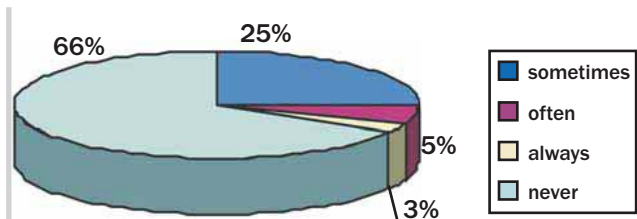


Figure 11.
Use of Modified Internal Rate of Return

Additional results of the survey show that 20% of the firms sometimes use accounting rate of return, 12% use it often, 8% always, while 59% of the firms never use accounting rate of return when evaluating investment projects. According to Farragher, Kleiman and Sahu (1999) 34% of 128 U.S. companies use accounting rate of return, and Graham and Harvey (2001) found that 20,29% of 392 American companies use accounting rate of return. In Sweden, 21% of the firms use accounting rate of return.

After indicating capital budgeting methods used when evaluating investment projects, the respondents had to select the two most important for decision-making. Results shows that for 22% of the firms the two most important capital budgeting methods are NPV and IRR, for 24% of the firms these are IRR and payback period, and for 5% of the firms the two most important methods are payback period and annuity method. For 3% of the firms these are payback period and NPV, payback period and accounting rate of return, and payback period and profitability index. Also, for 3% of the firms the most important are payback period, NPV and IRR, and discounted payback period and IRR. 15% of the firms use other methods. These include NPV and discounted payback period, IRR and accounting rate of return, IRR and MIRR, and NPV and profitability index. For

one firm the most important factors are the opinions of the financial manager and manager for development. 17% of the firms did not answer the question. The most important capital budgeting methods are summarized below in Figure 12.

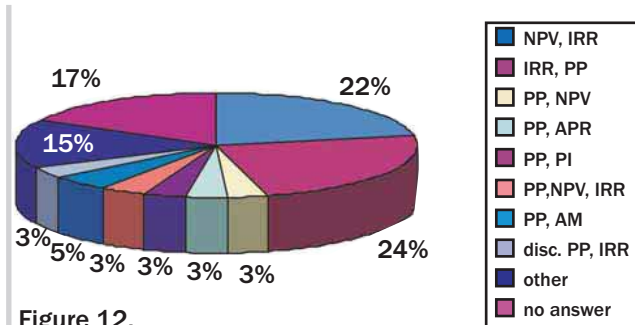


Figure 12. The most important capital budgeting methods

3.2. Cost of Capital and Cash flow estimation

Another area of interest was the cost of capital and cash flow estimation. The survey showed that 45 (76%) of the firms estimate the cost of capital, 8 (14%) do not estimate, while 6 (10%) did not answer (Figure 13).

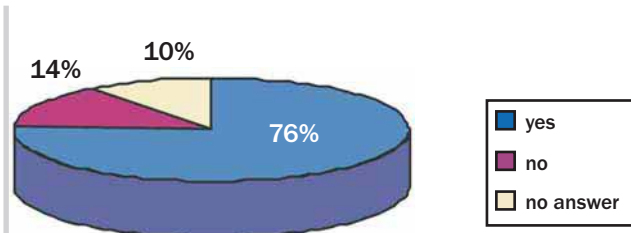


Figure 13. Do you estimate cost of capital

As presented in Figure 14, of the 45 firms that estimate the cost of capital, 40% use a cost of capital that is determined by "investor's required return", 9% use the capital asset pricing

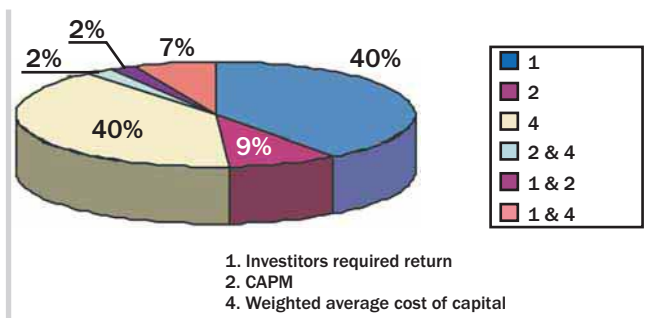


Figure 14. How firms calculate the cost of capital

model (CAPM), 40% determine the cost of capital as weighted average cost of capital, 2% use CAPM and weighted average cost of capital, 2% use "investor's required return" and CAPM, and 7% use "investor's required return" and weighted average cost of capital. None of the firms use Gordon's model (dividend discount model) when calculating the cost of capital.

Farragher and Kleiman (1999) found that 57% of the American companies surveyed use the CAPM. Graham and Harvey (2001) found that 73,5% of respondents always or almost always use the CAPM when calculating the cost of equity capital, 34,29% use CAPM but including some extra «risk factors», 15,74% use Gordon's model, and 13,93% use investor's required return.

Of the 59 firms that participated in the survey, 81% estimate project cash flows, while 19% do not. Table 2 presents different ways of project cash flow estimation. 23% of the firms form project cash flows using a sales forecast method, 8% use an expenditure rate method, 4% use only scenario analysis, 4% form cash flows using a sales forecast method and master budget techniques, 6% use only master budget techniques, 8% form cash flows using an expenditure rate method and sales forecast method, 4% use a sales forecast method and profit models, 6% use a sales forecast and percentage of sales meth-

1. Expenditure rate method	x			x			x	x			x				x	x	x	x	x
2. Sales forecast	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3. % of sales							x	x	x		x								
4. Master budget techniques			x	x				x	x	x	x								x
5. Profit models					x			x			x	x							x
6. Trend analysis								x	x	x	x			x			x	x	
7. Scenario analysis		x							x	x		x			x				
8. Budget with "ø" base											x		x	x					x
TOTAL	11	4	2	2	3	4	2	3	2	1	1	1	1	1	1	1	1	1	1

Table 2. How do you form project cash flows

od, 4% use a sales forecast method and trend analysis, while the remaining 33% use methods shown in Table 2.

Figure 15 shows departmental responsibility for project cash flows methodology and forecasting. In 22 of the firms (37%) the financial planning department is responsible for cash flows and forecasting, in 8 (14%) the business-planning department is responsible, in 3% the financial planning and business-planning departments are responsible, in 21 firms (36%) other departments are responsible, while 10% of the firms did not answer the question.

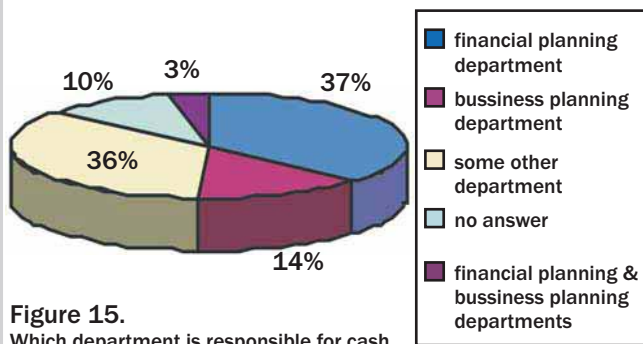


Figure 15.
Which department is responsible for cash flow forming and forecasting

Figure 16 presents the results for the remaining 21 firms (36%) that have a variety of other departments responsible for cash flow methodology and forecasting. In 8 of the remaining firms (38%) the controlling department is responsible for cash flow forming and forecasting, in 14% the finance department, in 10% the department for planning and analysis, and for the remaining 38% other departments are responsible, such as marketing and controlling, accounting, finance and accounting, or the finance and controlling departments.

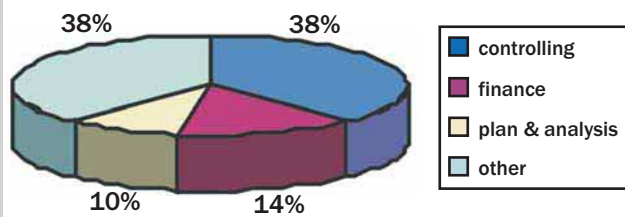


Figure 16.
Other departments responsible for cash flows forming and forecasting

Regarding opportunity costs, 46% of the firms include opportunity costs in project cash flows, 41% do not, while 14% did not answer the question (Figure 17).

Figure 18 shows that 73% of the firms include interest expenses in project cash flows, 15% of the firms do not, while 12% did not answer.

The results of the survey show that 41% of the firms include inflation in project cash flows, 47% do not, while 12% did not

answer (Figure 19).

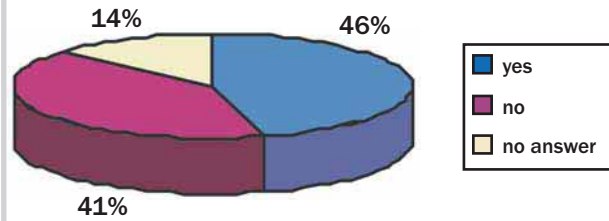


Figure 17.
Do you include opportunity costs in project cash flows

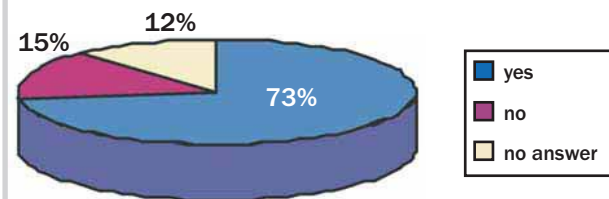


Figure 18.
Do you include interest expense in project cash flows

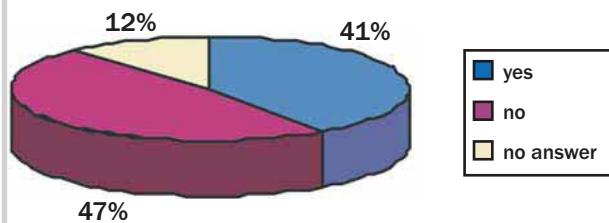


Figure 19.
Do you include inflation in project cash flows

Figure 20 shows that 47% of the firms analyse the interdependence of a project and firm cash flows, 39% do not, while 14% did not answer. Of the 28 firms (47%) which analyse the interdependence of a project and firm cash flows, 50% marked the technique they use for analysis. Techniques used to estimate interdependence of a project and firm cash flows include consolidation of the projected financial statement, present value of cash flows, comparing balance sheets through direct and indirect cash flow methods, simulation, and orders profit reports.

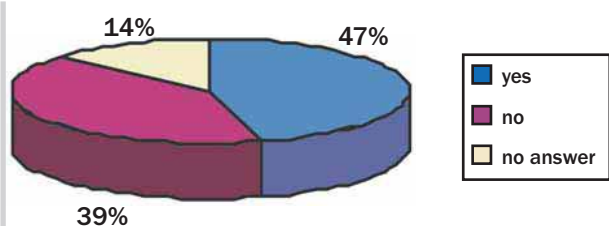


Figure 20.
Do you analyse the interdependence of a project and firm cash flows

3.3. Risk analysis

Another area of interest in our survey was to determine whether or not firms estimate the project risk and which techniques for assessing risk are used. Regarding project risk analysis, 43 of the firms (73%) estimate the project risk, 9 of the firms (15%) do not, while 7 of the firms (12%) did not answer the question (Figure 21).

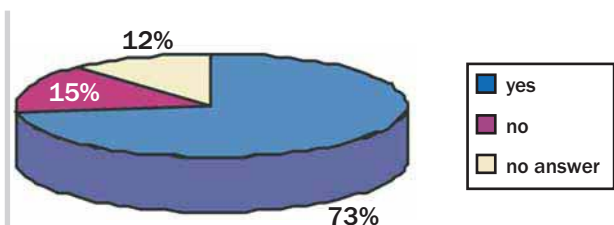


Figure 21.
Do you estimate the project risk

Of the 43 firms that estimate project risk, 21 (49%) use sensitivity analysis for risk evaluation, 3 (7%) use scenario analysis, 8 (19%) use simulation, 6 (14%) use sensitivity analysis and scenario analysis, 2 (5%) sensitivity analysis, scenario analysis and decision tree analysis, 2 (5%) use scenario analysis and simulation, one firm (2%) uses sensitivity analysis, decision tree and simulation, while one firm does not use any specific risk analysis technique (Figure 22).

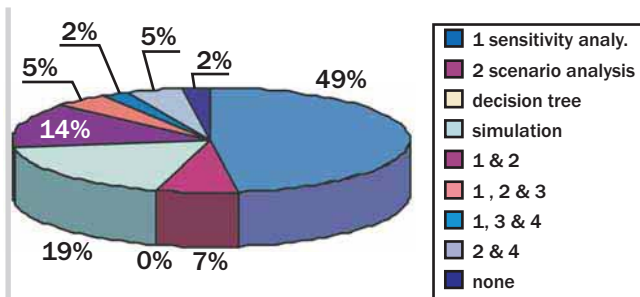


Figure 22.
Which methods do you use for risk evaluation

Regarding market risk, 34 of the firms (58%) assess the market risk, 17 (29%) do not, while 8 of the firms (14%) did not answer (Figure 23). Of the 34 firms that assess market risk, 20 (59%) marked the method they use. Among the market risk assessment methods used, 3 of the firms used scenario analysis, 4 used simulation, 4 used market analysis, and the remaining 9 firms a combination of sensitivity analysis, long-term projections correlation, forecasting methods, trend analysis and market shares, etc.

Figure 24 shows that 36 of the firms (61%) assess project risk for the firm, 15 (25%) do not, while 8 of the firms (14%) did not answer.

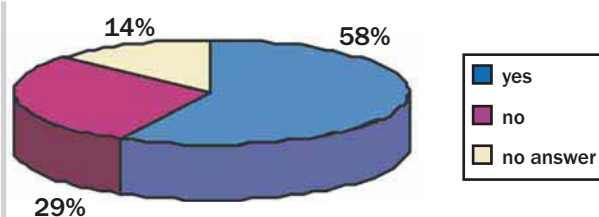


Figure 23.
Do you assess market risk

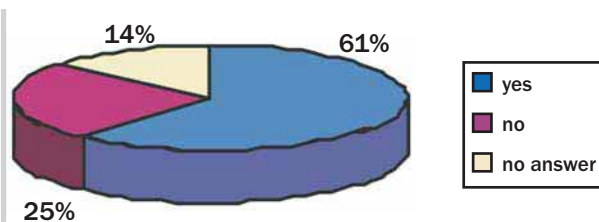


Figure 24.
Do you assess project risk for the firm

Of the 36 respondents that assess project risk, 21 (58%) marked the technique used (Figure 25). 4 of the firms (19%) use simulation, 2 (10%) use sensitivity analysis, 3 (14%) scenario analysis, 1 (5%) uses sensitivity analysis and simulation, while 2 (10%) adjust WACC. The remaining 9 firms (43%) gave different answers, including SWOT analysis, IRR, all risk analysis, risk reviews for important projects, etc.

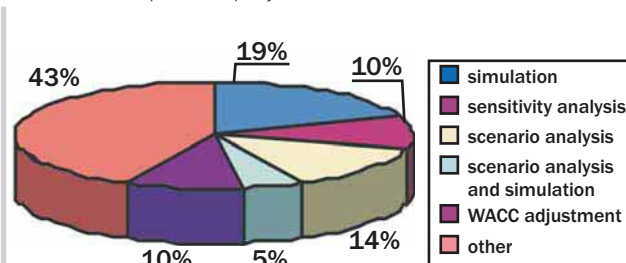


Figure 25.
How do you evaluate the impact of the project risk on the firm

There are various methods of incorporating risk into a capital-budgeting analysis, including adjusting the payback period, using a risk-adjusted discount rate, adjusting cash flows, and calculating certainty equivalents for the cash flows (Shapiro, 2005). Of the 59 sampling firms, 25 (42%) adjust the discount rate for risk or use a risk-adjusted discount rate, 17 (29%) calculate certainty equivalents for cash flows, while 17 (29%) did not answer (Figure 26). In 19 of the firms (32%), project risk is ranked by type; 32 firms (54%) do not rank risk by type, while 8 of the firms (14%) did not answer.

According to Farragher, Kleiman and Sahu (1999), 63% of U.S. firms use a risk-adjusted discount rate, and 37% use certainty equivalents. The survey of Graham and Harvey (2001)

showed that 51% of the companies always or almost always adjust the discount rate for risk.

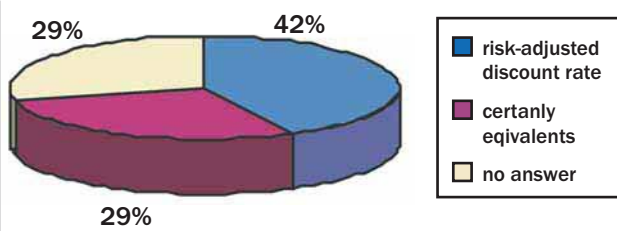


Figure 26.
How do you incorporate relevant risk into a capital-budgeting analysis

3.4. Strategic projects

Finally, we explored the procedures of strategic projects analysis. We found that 51 firms (86%) analyse strategic projects. Of the 51 firms that analyse strategic projects, 29 (57%) use traditional cash flow analysis, 5 (10%) use comparisons with similar assets, 4 (8%) use some other way (e.g., continuous analysis iteration), 12 (24%) use traditional cash flow analysis and comparison with similar assets, and only 1 firm (2%) uses traditional cash flow analysis and binomial option pricing (Figure 27).

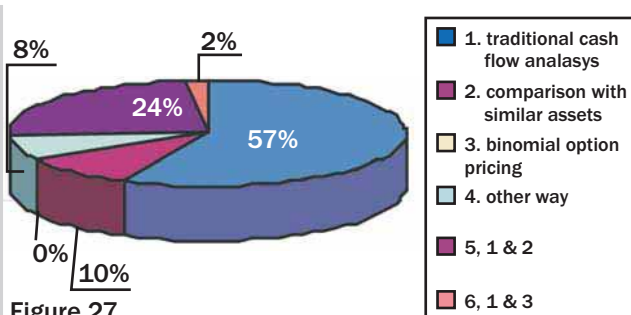


Figure 27.
Procedure of the strategic project analysis

Additionally, we found that only 9 of the firms (15%) use a decision tree for scenario analysis modification, 41 (69%) do not use strategic option analysis, while 9 of the firms (15%) did not answer. Figure 28 shows that 15 of the firms (25%) use strategic options analysis, 36 (61%) do not analyse strategic options, while 8 of the firms (14%) did not answer.

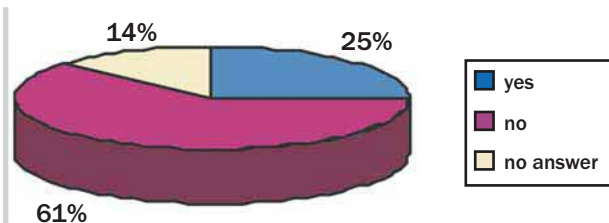


Figure 28.
Do you analyse strategic options


Of the 15 firms that analyse strategic options, only 3 indicated that they estimate the strategic options value. This is 5%

of the entire sample of 59 firms. The last question was, "How do you estimate strategic option value?" We received two answers. One of the firms uses a «standard procedure», while the other uses a «binomial option pricing model». Considering that a «standard procedure» for option pricing does not exist, the only relevant answer is «binomial option pricing». We can thus conclude that only one firm (1,69% of the sample) estimates strategic options value.

4. Conclusion

This paper has presented the findings of a mail survey of capital budgeting practices sent to a selected sample of 234 Croatian firms and compared the results with similar studies in the USA, UK, Sweden, and other European countries. The purpose of this study was to determine the present application of quantitative capital budgeting methods, cost of capital and cash flow estimation, risk analysis and application of the real options approach. The results of the survey show that the responding Croatian firms employ currently available capital budgeting methods less extensively than firms in other countries (e.g., USA) when evaluating long-term investment projects. Specifically, 59 percent of Croatian firms always use IRR, 56 percent always use payback period, and 42 percent always use NPV. For firms in the U.S., 75-80% use IRR and 75-78% use NPV.

Results also show that for 22 percent of the sample firms the two most important capital budgeting methods are NPV and IRR, and for 24% of the sample firms these are IRR and payback period. The results of the survey show that 45 of the investigated firms (76%) estimate cost of capital. 40% use a cost of capital that is determined by "investor's required return", 9% use the CAPM, and 40% determine the cost of capital as WACC. The results of the survey show that of the 59 firms that participated in the survey, 81% estimate project cash flows, and 73% estimate project risk. 42% of the firms use a risk-adjusted discount rate, and 29% calculate certainty equivalents for cash flows. We found that 51 firms (86%) analyse strategic projects and that 15 of the firms (25%) analyse strategic options. Of the 15 firms that analyse strategic or real options, only one firm estimates the strategic or real options value using a binomial option pricing model.

In conclusion, Croatian firms, for the most part, could use current capital budgeting methods more extensively when evaluating investment projects. The lack of use may be due to a lack of familiarity with such methods. These findings indicate a need in education and training for the managers of firms in the area of capital budgeting. 

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Poverty amongst Female-headed Households in Bosnia and Herzegovina : an empirical analysis

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Abstract

This paper conducts an empirical investigation of whether female-headed households (FHHs) are over-represented amongst the poor compared to male-headed households in Bosnia and Herzegovina (BiH), measured through the consumption dimension of poverty. Apart from self-reported and demographic definitions of headship, which do not make reference to the economic support provided for a household, households whose headship is assigned according to economic definition are included in the analysis. Moreover, the heterogeneity of FHHs is recognised in our study. In this way, the study avoids the main pitfalls associated with similar studies. Since the relationship between poverty and headship has regional and ethnic characteristics, the specific characteristics of BiH in this context are taken into account. Finally, given that our analysis did not find evidence of FHHs being disadvantaged in terms of household consumption, it cannot be argued that policy measures targeting FHHs would be a useful approach to reducing poverty in Bosnia and Herzegovina.

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1. Introduction

The notion of the ‘feminization of poverty’ has become orthodoxy in the last decade. The feminization of poverty has been used as a rationale for advocating public and private-sector policies that target female-headed households in order to assist them in tackling poverty. There are a number of reasons, such as gender inequalities in terms of rights, earnings, economic opportunities, education and capabilities (Chant 1997), the greater longevity of women, the burden of home responsibilities, gender-differentiated effects of transition, and the growth of female-headed households, that are considered responsible for the higher incidence of poverty amongst women than men. The levels of female-headed households in Bosnia and Herzegovina receiving welfare have also been affected by a civil war that caused extensive destruction, atrocities, social and labour market disruption for many adult males, and a decline in the overall standard of living.

In our analysis of the consumption dimension of poverty, data collected in the Living Standard Measurement Survey 2001 (LSMS) for Bosnia and Herzegovina have been employed

to examine whether female-headed households are over-represented amongst the poor compared to male-headed households. This enables us to consider whether additional policies targeted at female-headed households would be justified in the case of Bosnia and Herzegovina.

In analysing the incidence of poverty in female-headed households, one of the major issues is the definition of “headship.” Because there is no common agreement on this

definition, several criteria for headship are adopted in this study. Rather than using self-reported and demographic definitions of households which do not make reference to the source of economic support, this analysis only used households whose headship was assigned on a strictly economic basis. In this way, the problem associated with households in which, because of social norms, preference is given to men when declaring

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headship– even when the woman is the main contributor to the household's income– is circumvented. Moreover, because empirical evidence suggests that some groups are more vulnerable to poverty than others this analysis takes into account the heterogeneity of female-headed households. Since the relationship between poverty and headship has regional and ethnic characteristics, characteristics specific to Bosnia and Herzegovina in this context are taken into account. Namely, the examination of poverty amongst female-headed households is done separately for the whole country, each entity, and three types of municipalities, defined according to their level of urbanisation.

Furthermore, our assumption is that wages earned in the labour market typically dominate household income and, in their absence, household income and consumption primarily depend on social benefits provided by the state. For this reason, an investigation of the labour force participation of women and female heads-of- household, as well as a critical analysis of the social benefits system, is conducted to contribute to a fuller picture of the consumption dimension of poverty amongst FHHs.

The study is organised as follows: section 2 surveys the theoretical foundations and empirical findings with respect to the poverty of female- headed households, as well as the issues related to the definition of headship and the methodology applied in our analysis of poverty of female-headed households. Section 3 describes the context of Bosnia and Herzegovina, the data used in the analyses, and examines to what extent different categories of female-headed households are represented in the dataset used. Additionally, it provides an insight into levels of participation in the labour market in terms of gender and headship composition, as well as an empirical investigation of the determinants of women's decision to join the labour market. Given that, in addition to wages earned in the labour market, social benefits represent a significant source of finances for some households, an overview of social policies in Bosnia and Herzegovina is provided in the remainder of section 3. In addition to a survey of female- and male-headed households that fall below the general poverty line, an empirical analysis is undertaken to examine and compare the yearly per capita consumption of these households in section 4. Finally, policy implications arising from this study, concluding remarks and recommendations for further research are presented in the last section.

2. Literature Survey of Poverty amongst Female- Headed Households

2.1. Theoretical Framework

The term 'feminization of poverty' suggests that women are disproportionately represented amongst the poor compared to men due to the growth of female-headed households (FHHs), gender inequality, disadvantages in terms of entitlements such as restricted access to land ownership, credit and other productive resources, and limited capabilities from illiteracy and low educational levels. Furthermore, the neo-liberal restructuring of market sectors, including the transition of socialist countries, increasing family break-up, the growing involvement of women in the informal economy, and lack of kin-related support as a result of migration, conflicts and similar events negatively affected the well-being of women (Chant 1997; Moghadam 2005; BRIDGE 2001). The main reason why women tend to be more vulnerable to poverty than men is their inferior access to employment and a lower earning capacity possibly caused by occupational segregation, gender earnings differentials and unemployment¹, a greater tendency to have children, as well the burden of more dependents to support and care for (BRIDGE 1997; Fuwa 1999; ILO 1996; Rosenhouse 1989).

The feminisation of poverty in transitional economies, apart from the above stated subjects, concerns the structural adjustments and market reforms that are believed responsible for the situation in which a greater proportion of transition costs are attached to women than men (Moghadam 2005; Schnepf 2004). Transition in Central and Eastern Europe brought a number of changes that negatively affected the welfare of households in general. Apart from facing job losses, the decline in public sector employment, the growth of a largely unregulated private labour market and the rise in prices, individuals were deprived of a number of subsidies, family benefits, social protection and the centralised system of wage setting provided by the socialist system (Paci 2002). In particular, individuals previously enjoyed free education, health care, fully paid maternity leave and paid leave for the care of a sick child (- 2002). In addition, women in Bosnia and Herzegovina faced the additional

¹ There are a number of explanations for gender earnings differentials; the neoclassical approach focuses on differences in human capital as a main factor affecting differences in earnings, allowing for only temporary gender discrimination. Feminist theory underlines "the organization of social reproduction", the respective positions of men and women in the labour marker, and ideological factors (BRIDGE, 1997:27).

disadvantage of forced family disintegration that arose from a war which left many without the traditionally male breadwinner². Due to the death toll, ethnic cleansing, and damaged family-based social networks, there are large proportions of FHHs in some areas, such as Srebrenica, where approximately 42 percent of all returnees live in FHHs (United Nations Volunteers 2004).

There is an argument in the literature that the labour force participation of women in transition was affected by two factors working in opposite directions (Paci 2002). The first factor is related to higher male unemployment and the weakening of the 'male breadwinner' norm, which is expected to have a positive influence on women's participation in the labour market and to reduce the gender wage gap by reducing occupational segregation and gender discrimination (- 2002). The second factor relies on the argument that women tend to spend a higher proportion of their time in household production and care-giving activities that normally hamper female labour participation (- 2002). In addition, Mickiewicz (2005:87) argues that part of the reason for a decrease in the labour market activity rates lies in the "natural adjustment in activity rate, following the dismantling of the command economy system" and higher incentives to obtain higher education under the 'new' market system. Limited empirical evidence suggests that female participation has declined and that the gender gap in both participation and wages has grown. Milanovic (1998) points out that a larger proportion of women who previously worked as clerical staff, production workers, teachers, administrators and doctors experienced a decrease in terms of employment and wages, giving rise to a greater income gap between women and men, increasing the poverty of the former. In addition, Blackburn et al. (2001) find that occupational segregation in Eastern Europe increased between 1990 and 2000, reaching levels typical of Western Europe and other industrialised countries. This implies that women tend to concentrate around relatively low-paying jobs, which in turn contributes to income inequality and potentially increases their vulnerability to poverty. The latter may have a particularly negative effect on the welfare of some sub-groups of female-headed households, especially in the absence of an effective social benefits system.

In the literature, female-headed households are often linked to the notion of the feminisation of poverty, which sometimes goes as far as to draw a parallel between the two (Jackson 1996; Kabeer 1996). It is widely believed this stems from FHHs comprising a large portion of poor households and the prevalence of FHHs amongst extremely poor³ households (BRIDGE 2001; Buvinic and Gupta 1997). Evidence shows that approximately one third of all households in the developing

world are headed by women (Buvinic and Youssef 1978 cited by Rosenhouse 1989).

A number of poverty analyses, as presented below, reveal that there is a positive relationship between female-headed households and poverty. This has been a rationale for the argument that creating and implementing policy measures which target this particular sub-group of households is advisable (Buvinic and Gupta 1997 cited in BRIDGE 1995; Fuwa 1999; Joshi 2004).

"Governments that wish to implement anti-poverty programs with constrained budgets should seriously consider targeting female-maintained families"⁴.

(Buvinic and Gupta (1997) cited in BRIDGE 1995)

Buvinic (1990) suggests three sets of factors that are likely to determine the prevalence of poverty amongst FHHs. Firstly, female-headed households are poorer because they support more dependants, i.e. have a higher ratio of non-workers to workers compared to other types of households. Secondly, female heads have lower wages, fewer assets, less access to remunerative jobs and productive resources than male-headed ones. The final set of factors, which combines the effects of gender differences and characteristics specific to FHHs, includes time and mobility constraints as well as the burden of household chores that women bear. Rosenhouse (1989), Agarwal (2001), Judith and Dwyer (1988) support the argument of creating policy interventions targeting FHHs due to their specific burdens, including having a single earner, discrimination in the labour market, and time constraints arising from added domestic responsibilities.

Nevertheless, several authors suggest that "headship analysis should not be seen as a proxy for gender analysis of poverty" (Fuwa 1999:4) for the reason that the analysis of poverty in FHHs focuses on the household-level, rather than the individual-level, and that female-headed households do not exclude the men living in these households (Fuwa 1999; Judith and Lloyd 1992; Quisumbing et al. 1995).

² Up to 250 000 men were killed during the war in Bosnia and Herzegovina. (Kukanesen 2003)

³ Extreme economic poverty is defined as living on less than \$1 per day (World Bank, undated).

⁴ Buvinic and Gupta (1997) distinguish between female-headed households as residential units and female-maintained households that consist of kin residing on their own or in larger households.

2.2. Definition of Female- Headed Household

An issue commonly discussed in the literature on FHH poverty is that of the definition of “headship”. A number of definitions are used in national surveys by survey respondents that conflict with definitions based on contributions to household income⁵. (Rosenhouse 1989; Kennedy and Peters 1992; Kennedy and Haddad 1994; Handa 1994) The definition of headship is an important issue in creating effective anti-poverty policies (Rosenhouse 1989).

“If policymakers are concerned with the economic base of poor households, then ideally what is needed is a classification system that identifies whose work effort and income the household is most consistently dependent on.”

(Rosenhouse 1989:7)

Fuwa (1999) gives three broad categories of FHH definitions: self-reported, demographic, and economic. The self-reported household category is often created based on respondents’ statements in surveys and censuses, although there is no precise definition. Demographic definitions take account of FHHs where there is male partner that is temporarily absent, and of FHHs where the female head is separated, divorced, widowed or single (- 1999). Further disaggregation of households can be done in terms of de facto and de jure FHHs. De facto FHHs are those households where the self-reported male head is absent the majority of the time (- 1999; Quisumbing et al.1995). De jure female-headed households are those usually headed by widows or unmarried, divorced or separated women. Finally, FHHs may be defined depending on the level of economic contribution of females to the household. Fuwa (1999) suggests defining headship in terms of the largest cash earner in the household. Rogers (1995) advocates a distinction in terms of the ‘major earner’, i.e. an earner who contributes 50 percent or more to the household earnings. Gammage (1989) uses the term ‘female- maintained’ to describe this particular type of household. Moreover, Rosenhouse (1989) uses the ‘working head’ definition for the household member most heavily engaged in income-generating activities, which includes activities in the labour market as well as family labour (but excludes household chores or child care) in order to emphasise the dual burden attached to female workers.

Self-reported headship measures used in survey data have been criticised by a number of authors (Rosenhouse, 1989; Kennedy and Peters, 1992; Handa, 1994, Quisumbing et al. 2001) who argue that these measures are imprecise, particularly when the oldest male member, despite there being a

female main earner, is reported as the household head because of social, religious and cultural norms. This argument may be of particular relevance to the analysis of FHHs poverty in Bosnia and Herzegovina, especially in rural areas, where the oldest male household member is often considered to be the head. Moreover, it has been pointed out that.

“If the head of the household is only a reference point, without any economic responsibility, there is no immediate reason for the sex of the head to be correlated with the poverty level of the household.”

Gangopadhyay and Wadhwa (2003:4)

Unsurprisingly, empirical findings vary when the definition of household head alters, although Buvinic and Gupta (1997) point out that the incidence of poverty may not have the same probability in different countries, even if a common definition of FHHs is used, given country-specific characteristics such as economic and social circumstances.

2.3. Methodology

There are several methodological issues that may be the cause of the inconsistent results presented in the literature. Generally, country studies report that the relationship between female headship and poverty differs depending on the disaggregation of reported headship by marital status and other demographic characteristics, as well as on the headship definitions used (Barros et al. 1994; DeGraff and Bilsborrow 1992; Dreze and Srinivasan 1997; Fuwa 1999; Kennedy and Haddad 1994; Louat et al. 1992).

Most analyses of female headship do not account for the heterogeneity within female household heads⁶ (Mukhopadhyay and Ghatak undated; Fuwa 1999; Buvinic and Gupta 1997). As stated above, female-headed households may be created in a number of ways, voluntarily or involuntarily; in particular as a result of conflict, migration, divorce, separation, polygamy, teenage pregnancy and widowhood. Given the different reasons for a household having a female head, it is reasonable to expect that the socio-economic statuses of these households

⁵ In most national and international data sources ‘female household headship’ refers to situations where an adult woman (usually with children) resides without a male partner (or, in some cases, another adult male such as a father or brother) (Chant, 1997).

⁶ Exceptions are Rosenhouse (1989); Kennedy and Haddad (1994); Handa (1994); Dreze and Srinivasan (1997).

are not the same. Also, the structure of different types of FHHs is likely to be different across countries and regions (Buvinic and Gupta 1997), suggesting that the relationship between poverty and FHHs is not straightforward, and that caution is required in modelling poverty-reduction strategies in terms of target groups. As presented in the section below, studies suggest that the relationships between female headship and poverty significantly differ depending on the further disaggregation of reported headship by marital status and other demographic characteristics and/or on alternative headship definitions, such as the economic definition.

They also emphasise the need to use a variety of measures of poverty, such as economic (expenditure and income measures) and non-income measures (Fuwa 1999; Buvinic 1990). In particular, there are several non-income dimensions of poverty, such as housing, access to water and sanitation, basic health care and education that need to be examined in order to obtain a fuller picture of the welfare conditions and potential poverty of FHHs. Additionally, one of the frequently discussed issues is related to both the smaller amount of leisure time of female heads and the intergenerational transmission of the disadvantages of FHHs. Because of the 'double burden' imposed on female heads, i.e. economic support and household chores, there is the argument that female heads are more likely to be 'time poor' compared to other women and male heads (Fuwa 1999). Furthermore, this substitution of work for leisure to achieve a certain level of consumption in female-headed households may signify the perpetuation of poverty into the next generation (Buvinic and Gupta 1997).

Ignoring the endogeneity of households by assuming that female-headed households and other measures of household structure are exogenously determined, i.e. that female headship determines the level of households' welfare and possibly causes poverty, is another methodological issue that may lead to biased results (Foster 1993; Quisumbing et al. 1995; Foster and Rosenzweig 2001; Joshi 2004). Namely, female headship and the welfare level of household members may be jointly determined, i.e. there may be some unobserved factor(s) that affects both female headship and the consumption of female-headed households. In order to assess the effects of female headship on the welfare of households, it has been argued that it is necessary to take into account a given woman's characteristics, the socio-economic circumstances of her natal home, the characteristics of its marriage market, as well as the processes that lead to the formation and dissolution of the household and the change in household composition (Alderman et al. 1995, Fuwa 1999). For example, a woman may choose to become either a household head or a wife as a func-

tion of her expected income, consumption level or leisure in alternative headship states (Handa 1996 cited by Fuwa 1999). Nevertheless, few studies have adopted an approach with an instrumental variable controlling for potential endogeneity because of the difficulty in finding a valid instrument when analysing cross-section data.

Finally, it is widely argued in the literature that the concepts of adult equivalents and economies of scale in household consumption need to be taken into account when analysing household poverty (Buhmann et al. 1988; Lanjouw et al. 1998; Fuwa 1999; Joshi 2004). This is because children and adults do not consume at the same levels and because economies of scale exist in households due to their different size. Because FHHs are typically small, it is argued that

"...female-headed households appear poorer with greater economies of scale because of the negative correlation between this household type and average household size".

Lanjouw et al. (1998:7)

2.4. Empirical Evidence

It has been suggested that FHHs are much more likely to be poorer than aged or disabled families (Garfinkel and McLanahan 1986) and are more likely to be poor at any point in time compared to male-headed households (Kossoudji and Mueller 1983). Moreover, Dréze and Srinivasan (1997) found that widow-headed households in India (equivalence-scale adjusted) have lower household per-capita expenditures than other categories of FHHs. A few studies which employed alternative 'economic' headship definition in terms of hours worked and earned income suggest that there is a negative relation between female headship and greater poverty compared to the self-reported headship definition (Rogers 1995; Handa 1994).

Generally, the incidence of poverty amongst FHHs is relatively high in both developed and developing countries. In the United States, for example, the poverty rate of FHHs was three to four times higher than those of households with two parents in 1983 (Garfinkel and McLanahan 1986). The review cited often in the literature was conducted by Buvinic and Gupta (1997), which included 61 studies on the relationship between female headship and poverty in Latin America, Africa and Asia. They found that, in two-thirds of cases, FHHs are poorer than MHHs. In contrast, Quisumbing, et al. (1995) conducted an analysis of incidence of poverty amongst FHHs in 10 developing countries⁷, using a number of different poverty measures, and found that the relationship between female headship and

poverty is strong in only two countries, Ghana and Bangladesh. However, Quisumbing et al. (1995: 25), emphasise that these results “should not be taken to argue that policy interventions should not be targeted by gender”, warning that part of the reason why FHHs are not found to be poorer than male-headed households (MHHs) may be related to both methodology and the definition of headship used.

Lanjoulw et al. (1998) examined poverty in different types of households in 7 countries from Eastern European and the former Soviet Union using per capita consumption as a measure of household welfare. They found that female-headed households appear to be relatively poorer when compared with other vulnerable groups, namely the elderly and children, with the incidence of poverty amongst FHH ranging from 9 percent in Poland to 19 percent in Russia. Moreover, when economies of scale are taken into account, FHHs appear on average to be poorer than the rest of the population, given that these households tend to be associated with lower household size (- 1998). Paci (2002) found mixed results with respect to the income dimension of poverty of FHHs in Eastern Europe and the countries of the former Soviet Union. The incidence of poverty for female-headed households in Russia, Kazakhstan and Ukraine is equal to that of male-headed ones. In Albania, Bulgaria, Hungary, Latvia, Moldova, and Romania certain sub-groups of FHHs, in particular elderly single women or single mothers, are more likely to have lower income than male counterparts (- 2002). “Only in Georgia and Tajikistan is the gender of the household head per se a correlate of income poverty” (- 2002:xii).

Furthermore, the Poverty Assessment for Bosnia and Herzegovina (World Bank 2003), which used consumption aggregate per capita with adjustment for spatial price variation, has made only a weak reference to FHHs. This analysis suggests that poor households in Bosnia and Herzegovina are predominantly those who have children, are headed by working-age adults, and rely on a single earner. Nevertheless, it found that FHHs in Bosnia and Herzegovina have a lower incidence of poverty than male-headed ones. The finding on the lower poverty amongst FHHs remains even when the adjustment for economies of scale of consumption is made (- 2003). The Assessment primarily holds responsible the safety net arrangements in Bosnia and Herzegovina for smaller incidence of poverty amongst FHHs. It is not stated, though, which definition of FHH is used in this analysis, which is, as argued above, one of the main reasons for ambiguous results in different poverty analyses of FHHs⁸. Also, it seems that the above-mentioned study ignores the heterogeneity of female-headed households, which is considered to be another pitfall of similar studies.

3. Labour Force Participation of Women in Bosnia and Herzegovina

3.1. Data and Bosnian context

An analysis of the female labour force participation and of the consumption dimension of poverty of FHHs in Bosnia and Herzegovina is conducted using household-level data on the living standards of the population. The LSMS was carried out in 2001 in Bosnia and it collected information from 5,400 households and 17,127 individuals on their income, consumption levels, economic activities, housing etc. The survey sample provides representative data for households in BiH as a whole, and in each of the two entities - 2,400 households are from RS and 3000 from FBiH. The two entities were formed as a result of the General Framework Agreement, also referred to as the Dayton Accord, which brought a halt to the conflict. The Federation of Bosnia and Herzegovina (FBiH) consists of 51 percent of the territory and the Republika Srpska (RS) covers the remaining 49 percent of the territory. FBiH is mostly populated by Bosniaks and Croats, who consist of almost 97 percent (72.5 and 24.4 percent, respectively) of the population in FBiH, whereas Serbs constitute more than 93 percent of population in RS (Bisogno and Chong 2002).

The resulting data are representative by type of municipality: urban, rural, and mixed (semi urban) within each of the two entities. 25 municipalities were selected, out of which 14 were from FBiH and 11 from RS. Municipalities are described as urban if 65 percent or more of the households are considered to be urban; rural municipalities are those where the proportion of urban households is below 35 percent; the remaining municipalities were classified as mixed (State Agency for Statistics, Republika Srpska Institute of Statistics, Federation of BiH Institute of Statistics and World Bank, 2002a). “Municipalities were selected with probability proportional to estimated population size within each stratum, so as to select approximately 50% of the mostly urban municipalities, 20% of the mixed and 10% of the mostly rural ones” (State Agency for Statistics, Republika Srpska Institute of Statistics, Federation of BiH Institute of Statistics and World Bank, 2002a:7).

⁷ Seven from Sub-Saharan Africa, three from Asia, and one from Latin America

⁸ Given that the Herzegovina (LSMS) dataset was used for examining whether the incidence of poverty is greater amongst FHHs, we assume that all households that reported themselves as female-headed (self-reported headship definition) were taken as such in the study.

3.1.1. Overview of shares of different female-headship categories in the LSMS-BiH

Given that the focal point of this study are female-headed households, an overview of the number and shares of different categories of FHHs in the total number of households from the LSMS 2001 is given in table 1. The category of self-reported FHHs is created according to the responses of interviewees in the LSMS 2001, where a self-reported household head is the person designated in response to the question: "Who is the head of your household?" (State Agency for Statistics, Republika Srpska Institute of Statistics, Federation of BiH Institute of Statistics and World Bank, 2002b). The household head is designated by the household members on the basis of their own criteria. Often, it is the person who provides for the family or who is aware of all the activities and affairs of the household. (State Agency for Statistics, Republika Srpska Institute of Statistics, Federation of BiH Institute of Statistics and World Bank, 2002b). Reported de jure FHH are generated when the self-reported FHHs are broken down by their marital status. Following Rogers (1995), the assumption in this study is that the concept of headship should be defined on the basis of economic support and that self-reported headship does not reliably identify the economic support base of the household. The concept of the major earner helps identify more clearly women that economically support households than does the idea of the reported head and, for this reason, this subgroup of households is extracted from the LSMS 2001 with shares presented below.

At the national level, self-reported female-headed households represent a quarter of all households included in the survey. A somewhat higher percentage of self-reported FHHs are located in FBiH (27.3 percent) compared to the smaller entity

(21.8 percent), and the statistical test indicates that this difference is significant. 27 percent of households in urban areas are headed by women, while these have somewhat smaller shares in mixed and rural municipalities (23 and 21 percent, respectively). The shares of FHHs in urban, mixed, and rural municipalities are broadly proportionate to the shares of the total number of households from the survey in these municipalities. Table 1 also presents the shares of different categories of FHHs, based on six additional definitions of FHHs, in the total number of households covered by the LSMS 2001. In particular, reported widows are the largest category, accounting for more than 19 percent of the total households in the survey. Also, households headed by widows represent 77 percent of the total number of self-reported female-headed households. Although more than a third of self-reported widows belong to the age range between 35 and 60 years old, i.e. they were likely to be married in 1991, and assuming that their husbands were approximately the same age, i.e. they are likely to have been mobilised in the war, there is not enough evidence to conclude that the recent war is the main cause for such a large number of widows in Bosnia and Herzegovina. The share of widows in the adult female population in Bosnia and Herzegovina⁹ is 19 percent and is considerably lower than that in countries recently involved in civil wars, such as Rwanda and Mozambique, where over 70 percent of adult women are widowed (Owen, undated). Bosnia and Herzegovina rather follows the trends of other South-Eastern European countries that were not affected by a war, such as Bulgaria, where widows comprise more than 14 percent of adult female population (National Statistical Institute of Bulgaria 2006). In addition, the evidence indicates that women have traditionally outlived men in BiH¹⁰ (UNDP 2002).

⁹ Calculated based on LSMS 2001

¹⁰ Average life expectancy is 74.8 for wom. and 70.8 men.

	Nationwide	RS	FBiH	Urban	Mixed	Rural
Self-reported FHH	1345(24.90%)	524(21.8%)	821(27.3%)	804(26.79%)	312(23.41%)	229(21.44%)
Reported widows	1044(19.33%)	404(16.8%)	640(21.3%)	598(19.93%)	252(18.90%)	194(18.16%)
Reported single women	107(1.98%)	45(1.9%)	62(2%)	71(2.37%)	23(1.73%)	13(1.22%)
Reported divorced/separated women	113(2.09%)	46(1.9%)	67(2.2%)	75(2.50%)	22(1.65%)	16(1.50%)
Reported married female heads	65(1.20%)	21(0.8%)	44(1.5%)	49(1.63%)	12(0.90%)	4(0.37%)
Reported FH living with a male partner	13(0.24%)	6(0.3%)	7(0.2%)	8(0.27%)	3(0.23%)	2(0.19%)
Reported major female earners	32(0.59%)	5(0.2%)	27(0.9%)	23(0.77%)	3(0.23%)	6(0.56%)
Total households in LSMS 2001	5402	2400	3002	3001	1333	1068

Table 1
Number and shares of different female headship categories in total number of households in the LSMS 2001

Furthermore, there are 107 single female heads and 113 divorced or separated female heads of households; each of these categories represents around 2 percent of the total number of households reported in the survey. Moreover, two thirds of single female heads and the same share of divorced or separated female heads of households live in urban type settlements in BiH. This is as expected given that the stability of marriages is weaker and the trend of women living on their own is more common in urban than in rural areas as a result of more economic opportunities and less traditional social norms that constrain women in the former (Chant 1997).

There are no *de facto* female-headed households- i.e. those self-reported FHHs where the reported head has a spouse or common-law partner who has not been physically present for longer than nine months¹¹ - in the dataset. Given that Bosnia and Herzegovina is quite a patriarchal society, with feminist ideas and practices still in their infancy, it is not surprising that only 1.2 percent of married women who live with their spouses are reported as household heads out of the total number of households covered by the survey. As expected, for the reason given above, 75 percent of these live in urban municipalities. Although married female heads of household are more likely to work than the spouses of male heads, Kukanesen (2003) argues that economic criteria alone do not explain the preference for males in Bosnia and Herzegovina, given that half of married male heads and half of married female heads do not work. In addition, the number of women who are reported as head of the household and who have unmarried or common-law partners is extremely low- only 13 out of 1345, representing 0.24 percent of interviewed households.

Finally, the number of women who earn more than 50 percent of the annual household income and are, according to the economic definition, designated as head of the household, is not large - only 32 of this type of household, which is less than 0.6 percent of the total households interviewed at the national level. Unsurprisingly, around 70 percent of these households come from urban municipalities in the Federation of Bosnia and Herzegovina that offer a greater spectrum of opportunities in the labour market. Interestingly, almost 85 percent of female major income earners are from FBiH, which is likely a consequence of its better economic situation and higher wages (State Agency for Statistics for BiH 2006) compared to RS.

3.2. Social policies relevant to the state of FHHs in Bosnia and Herzegovina

Households in Bosnia and Herzegovina were the recipients of international aid immediately after the war that disappeared in later years. Nowadays, households in need receive benefits in the form of public transfers that assist them in coping with poverty. There are some non-governmental organisations whose major beneficiaries are women, as well as financial institutions that offer special financing schemes that target women; this section, however, will focus on public transfers only.

The social security system in Bosnia and Herzegovina is decentralised due to the specific constitutional framework of the country. Although each entity has social security regulated by separate laws, both are similar in terms of eligibility for social security and its procedures through which such benefits can be obtained (Obarčanin 2005). Amongst other things, these laws regulate the following areas that might have a direct relation to the welfare of female-headed households: social security of citizens and their families, and the rights of war victims and their families.

The pension system has an important role in safeguarding the elderly from poverty in Bosnia and Herzegovina. The legal retirement age for women is 65 years in FBiH, 60 years in the RS and 65 years for men in both entities. The average pension amounted to 145KM on the national level in 2001. The level of pensions in the RS was notably lower than that of the FBiH in 2001 in particular: in FBiH it was 170 KM and in RS 105KM. Both entities introduced a minimum pension that has been fixed at 80KM in RS and 140 KM in FBiH. In addition, both entities have benefits to which 'the surviving spouse' (the widow or the widower), "the divorced spouse, if awarded the support right by the Court, and children born within or out of wedlock, adopted, stepchildren supported by the insured, grandchildren, and other children without parents who were supported by the insured until his death" (Obarčanin 2005:11) are entitled. A widow is entitled to benefits if she is aged 45 or over and a widower if he is aged 55 in RS and 60 in FBiH and/or if they care for children entitled to survivor's pension or if they are disabled (Official Gazette RBiH, No. 2/92). In the case of remarriage, a widow aged less than 45 or widower less than 55 years in RS or 60 in FBiH will no longer be entitled to a survivor's pension, unless totally incapable of work (Obarčanin 2005). The survivor's pension is calculated as a percentage of the pension to which

¹¹ Absence of a spouse for longer than 9 or 12 months is usually taken as a norm in defining *de facto* male- or female-headed households

the deceased would have been entitled and according to the number of eligible survivors (one survivor 70%, two survivors 80%, three survivors 90%, four or more survivors 100%). In addition, the members of families of fallen soldiers are beneficiaries of social health insurance and are given priority in obtaining housing (Official Gazette RBiH, No. 2/92). Benefits provided for household survivors will be assessed in the later analysis against the welfare of this particular group of households.

The state also provides financial support to families with children whose income is below average earning level in FBiH and whose monthly income per family member is lower than 56.03 KM in RS. Child benefits, however, have been terminated in the majority of cantons in FBiH, which halved the number of children covered by these between 1998 and 2000 (World Bank 2003). However, neither entity has provisions in terms of an allowance for single parents (Obarčanin 2005). There are also unemployment insurance systems, adopted by both entities, which provide a modest system of income support to the unemployed. The duration of eligibility depends on the number of years of work experience and ranges from 6 to 12 months in the FBiH, and from 3 to 12 months in RS.

As this overview of the policies implies, there is a significant amount of 'categorical' transfers i.e. pensions and veterans' benefits that are of importance for the welfare of some categories of FHHs, such as widows and some mothers who are heads of households. However, most of the categories of FHHs are not explicitly covered by the social policies.

3.3. Female labour force participation in Bosnia and Herzegovina

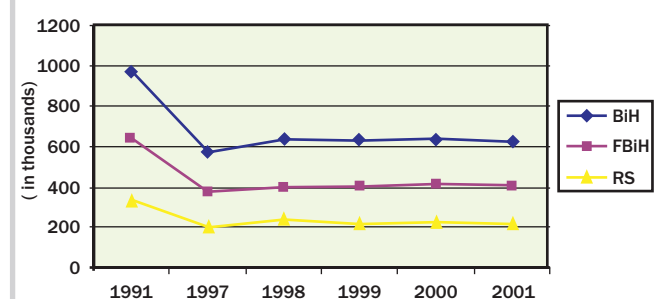
The position of Bosnia and Herzegovina in transition to a market economy was not only unique because of the economic transformation typical of all transitional countries in the South Eastern Europe, but because it was burdened by political instability and the severe consequences of the war. Bosnia and Herzegovina, similar to other socialist countries, was characterised by 'labour hoarding' i.e. "employment above the technically efficient level" (Mickiewicz 2005:84). The 'equality for all' maxim imposed high female employment rates and the equal treatment of men and women in the labour market, although some authors argue that equality in practice was as absent in communism as much as it is in capitalism (Vaknin 2002). This resulted in higher female labour force participation that was supported by a number of programmes, such as day care centres, nurseries, daylong schools, and abortion clinics facilitating their participation, as well as in a lower gender pay gap com-

pared to industrialised market economies (Fong and Lokshin 2000; Paci 2002).

Nevertheless, women's participation in the labour market in Bosnia and Herzegovina plummeted in the post-war years and this is likely to be due to the many cuts in public services that women had access to before the war. Also, the general labour market conditions and increased gender inequality in the post-war period depressed female participation (Paci 2002). The privatisation of state-owned enterprises was dominated by male managers and insiders, neglecting gender equality and further deepening the labour force participation gap (Vaknin 2002). Given that the real value of earnings decreased, it is likely that the substitution effect dominates the income effect, i.e. low wage workers may decide to withdraw from the labour market as leisure becomes a cheap commodity. In addition, Mickiewicz (2005:87) argues that a part of the reason for a decrease in activity rates lies in "natural adjustment in activity rate, following the dismantling of the command economy system" and higher incentives to obtain higher education under the 'new' market system.

Furthermore, formal employment plummeted during the war and stayed rather constant in the years after the war, whilst informal employment is suspected to have increased due to structural modifications of the markets, demographic changes, and the widespread destruction of factories and industrial premises. These changes caused a drop in the standard of living and an increase in poverty (Bisogno and Chong 2002; Paci and Reilly undated). In the absence of exact data on the informal sector, figure 1 gives an overview of the employment in the formal sector in the pre-war and post-war period. Kukanesen (2003) argues that there is a large informal sector in BiH, consisting of 36 percent of the total employment.

The economic activity rate is a key indicator of the labour market participation and represents the percentage of individ-



Source of data: Statistical Yearbook 2001, Federal Office of Statistics, Sarajevo; Statistical Yearbook of the Republic of BiH 1992, Federal Office of Statistics, Sarajevo; Republic of Srpska Institute of Statistics, Banja Luka, 2000.

Figure 1. Formal employment 1991 and 1997-2001

uals considered economically active¹² in the total working age population (ILO definition) or the proportion of the specified group supplying labour for the production of economic goods and services during a specified period (UNDP 2002). Economic activity rates in 2001 in Bosnia and Herzegovina (hereafter BiH), presented in table 2, suggest there was a decrease in the labour force participation rates of both, men and women, in the last decade.

In particular, activity rates that were around 65 percent and 80 percent for women and men respectively in 1990 (Paci and Reilly undated) dropped to 35 percent for women and 68 percent for men in 2001. The female economic activity rate in Republika Srpska is 38 percent and is slightly higher than that in the FBiH (31 percent). This is rather unusual given that FBiH had higher average wages in the period from 1997 to 2001 and that higher wages normally stimulate female participation (Jaumotte 2003). The possible reason might lie in higher taxes on wages in FBiH compared to RS and the lower absolute value of social benefits in RS that, as Mickiewicz (2005) suggests, may result in workers sticking to their jobs. What is striking is that the economic activity rates of men are very similar in both entities and this trend persists across rural, urban and mixed types of settlements. Moreover, the economic activity rates of women stay significantly lower than the rates of men when calculated for the whole of BiH, as well as when disaggregated by entity and by types of settlement. As expected, the highest labour force participation of women is in urban areas, followed

by mixed and rural municipalities. The likely reason for such an outcome is that more economic opportunities are available in urban- typically more developed- regions. Despite the participation of female heads of households in the labour force being somewhat higher than that calculated for all economically active females, it is still modest relative to the same figures in other Balkan countries presented in the study of Vodopivec from 2002. Moreover, the labour market participation of female heads is higher in RS than in FBiH. Breaking down economically active men and women into those who are employed and unemployed gives the following rates, as shown in table 2. The employment rates of economically active men and of those who are heads of households are higher than those of their female counterparts on both the national and entity level. The analysis indicates that the opposite is true when calculations of unemployment rates for the same categories are performed. Unemployment rates of all economically active women are somewhat higher than that of economically active female heads. Moreover, unemployment rates in RS are lower for all economically active women, as well as for female heads of households, compared to those in FBiH. Finally, employment rates are higher for women who are heads of households compared to those of all women.

¹² The economically active population is defined as all adults between 15 and 64 who were in employment at any time during the week prior to Census night, or unemployed, but seeking work or waiting to take up a job, or intending to seek work but temporarily sick (ILO).

	BIH	RS	FBiH	Urban	Mixed	Rural
Economic Activity Rates *						
Females	35 %	38 %	31 %	38 %	35 %	30 %
Female heads	36 %	44 %	32 %	39 %	36 %	35 %
Male	58 %	60 %	56 %	60 %	58 %	55 %
Male heads	68 %	68 %	67 %	70 %	64 %	63 %
Employment*						
Females	27 %	30 %	24 %	24 %	22 %	20 %
Female heads	30 %	35 %	27 %	32 %	26 %	29 %
Male	53 %	55 %	50 %	53 %	53 %	50 %
Male heads	65 %	66 %	64 %	67 %	64 %	60 %
Unemployment*						
Females	17 %	18 %	16 %	15 %	18 %	18 %
Female heads	15 %	18 %	14 %	10 %	14 %	16 %
Male	15 %	16 %	17 %	15 %	16 %	16 %
Male heads	12 %	13 %	10 %	8 %	9 %	10 %

*Differences between economic activity rates, employment and unemployment rates of male and females, of female and male heads, and females and male heads are statistically significant at 5% level of significance.

** Calculated based on the data from the Living Standard Measurement Survey 2001.

Table 2.
Economic Activity Rates segregated by gender and headship in 2001**

3.3.1. Empirical analysis of the determinants of female labour force participation

Conventional economic analysis argues that labour force participation is affected by the difference between the market wage and the reservation wage, where there is a positive relation between the market wage and the decision to work. A probit model, with standard errors corrected for heteroscedasticity, was used to estimate women's decision to join the labour force, given that the dependent variable gives a dichotomous choice. The dependent variable is a dummy variable and is equal to one if the individual is either employed or unemployed but looking for a job and equal to zero if the individual is neither working nor actively looking for work. Given that the market wage depends on individual and demographic characteristics, as well as on geographical region (Anderson and Pomfret 2000), the characteristics of working age women¹³, such as age, education, marital status, relationship to the head of household, as well as entity and type of municipality they live in were controlled for. Variables controlling for age and age-squared are included in the model in order to estimate how and to what extent different ages in the household head affect the decision to join the labour market. Apart from marital status, the number of children¹⁴ also determines the reservation wage and, for this reason, was included in the model. Dummy variables were created for education, entity, types of municipality, female headship, and marital status. The omitted base categories for these dummy variables are, correspondingly: no completed education, RS, urban municipalities, women who are not the head of household, and single women. Theoretically, the expectation is that female labour force participation (hereafter FLFP) will increase with human capital and decrease with marriage and a greater number of children (Anderson and Pamfret 2000). Single women are likely to be in the labour force because in our sample they are relatively well educated and a minority of them have children. FLFP is expected to increase with age until a certain point, after which it is expected to decrease. Moreover, although female heads of households tend to have relatively high inactivity rates compared to male heads, our expectation is that female heads will be either associated with higher labour force participation compared to women who are not heads or that there will be no statistical difference between the two. The reason is relatively generous social benefits provided for widows, who make up the majority of female heads in the sample under investigation. Finally, the labour force participation of women in urban municipalities is expected to be higher compared to the rest of the municipalities; however, there is no clear expectation with respect to entities.

The estimation results are given in table 3¹⁵.

Age	0.261
	(0.000)***
Age ²	-0.007
	(0.000)***
Female Heads	-0.114
	-0.472
Legally married	-0.299
	(0.000)***
Live together	0.251
	(0.054)*
Widows	-0.08
	(-0.774)
Separated or divorced	0.352
	(0.011)**
No. of children<14	-0.134
	(0.000)***
Completed primary education	0.622
	(0.000)***
Completed secondary education	1.284
	(0.000)***
Higher education, university diploma or higher	2.103
	(0.000)***
FBiH	0.101
	(0.017)**
Mixed municipality	0.122
	(0.007)***
Rural municipality	0.163
	(0.000)***
Constant	-6.247
	(0.000)***
Observations	5612
Robust p values in parentheses	(0.000)***
* significant at 10%; ** significant at 5%; *** significant at 1%	
Pseudo R2	= 0.2337

Table 3.
Probit model of female labour force participation in 2001

¹³ Aged between 15 and 64.

¹⁴ This measure may include dependent children that are not the direct offspring of the woman.

¹⁵ In our analysis, only the signs on estimated coefficients and their significance are interpreted whereas probabilities are not calculated.

The estimated coefficients on human capital characteristics support the a priori assumption, i.e. the coefficients on dummies for the level of education suggest that the labour force participation is, on average, likely to be significantly higher amongst women who hold a school diploma compared to those who do not have any education, other things being equal. In particular, the higher the level of education, the higher its coefficient. Furthermore, ceteris paribus, estimated coefficients on age, age and number of children under 14 are significant at 1 percent and their signs confirm the expectations. The negative coefficient on age-squared suggests that women, after a certain age, are more likely to be dependent on social benefits, i.e. pension. Furthermore, the coefficient on the dummy for married women suggests that these are, on average, less likely to join the labour force compared to single women, other things being equal (significant at the 1% level). Given that a small number of single women in the sample under investigation have children, a variable that is normally negatively associated with the female labour force participation, this is probably the reason for their relatively higher participation. The coefficients on the dummy for separated and divorced women and women who live with unmarried and common law partners indicate that the situation is likely to be the opposite of that of married women. Furthermore, the estimated coefficient on the dummy for widows suggests that, on average, there is no statistical difference between them and single women in terms of the decision to participate in the labour force, other things being equal.

A particularly interesting result is that, ceteris paribus, women living in FBiH are, on average, significantly more likely to participate in the labour market compared to women from RS, which is in contrast with the figures in table 2 that show a lower FLFP in FBiH than in RS. At least a part of this disagreement in the estimation outcome is perhaps caused by not controlling for the tax on wages, which is somewhat higher in FBiH than in RS. Furthermore, estimated coefficients on dummies for rural and mixed municipalities do not seem to support the a priori expectation. These suggested that women from rural and mixed municipalities are more likely to join the labour force than women from urban municipalities in Bosnia and Herzegovina, other things being equal. Greater availability of employment opportunities in the agricultural sector in the municipalities with lower level of urbanisation is probably a part of the reason for such a result. Finally, female headship does not seem to exhibit a positive significant impact on female labour force participation in Bosnia and Herzegovina, i.e. women who are heads of households are not, on average, more likely to join the labour force participation than those who are not heads of households, other things being equal. Hence, our empiri-

cal analysis indicates that female headship is not a significant determinant of the decision to join the labour force, possibly because widowed heads are the biggest category of self-reported female-headed households and are provided with relatively generous social benefits by the state compared to other female heads.

4. *Empirical analysis of the consumption dimension of poverty amongst female-headed households*

4.1. *Analysis and comparison of poverty in FHHs and MHHs*

A general poverty line is an absolute poverty line and is based on the concept that food is not the only good required by a household. There is no accepted criterion for creating a general poverty line, for the reason that it is very subjective as to the extent of non-food needs. However, patterns of consumption in the population can be used to calculate an allowance for essential non-food spending that is added to the value of the basic food level. It has been calculated that the general poverty line in Bosnia and Herzegovina in 2001 amounted to 2198.18 KM (Convertible Mark) per capita (State Agency for Statistics, Republika Srpska Institute of Statistics, Federation of BiH Institute of Statistics, World Bank 2002). Yearly household consumption per capita, adjusted for regional differences in prices, was used to calculate which households fall below this general poverty line. Following Lanjouw et al (1998), the relative poverty risks of different demographic subgroups of the population change depending on the economy of scale parameter used, given that larger families may take advantage of significant economies of scale, that children normally consume less than adults in a household and that FHHs are often of smaller size compared to MHHs. Tests were carried out in 'Welfare in Bosnia and Herzegovina, 2001: Measurement and Findings' (State Agency for Statistics, Republika Srpska Institute of Statistics, Federation of BiH Institute of Statistics, World Bank 2002), using BiH LSMS 2001 data- i.e. the data employed in our analysis- in order to find out which equivalence scale is the most appropriate. The obtained test statistics did not indicate that there are grounds to accept one equivalence scale over another and, hence, per capita scale was used throughout the analysis.

Table 4 gives the percentages of Bosnian households whose consumption is below the general poverty line. Households are broken down according to the different definitions

of household headship, as presented in table 3, and are disaggregated by entity, by type of settlement and by gender within each of the headship definitions.

The analysis indicates that a significantly smaller percentage of self-reported FHHs and reported households headed by widows is below the general poverty line compared to the same categories of MHHs in Bosnia and Herzegovina, in both entities and on each level of municipality urbanization under investigation (urban, mixed and rural). Further analysis shows that significantly smaller percentage of households with reported married female heads, compared to households headed by married men, have consumption lower than 2198.18 KM at the national level, in FBiH and in urban areas. Also, reported households headed by single females seem to be better-off than households headed by single males at the national level only, while when these households are broken down by entity and municipality level, no statistically significant difference was found between the two. FHHs and MHHs whose heads live with unmarried or common-law partners do not appear to be significantly different in terms of consumption dimension of poverty except in RS, where more FHHs from this sub-group are below the general poverty line than their MHHs counterparts. However, one should be cautious when interpreting this estimation, as the sample of households whose heads live with unmarried or common-law partners is rather small. Additionally, a comparison between households with separated or divorced male and female heads, although suggesting that MHHs are more likely to be poor, does not demonstrate statistically significant differences between male- and FHHs households.

Departing from self-reported and demographic headship criteria and adopting the economic definition of headship indicates that this sub-group of FHH is significantly less poor than

MHHs. This finding is in line with Fuwa (1999)'s, Rogers (1995)' and Handa (1994)'s findings from Panama, the Dominican Republic and Jamaica, respectively, where FHHs, created on the basis of economic support, are found to be better-off compared to MHHs. Our finding is of particular importance viewed in the light of the argument presented earlier in this study; in particular, the recipients of anti-poverty interventions should be household member(s) recognised as those who bring most benefit, in economic terms, to the household. Given that our analysis based on the sample of 5401 households from Bosnia and Herzegovina shows that FHHs primarily supported by female members are not worse-off than MHHs primarily supported by male earner(s) there is no justification for preference of FHHs over MHHs when targeting poor households. Nevertheless, further analysis of the consumption of FHHs is conducted in the next section in order to additionally investigate the welfare of FHHs and its determinants.

4.2. Empirical analysis

The analysis presented above indicates that the poverty of female-headed household varies with the headship definition applied, although most of the categories of FHHs are not found to be significantly more vulnerable to poverty than MHHs. An empirical analysis is conducted below to establish whether headship is a significant determinant of yearly per capita household consumption in order to further investigate the welfare of FHHs and factors that affect it. Separate analyses were undertaken for households with self-reported female heads that were further disaggregated into five self-reported and de jure categories of headship. Given that Bosnian society is quite traditional, especially in terms of female-male relations, we believe that self-reported FHHs do not give a full picture of the poverty of FHHs in the country. The picture of the poverty

	Nationwide		RS		FBiH		Urban		Mixed		Rural	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Self-reported heads / Reported de jure heads	4%¹	17%	11%	19%	7.3%	15%	6.7%	13.3%	13.7%	26%	9.6%	15.7%
Reported widowed	8.9%	12.7%	12.8%	18%	6.6%	8%	7%	10%	13.8%	20.7%	8.7%	8.9%
Reported single	6.5%	10%	6.7%	12%	6.4%	8.3%	2.8%	9.6%	13%	16.7%	15.4%	0
Reported divorced/separated	8.8%	4.3%	2.2%	7.7%	13.5%	0	8%	4.2%	9%	7.1%	12.5%	0
Reported married head	11%	17.6%	9.5%	20%	11%	16%	8%	13.7%	25%	27.8%	0%	16.8%
Reported Heads living with a partner	6.2%	9.7%	12.5%	7.4%	0	13.3%	0	9.09%	0	10%	5%	10%
Reported major female earners	2.4%	9.3%	2.2%	0	2.6%	11%	2.3%	4.7%	4%	33%	1.25%	16.7%

Figures in bold designate cases where significantly lower share of FHHs than MHHs is below the general poverty line at 5% level of significance or lower.

Table 4.
Female-headed households below the general poverty line

situation is particularly unclear and complicated when there is a male member of the household, who is normally reported as a household head due to social, religious and cultural norms, even in cases where a woman is the major earner and fully involved in the household's affairs and decision-making. For this reason, following the arguments of the recent poverty studies provided in section 2 of this study, the category of major household earner was created according to the economic definition of headship and included in the analysis.

Yearly household per capita consumption was taken as the dependant variable to describe the welfare of households in Bosnia and Herzegovina. Separate analyses were conducted for the national level, for each entity, and for urban, rural and mixed types of municipalities. Annual household per capita consumption was regressed on a dummy variable for headship whilst controlling for age of head of household, age-squared of head of household, number of children in household, dummy variables for the type of school diploma held by the head of household, and a dummy variable indicating whether a household member owns any land¹⁶. Variables controlling for age and age-squared are included in the model in order to estimate how and to what extent they affect household consumption with respect to the age of the household head. This will give a basis for the assessment of the pension system in Bosnia and Herzegovina in the last section. A dummy variable for a male headed household was taken as a base category and, hence, omitted from all the regression models. Three dummy variables for the type of diploma – primary school, secondary school, and university diploma (including 2, 4 year university diploma, master and doctoral diploma) – held by the head of household were included in the model. The omitted cat-

egory were those households whose heads lack a diploma. A dummy variable indicating whether any household member owns land was included in the regression, where households without land owned were taken as a base category. In terms of expected signs and the statistical significance of the independent variables, a dummy for FHHs is expected to have either a positive sign or to be insignificant given the findings in the previous section. Variables controlling for age and age-squared are expected to have significant positive and negative signs, respectively, while the dummies for education are likely to have a significantly positive effect on the yearly per capita household consumption. This effect is likely to be of particular importance in the case of women given that there is a statistically higher percentage of female married heads having a university diploma than male married heads. A variable controlling for number of children in the household normally exhibits a negative effect on household income and a variable controlling for land owned by a household is expected to have a significant positive sign in rural and mixed areas and to be insignificant for the consumption of households in urban municipalities.

In all of the regressions, except for the category designated in the table 5, semi-log OLS models were specified. The diagnostic tests do not give grounds for rejecting the assumptions of the Classical Normal Linear Regression Model in most of the regression models undertaken. A few specifications failed

¹⁶ It should be noted that in a few regressions some independent variables that were statistically insignificant were dropped for the sake of more satisfactory diagnostic tests. Dropping these variables did not significantly change the estimated coefficients on the rest of the independent variables.

	Nationwide	FBIH	RS	Urban	Mixed	Rural
Self-reported FHH / Reported de jure heads	519.235^{3***}	-0.218^{***}	0.002^{***}	0.163^{***}	0.186^{***}	80.1^{***}
Reported widow head	0.074 ^{**}	.041849	.19750 [*]	.046061	-.0627	.193 ^{**}
Reported single female head	.165 [*]	.089	.248 [*]	0.239 [*]	.051	.043
Reported divorced/separated female head	-.204 ^{**}	-.235	-.183	-0.247 [*]	-.1653 ⁴	
Reported married female head	-28.889	13.803	-0.13	.164 ^{**}	-0.105	0.276
Reported female head living with a partner	-.060	No ⁵	.198	.019	No	No
Reported major female earners	.441 ^{***}	.413 ^{***}	.781	.543 ^{***}	.214	1399.8

* Significant at 10%; ** significant at 5%; *** significant at 1%

² Coefficient estimates on control variables are not displayed here as the interpretation of the regression results does not refer to these, but details on each particular regression are available upon request.

³ Figures in italics represent the estimates of regression where the dependant variable is linear and, hence, should be interpreted in absolute terms.

⁴ Households from rural and mixed municipalities were merged in order to get a bigger sample for reported divorced/separated head category.

⁵ No indicates there were not enough of observations i.e. the sample had fewer than 30 observations, to run a regression.

Table 5.
Estimated coefficients on headship dummy variables in yearly per capita consumption regression²

to meet the normality assumption, but the estimators are still the best linear unbiased estimators (BLUE) and the assumption of Linear Regression Model is not invalidated. In addition, given that the samples used for the estimation are large, it is possible to appeal to the Central Limit theorem, i.e.

“if there are a large number of independent and identically distributed random variables, then, with a few exceptions, the distribution of their sum tends to a normal distribution as the number of such variables increases indefinitely.”

(Gujarati 2003:109)

Finally, since the recent literature argues that finding a suitable instrumental variable in order to control for the endogeneity problem is extremely difficult in cross-sectional datasets (Fuwa undated), instead of an instrument, a dummy variable for headship was included, an approach often applied in similar empirical analyses. Hence, the presented results need to be interpreted with caution. The coefficients on a dummy for female headship are presented in table 5.

The results of our empirical investigation shows that the estimated coefficients' signs on the dummies for female headship and their statistical significance vary with the definition of FHHs adopted. Overall, there are no grounds to argue that FHHs have on average lower per capita consumption than MHHs in Bosnia and Herzegovina, except in a few cases as described below. In particular, the analysis for self-reported FHHs suggests that these households have, on average, significantly higher yearly per capita consumption than MHHs nationwide, in RS, as well as in urban, mixed and rural municipalities, *ceteris paribus*. Interpretation of the estimate for FBiH, under the same conditions, suggests that self-reported FHHs have a statistically significant 22 percent lower per capita consumption compared to the self-reported MHHs in this entity. Negative association between the female headship dummy and the household consumption in FBiH is likely to be a consequence of lower labour force participation, in the particular lower employment and higher unemployment rates of FHHs in this entity compared to RS, and by lower social allowance for children provided for families in need in FBiH compared to the other entity as suggested earlier in this study.

Further desegregation of self-reported FHHs by marital status shows a similar picture. On average, self-reported households with legally married female heads do not seem to have statistically different yearly household per capita consumption from male-headed households at the national level, in either entity or in the mixed and urban municipalities in Bosnia and

Herzegovina, other things being equal. Table 4 shows a statistically lower share of FHHs whose head is a legally married female under the general poverty line compared to their male head counterparts at the national level and in FBiH; this somewhat conflicting result is probably a consequence of the effect of a variable(s) not included in the model. Informal employment is likely to be one of the factors affecting the consumption of households, as it provides women with earnings which, albeit low, are sufficient to keep them above the poverty line. In urban areas, however, our estimates suggest that households whose head is a married woman have, on average, statistically significant 16.5 percent higher consumption than the same category of MHHs, other things being equal. This supports the figure in table 4, indicating that fewer FHHs are below the general poverty line compared to households with male heads with the same marital status.

Moreover, female heads that live with unmarried or common-law partners do not have significantly different yearly household consumption per capita than their male counterparts, *ceteris paribus*. This finding is in line with the figures in table 4 that show no statistical difference in the shares of male and female heads having an unmarried or common law partner that have consumption smaller than that of consumption at the general poverty line. It should be noted, however, that the results should be interpreted with caution given that the sample for this category of households was limited.

Ceteris paribus, reported households whose heads are single women, on average, have significantly higher yearly per capita consumption than male headed households with the same marital status in the whole country, RS and urban municipalities. In particular, the estimate suggests that this category of FHHs on the national level has, on average, 16.5 percent higher yearly per capita household consumption than single male head households, *ceteris paribus*. The difference is even higher in RS and in urban municipalities – on average 25 and 24 percent respectively in favour of FHHs, other things being equal. This is in contrast to the findings of similar investigations for the transitional countries of Eastern Europe, where households headed by single women were found to have a smaller per capita consumption than the rest of households (Paci 2002).

Furthermore, the coefficients on *de jure* FHHs headed by widows are positive and statistically significant in estimated regressions for the whole country, in RS and in rural areas. These findings support the figures in table 4, which show that significantly fewer female widowed heads fall below the general poverty line, suggesting that this category of households is not disadvantaged in terms of consumption. Estimation outcomes

for Bosnia and Herzegovina are in contrast with those from a similar analysis for developing countries, which found that households headed by widows are disproportionately represented amongst the poor (Ringen 2003; Joshi 2004; Gimenez 1987; Chen and Drèze 1995; Moghadam, 1993). The, somewhat privileged position of widows in Bosnia and Herzegovina compared to widows in most developed (European) and developing countries is likely to be due to rather generous benefits provided for widows¹⁷ by the Bosnian state.

In contrast, when the same analysis was conducted for heads of households who are divorced or separated, the estimated coefficients indicate a somewhat different position for FHHs. Although the analysis in context of the general poverty line did not suggest a significant difference between the categories of male- and female-headed households, the empirical analysis indicates that this is the only category of FHHs that, on average, has lower consumption than the same type of MHHs nationwide and in urban areas, other things being equal. Given the rather high percentage of divorced and separated female heads with children in our sample, we suspect that a part of the reason for this outcome of our analysis might be related to difficulties when obtaining alimony. The International Helsinki Federation for Human Rights (undated: 91) argues that

“Before the war, such [alimony] court orders were sent directly to the defendant’s employer, and the child support was deducted from his wages. Following the war, this system of enforcement has broken down since many people are illegally employed, i.e. not registered.”

Finally, when the headship variable was created in accordance with the economic definition of headship, i.e. members of households who earn more than 50 percent of household’s yearly consumption are denoted as household heads, regardless of what was reported in the survey, there was no evidence that FHHs are worse-off in terms of annual per capita consumption. At the national level, this category of FHHs has, on average, 44 per cent higher yearly per capita consumption than the same type of MHHs, *ceteris paribus*. In addition, the difference between households with male- and female major earner heads is somewhat smaller for the households in FBiH, 41 per cent in favour of FHHs on average, other things being equal. Although the coefficient on female headship in RS is positive and is even higher than that in FBiH, in terms of yearly per capita consumption no statistical difference was found between female- and male-headed households. In addition, applying the same headship definition, the greatest difference between the consumption of FHHs and MHHs is found in urban municipalities in Bosnia and Herzegovina, where the former has, on average, 54 percent higher yearly per capita consumption, *ceteris*

paribus. An implication of these findings is that major female earners are more likely to have higher wages than major male earners¹⁸, at least at higher percentiles of wage distribution, and/or fewer children- which may also be relevant given our use of per capita consumption.

What particularly stands out in the analysis for urban municipalities is the implication that all categories of FHHs, except those headed by separated or divorced women and by widows, have higher household consumption than MHHs. This can be explained by better employment opportunities in urban areas, which is a determinant, normally, positively associated with households’ consumption.

Based on the results of the empirical analysis undertaken above, it can be argued that FHHs are, on average, better-off than MHHs in Bosnia and Herzegovina. The only potentially disadvantaged FHHs are those living in FBiH and those headed by separated or divorced women. Nevertheless, the negative association between lower consumption and female headship disappear when economic support provided by women to households is taken into account.

¹⁷ Widowed spouses older than 45 automatically inherit the pension of their late spouse. Widows of soldiers killed in the war inherit pensions and additional financial benefits from the state.

¹⁸ The assumption is that if a woman is a major earner in a household, i.e. she provides more than half of the household income, she is probably at a rather high level of wage distribution i.e. her earnings in the labour market are amongst the highest of both men and women.

5. *Concluding remarks, policy implications and recommendations for further study*


The empirical investigation conducted in this study does not suggest that headship is a useful concept in targeting the consumption aspect of poverty in Bosnia and Herzegovina. In general, we argue that, on average, the heterogeneous group of FHHs in Bosnia and Herzegovina is not more likely to have lower annual per capita consumption than MHHs, other things being equal. Our findings suggest that the difference between FHHs and MHHs in terms of poverty is either statistically insignificant, or that a significantly lower percentage of FHHs are below the general poverty line compared to MHHs in Bosnia and Herzegovina. The empirical analysis of yearly per capita consumption of households generally confirms the finding that FHHs are not worse-off in terms of per capita consumption than MHHs in Bosnia and Herzegovina. Also, we find that the advantage of FHHs compared to MHHs within the context of per capita household consumption appears to be largely, although not exclusively, an urban phenomenon

What particularly stands out in the conducted analysis is that widowed female heads, which comprise 77 percent of self-reported FHHs, have a statistically lower incidence of poverty than male widowed heads in all of the analysed areas. We argue that this is due to the social benefits provided by the state, which are particularly favourable to the 'surviving spouse,' i.e. the widow or widower, compared to other subgroups of FHHs.

Hence, the implication of this research is that anti-poverty policies should not consider headship when targeting poor households. Policies designed to combat poverty can be in the form of financial support or programmes designed to integrate the poor into the labour market, whilst also increasing their productivity. Particular efforts in Bosnia and Herzegovina are required in the area of labour market participation, which is low – particularly amongst women – compared to the EU and other Balkan countries' rates. Increasing female labour force participation would entitle a greater number of women to pensions upon retirement, which would decrease the number dependent on social benefits. Given that the number of children is a variable robustly negatively associated with household income, we argue that child allowances should be enhanced and retargeted towards households in need with one or both parents. Also, although it is a politically sensitive issue, the veterans' benefit legislation needs reform in order to rationalise spending and focus on needy beneficiaries.

Undoubtedly, more research is necessary to fully examine

the link between poverty and households headship. Poverty is a multidimensional phenomenon that can be measured in several ways and this study covers one dimension of poverty – the households' consumption. Further research is required to discover the position of households in Bosnia and Herzegovina, in particular FHHs, with respect to poverty when alternative, human development measures, such as health, education, accommodation or infrastructure are used. Also, the endogeneity issue was neglected in our study for the reason that we had no valid instrumental variable available.

Nevertheless, our analysis of the consumption amongst the heterogeneous group of FHHs found that, principally, they are not poorer in terms of the consumption dimension of poverty compared to MHHs. Therefore, it could be argued that, despite a somewhat adverse economic situation in the country, there is no need for anti-poverty interventions targeting FHHs in Bosnia and Herzegovina. 

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Methodology For Modeling Rural Development - Case Study From The Western Balkans

Sofija Adzic

Abstract

This paper tries to find more efficient approach to defining the attributes and goals of rural development policy. The proposed methodology for defining the future role of rural regions within the socio-economic framework of the Western Balkans enables a very precise and transparent definition of rural development goals.

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1. Introduction

Current social and economic trends coupled with the low controllability of socio-economic systems in the Western Balkan countries suggest the need to look for more efficient approaches to defining the attributes and goals of rural development policy. Discord between the theoretical basis and practical policy of rural development largely arises from: (1) intensive changes to the elements and structure of feed-backs in the socio-economic systems of each state in the Western Balkans during the process of transition from socialistic to capitalistic stimuli and limitations, (2) the poor quality of information due to the deformed system of social values and the domination of the interests of political elites and coalitions oriented to distribution and (3) the structure of interests wherein, with great difficulty and very slowly, solutions for overcoming socio-economic conflicts and problems are articulated.

For these reasons, the author proposes a combined methodology for modeling rural development on the basis of (1) a precise definition of the future role of rural regions within the socio-economic framework of Western Balkan countries and (2) treating the problem of the definition of rural policies in the Western Balkans as one essentially of structure. The proposed methodology for defining the future role of rural regions within the socio-economic framework of the Western Balkans enables

a very precise and transparent definition of rural development goals.

Treating the problem of defining rural policy as a structural problem allows (1) the application of a methodology for soft systems and (2) the concept of decision-making on the basis of a layered, functional hierarchy and, in turn, the efficient integration of different ideas and proposals concerning more specific problems facing the rural regions of the Western Balkans. Because modeling rural policies is primarily based on verbal information, the methodology for the analysis of decision-making is based partly on fuzzy logic.

The basic goals of the proposed methodology are: (1) creating a mathematically exact model of rural development to simulate the costs and effects of individual decisions on rural policies, (2) the efficient and systematic use of the paradigms of **competition, cooperation and learning** as a response to the widespread institutional non-regulation characteristic of the Western Balkans (3) reaffirming the importance of regional cooperation and discourse in reaching a common, productive conception of the future role of rural regions within the Western Balkans and the policy that would best help realize this.

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2. *Basic Methodology For the Precise Definition of the Future Role of Rural Regions Within a Larger Socio-economical Framework*

2.1 *Introduction*

Designing the goals and actions of the development of rural regions in the Western Balkans requires the consideration of complex political, scientific and pragmatic factors. A precise and transparent definition of the goals for the development of rural regions in the Western Balkans is indispensable to making decisions or devising strategies on the social, organizational, group or individual level. The future social or economic development- or transformation- of a rural region should arise from the basic question "What should rural settlements represent in the future?" In the past, imaginary, hypocritical and unscientific definitions of development strategy were the basic reasons that nearly two centuries after their independence from the Ottoman and Austrian Empires, the majority of rural regions in the Western Balkans were far behind their European counterparts in terms of structural adaptation and modernization.

The search for an answer to the question stated above is necessary for the future definition of the goals and actions of rural policy. The uncertainty in forecasting the condition of rural regions in the Western Balkans represents the principal challenge and often causes political and intellectual elites to abandon this task.

This work is an attempt to define the methodology for the definition of the future role of rural regions in the Western Balkans within a larger socio-economic framework, and in doing so to provide the basis for a scientific, precise, transparent and active rural policy. Its thesis is that the search for the new role of rural regions within the socio-economic framework of the Western Balkans is necessary in defining a strategy for rural development. The basic premises of the proposed methodology are:

First, precisely, transparently and clearly defined general socio-economic orientations substantially define rural development.

Second, a methodology for the definition of the goals and actions of rural policy should, on the one hand, accurately,

clearly and transparently define these goals and, on the other, introduce sufficiently robust mechanisms for their realization in adverse situations, including those without a tradition of formal structures or previous policy intervention.

Third, that within the observed period of time, two or more competitive socio-economic orientations for the general development of rural regions cannot coexist; rather a process occurs that is characterized by the recession of one orientation followed by the implementation of a second.

Fourth, rural development is synonymous with the expansion of general socio-economic orientations into the entire rural socio-economic system, with the internal, rural economy serving as the basis for socio-economic development (adhering, *inter alia*, with the traditional rural culture of the Western Balkans).

Fifth, the forecast of rural development is the expression in terms of probability of the chances for a given socio-economic orientation (either *a priori* or anticipated) to become dominant over a period of time specified in advance.

Sixth, when conceiving of the future role of rural regions within the socio-economic development of the Western Balkans, this work explicitly forecasts a high level of cooperation between countries in terms of knowledge and experience exchange within the framework of their joint preparation for European integration processes. Special importance should be placed on the critical analysis of the goals, mechanisms and results of rural development in Greece, the sole country from this area with both actual experience of internal adaptation to European criteria and similarities in its political, social, economic and cultural systems of value to those of nations in the Western Balkans.

2.2 *Theoretical bases of the methodology for the precise definition of the future socio-economic orientation of rural regions*

The methodology presented here for the precise definition of the future socio-economic orientations of rural regions in the Western Balkans is based on the following presumptions:

First, the generation of new rural socio-economic orientations for rural regions is a complex event that can only be realized through the simultaneous actions of a large number of factors.

Second, the development of each of those factors is a

random process – for this reason, the probability of the appearance of a foreseen situation at a given time t (or at the period of time Δt) represents basic information for the forecast of rural development.

Third, the factors are independent of one another, meaning that the generation of a (new) general socio-economic orientation is a complex event created by the simultaneous realization of some number of favorable, simple and mutually independent events. The favorable simple event is defined as a state of individual factors which does not prevent the generation of a new socio-economic orientation.

Fourth, the basic factors – generators of the creation of a new socio-economic orientation – are: (1) rural social and economic problems which cannot be solved within the framework of the ruling socio-economic relations – P_{RSE} , (2) knowledge needed for the development of new socio-economic relations to solve rural socio-economic problems – K_{RSEP} , (3) development needs characterizing (or which will characterize) the socio-economic or more general development of rural regions in the period of time for which the definition of socio-economic development is made – D_{RSEN} , (4) criteria expressed by the prevailing system of values (in terms of new rural socio-economic and cultural values) – K_{RSEB} and (5) conditions expressing the (un)suitability of the economic, institutional and cultural aspects of rural infrastructure to accept the new rules of the game (new socio-economic orientations in terms of new socio-economic cultural values) – C_{RSEB} .

Fifth, the generation of new socio-economic orientations concerning the social and economic roles of rural regions will only occur when all five factors specified above have been realized. Because it is very difficult to define when exactly these necessary factors have been realized, and because within each some allowance should be made for what would constitute their realization, it is possible to substitute different levels of

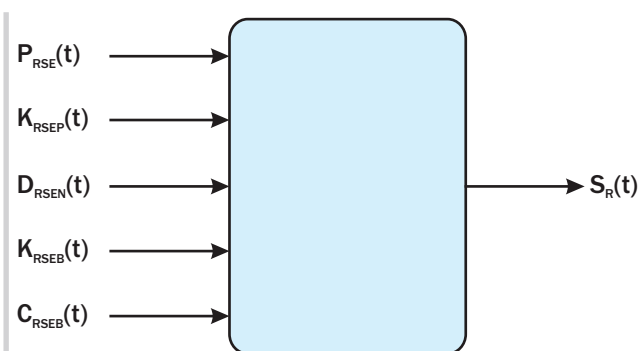


Figure 2.2.1.
System for the precise definition of the general rural socio-economic orientation of the future roles of rural regions.

suitability, with the final judgment on the chances for the generation of new socio-economic orientations being made on the basis of the probability of a complex event. A new socio-economic orientation for the future roles of rural regions in the Western Balkans is treated in the present work as an output from a system consisting of the inputs of the five factors specified above (which may be, in part, mutually substituted) (Figure 2.2.1).

The following is an outline of the procedure for foreseeing the states of the five specified factors:

Rural social and economic problems – P_{RSE} . Every prevailing socio-economic orientation solves some number and type of developmental, social or economic problems. At the same time, however, it creates new ones (social, economic, inter alia) which cannot be solved by means of the given orientation. This is a natural feature of each socio-economic orientation and is a basic motivation for the development of new (socio-economic) orientations that can solve the problems created by the prevailing socio-economic orientation. The intensity of the need for new socio-economic orientation grows alongside the social and economic problems created by the prevailing socio-economic orientation.

In our concrete case these include socialistic industrialization, the suppression of private initiatives and the neglect of rural regions. Development in the Western Balkans generated the following basic social and economic problems: (1) the demographic disruption of rural settlements in depressed hilly/mountainous and border regions, (2) aggravation of the age structure of rural populations, (3) very low standards of living relative to surrounding areas and (4) the immobilization of enormous natural and manmade resources. The growing severity of these problems signaled the necessity of a new socio-economic orientation. However, a high level of realism is required, for the necessity is not expressed in an explicit way, i.e., in the form of clear political, social and economic goals adapted to concrete needs and resources.

A compulsory transition (this “compulsion” should not be understood in its traditional form - i.e. imposed by external factors – but as the combination of such factors as international trade, social upheaval and indistinct changes to traditional living and working patterns from the influence of western civilization) led to a sudden and radical destruction of the former system and subsequent attempts to reform it.

In the Western Balkans, no attempt was made to develop or even define new socio-economic goals; goals from the wider environment that were often inappropriate for the region

were simply accepted. Without analyzing these here, it may be noted that their actual implementation in the Western Balkans was relatively unsuccessful, at least in terms of intensifying social and economic development. In fact, during the first phase of transition, rural regions were more affected by the development of new systems of social and economic values than urban ones. Here we will simply try to formally define the probability of a set of problems most conducive to the appearance of new socio-economic orientations.

Theoretically, the range of rural social and economic problems created by prevailing socio-economic relations falls between the following two conditions: (1) existing socio-economic relations do not (yet) create insoluble social and economic problems and (2) social and economic problems are irreversible and beyond the aid of the existing social-economic relations.

Accordingly, the probability (P_r) of the generation of such a state of social and economic problems which is suitable for the appearance of new socio-economic orientations – $P_r(P_{RSE})$ is a function of the intensity of needs for new socio-economic relations.

The second factor needed for forming socio-economic orientations that will revive rural social and economic development is knowledge (for solving rural socio-economic problems) – K_{RSEP} . This knowledge for the solution to a given concrete rural socio-economic problem consists of three variables:

- $K_{RSEP}(1)$ – immediately accessible knowledge
- $K_{RSEP}(2)$ – knowledge accessible through research
- $K_{RSEP}(3)$ – knowledge inaccessible because beyond socio-economic and natural limitations.

New socio-economic orientations in terms of precise knowledge of new rural social and economic needs and the means for their provision (thereafter referred to as SRD) can be represented by:

$$S_{RD} = K_{RSEP}(1) \cup K_{RSEP}(2) \quad (2.2.1)$$

-provided that $K_{RSEP}(2)$ is empty. The probability that $Pr(K_{RSEP}(2))$, at a moment t , will be empty (i.e., that all necessary knowledge for the solution of rural social and economic problems will be available) is the relation between the variable $K_{RSEP}(1)$ and the union of the variables $K_{RSEP}(1) \cup K_{RSEP}(2)$, provided that $K_{RSEP}(2)$ is empty.

The developmental (social and economic) needs of rural

regions – $P_r(K_{RSEP}(2))$ are defined on the basis of the assumption that those with the best chance of becoming general socio-economic orientations are most in harmony with the natural trajectory of the progression of basic human social, economic and cultural needs that can be met with a relevant conception of rural policy. Over this period of time, there are several needs which should be solved by means of rural social and economic policies.

Those needs should be defined from by the basic forms of the societal social and economical problems of rural regions in the of Western Balkans countries, specified above: (1) Ddemographic emptying disruptions of rural settlements in depressed, hilly-mountainous and border regions, (2) Aggravation changes to of the age structure of rural populations in rural settlements, (3) Vvery low standards of living relative compared with relevant to surrounding areas and (4) Iimmobilization of enormous natural and manmade by work created resources.

These problems react differently to the appearance of new socio-economic orientations with set goals for policy in rural regions. For example, if an emphasis is placed on halting the depopulation in depressed hilly-mountainous and border regions, then the primary developmental, social and economic need should be the activation of natural and manmade resources. The second typical situation is the analysis of the development of social and economic needs removed temporarily from its original situation; for example, improving the standard of living in rural regions to that of more dynamic urban ones. The probability (P_r) that a rural social or economic need will benefit from the appearance of new socio-economic orientations – $P_r(D_{RSEN})$ – is proportional to the conformity of this rural social or economic need to the trajectory of natural development needs.

The selection of criteria expressed by the prevailing rural system of values – (in terms of (new) rural societal social, and economical and (cultural) values) – K_{RSEV} , in order to define the hierarchy of priorities of societal social-economical needs for the definition of goals and actions of rural policy is the reflection of the ratio of might between key economical and political groups. Consequently, the probability (P_r) of the action of criteria in defining the priorities of societal social-economical needs and, in turn, for the definition of the goals and actions of rural policy, , in conformity with positive changes in rural regions is proportional to their conformity adherence to with the priorities of key economical and political groups (being, in at this moment, based on their needs desire to gain maximum profit and positions in the distribution of societal social wealth and influence might over in the framework of existing resources – even when this diminishes these same resources causes their

decrease as a whole!)).

The political, institutional, social and economic infrastructure (the new socio-economic orientations in terms of new social, economic and cultural values) C_{RSEB} is the last factor included in our attempt at modeling rural policy. The essence of this factor involves the following: the perceptions and interests of the political elite; transparency in the work of political institutions and organizations; the quality of legislative and administrative institutions and organizations and efficiency in decision making; development level, structure, location and programme orientation of innovative potential; level of development, structure and quality of education systems; structure allocation and efficiency of the network of social institutions and organizations; national structure of economy; structure of the market of supply and demand; quality and degree of development of trade, traffic and financial organizations; and investment capability. All of these – given a socio-economic orientation that formulates the new goals and actions of rural policy – may exist in harmony or, more frequently, in conflict to a greater or lesser degree. This is the most important factor for development and implementation. The non-conformity of this factor at the request of a particular socio-economic interest might wholly prevent its implementation. Consequently, the probability (P_r) of the effect of the entire national political, institutional, social and economic infrastructure relative to its definition within a hierarchy of socio-economic needs according to the goals and actions of the given rural policy is proportional to its conformity to the development and priorities of this factor.

2.3 Structure of the methodology for the definition of socio-economic orientations for the future roles of rural regions

It has been demonstrated above that the formation of new socio-economic orientations in order to define the goals and actions of a rural policy requires the following: (1) Significant social and economic problems in rural regions within the framework of existing socio-economic relations demanding immediate solution, (2) the necessary knowledge for the solution of rural social and economic problems, (3) the necessary level of concordance between relevant socio-economic orientations (and their acknowledgement) and the need for development, (4) Sufficient consent between socio-economic orientations for overcoming socio-economic problems in rural regions and the prevailing systems of criteria and values (5) sufficient level of development of political, institutional, social and economic infrastructure for the implementation of new socio-

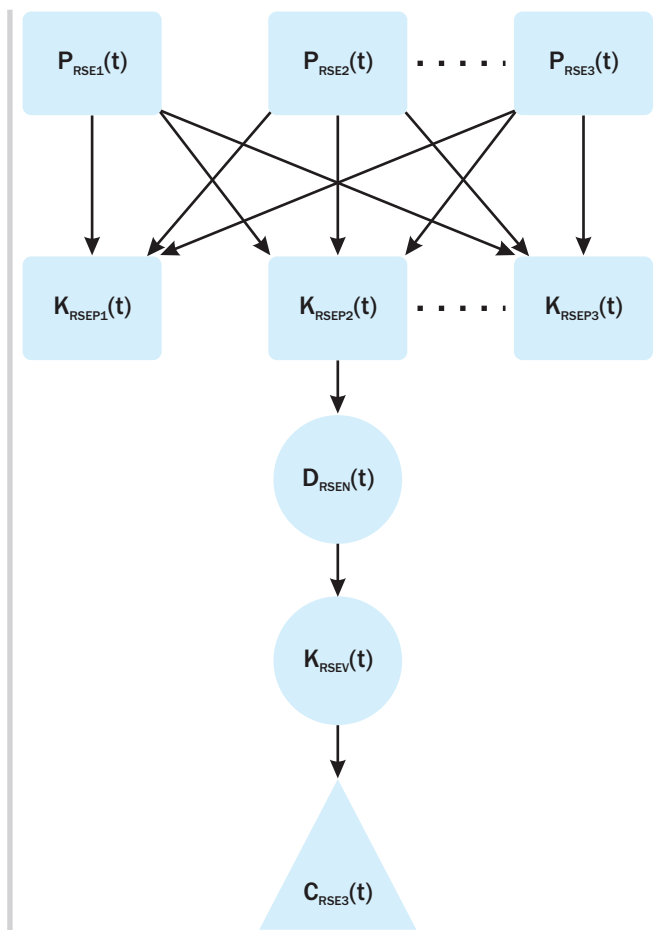


Figure 2.3.1.
The analytical procedure for the definition of general socio-economic orientations of the future roles of rural regions

economic orientations in the domain of rural development. In the methodology outlined in this study, we will introduce the following limitations.

We are going to suppose that over this period of time, there are several rural socio-economic problems: $P_{RSE1}, P_{RSE2}, \dots, P_{RSEm}$ which should be solved by means of the new goals and actions of rural policy, indirectly expressed through various types of knowledge: $K_{RSEP1}, K_{RSEP2}, \dots, K_{RSEpn}$, but only one situation for D_{RSEN}, K_{RSEV} and C_{RSEB} . This can be schematically shown in Figure 2.3.1.

For the definition of the probability (Pr) for the formation of a socio-economic orientation (hereafter as S_r) which will revive rural development, it is necessary for each rural social or economic problem P_{RSEi} ($i = 1, 2, \dots, m$), to define the probability $P_r(S_{Ri})$; the sum of these probabilities is the indicator of the generation of new socio-economic orientation – $I(P_r(S_{Ri}))$.

Under the presumption that the social and economic problems $P_r(S_{Ri})$ are mutually independent, the probability of

the formation of such a socio-economic orientation solving a i -th problem is:

$$P_r(P_{Rs}) = P_r(P_{Rsi}) \times P_r(P_{Rsi} D_{RSEN}) \times P_r(P_{Rsi} K_{RSEV}) \times P_r(P_{Rsi} C_{RSEB}) \quad (2.3.1)$$

On this basis, the total probability of the formulation of socio-economic orientations which will solve rural social and economic problems is:

$$P_r(P_{Rs}) = \sum P_r(P_{Rsi}) \times P_r(P_{Rsi} D_{RSEN}) \times P_r(P_{Rsi} K_{RSEV}) \times P_r(P_{Rsi} C_{RSEB}) \quad (2.3.2)$$

$(i = 1, 2, \dots, m)$

The appearance of the most probable socio-economic orientations that will overcome all rural social and economic problems comes from the simultaneous maximization of the value of equations (2.3.1.) and (2.3.2.). Greater priority is given to those socio-economic orientations which actively influence the solution to each particular problem.

2.4. Application of the methodology in the concrete definition of general socio-economic orientations concerning the role of rural regions

The basic purpose of the presented methodology presented here is to indicate the possible factors to which it is possible to act. Namely, implicitly, when analyzing factors influencing the formation of socio-economic orientation needed for the formulation and the realization of valid rural policies in the Western Balkans countries, we included conscious actions as instruments for finding/determining proper solutions out. On the other hand, it is important to point out that the probability for of the one simultaneous positive action of all five specified factors and – on this basis – the establishment of new, (proper) socio-economic orientations, in the case of the Western Balkans, is low.

Within this context, the basic purpose of the methodology presented here is an attempt, based on its implementation, to identify those factors that need to be addressed. The ranking of their priorities should be done on the basis of criteria which exclude the factor of enforcement, i.e. compulsion, on the basis of the assumption that this entails a conscious process. In this way, the basic aim of actions will be automatically defined – the precise identification of the issues and knowledge needed to arrive at a solution.

This access to the definition of socio-economic orientations in the selection of goals and actions of rural policy is cho-

sen in accordance with the nature of political and economic interests as well as social and economic differences between rural and urban regions in the Western Balkans. The basic social and economic implication is that between the declared orientation that is necessary to stimulate rural development and the real socio-economic actions taken exists a large discrepancy. Although such a situation suggests that, in fact, the real political, institutional, social and economic structures and their basic analytic categories are realized in a form which does not permit the precise and clear realization of a proper rural policy, in our opinion, the limiting influence of this factor should not be analyzed in this manner. Because of an understandable fatigue that arises from societies in transition, its improvement is only possible over a long evolutionary process, assuming that it does eventually succeed in removing various obstacles to development.

This access, in itself, implicitly suggests one important limitation in conceiving rural policy. The rural policies in the Western Balkans cannot be based on rural structural funds, but should be based above all on "soft" elements, where solutions should be sought within the differences in the subjective standpoints of the participants (the rural population, political elite, economic elite, national institutions for the regulation of rural social and economic development, similar EU institutions for the same regulation, entrepreneurs, managers, etc.) and individual proposals.

On the other hand, the great similarity in the structure and substance of social and economic problems in typical rural regions (e.g. in the hilly – mountainous regions far away from actual development poles) in the Western Balkans should, on the basis of the methodology presented here and the exchange of experiences through its realization, provide for the formulation of new, proper socio-economic orientations.

In order to illustrate this, we will try to present the influence of international cooperation on the formation of new socio-economic orientations to address social and economic problems. We describe the example problem as the fact that "a rural economy in hilly – mountainous regions is not adapted to rational functioning under the conditions of a market economy." The purpose of the research performed can be summarized by the question "Which elements of institutional, social, economic and cultural structure should be changed for the sake of improved participation in European integration processes?" This study aimed to define the basic socio-economic orientations that would help solve this problem.

However, before the brief presentation of the potential role of international cooperation in developing a new socio-

economic orientation for hilly – mountainous rural regions in the Western Balkans, it is necessary to first point out that their basic social and economic problems (and the knowledge required to overcome them) have a larger meaning. Their definition should result from the conscious analysis of a long term process covering the period before the inclusion of the Western Balkans in the modern capitalistic economy as well as the unsuccessful attempt to replace its previous socialist industrialization. Rural social and economic problems were caused above all by unsuccessful attempts at exploitation, including the unproductive implementation of European institutional, administrative, social and economic standards and values that scarred both the region's economy and demographics, and squandered its natural and manmade resources.

On the other hand, knowledge that should be applied to rural policies (based on the implementation of European institutional, social and economic standards and values) in the rural regions of the Western Balkans is generally of a practical, immediate nature.

It is necessary in this context to form a complex base of knowledge to overcome demographic and economic depression. This base should consist of (1) knowledge needed for the definition of new socio-economic orientations relating to the future roles of rural regions on the basis of the recognition of the essence of the long term processes of demographic, social and economic development and the creation of long-term, sustainable rural development and (2) knowledge needed to formulate exact goals and actions of rural policy with the end of eventually joining European integration processes. This should have a predominantly anti-cyclic character in order to interrupt negative economic and demographic trends within a short period of time and to reorient them to new, socially acceptable currents.

Figure 2.4.1 is a graphic illustration of the classification of chances for the appearance of new socio-economic orientations which would assist in overcoming the social and economic problem expressed above.

In Figure 2.4.1., the symbols used stand for the following:

$P_i(P_{RSE})$ – the probability of overcoming rural social and economic problems in the rural, depressed, hilly – mountainous regions in of the Western Balkans.

$P_i(K_{RSEP})$ – the probability of the formation of a base of knowledge for solving social and economic problems in rural, depressed, hilly – mountainous regions in the Western Balkans.

$P_i(D_{RSEN})$ – the probability of structuring the development (social and economic) needs of rural regions, based on the use

of natural and manmade resources in the rural regions of the Western Balkans.

$P_i(K_{RSEV})$ – the probability of the formation of a structure of criteria expressed by the prevailing system of values in terms of new rural social, economic and cultural values which would help overcome demographic and economic depression in the rural regions of the Western Balkans.

$P_i(C_{RSEB})$ – the probability of forming political, institutional, social and economic infrastructures in which the new rules of the game would be accepted (i.e., new social, economic and cultural values) and possibly reverse the demographic and economic depression in the rural regions of the Western Balkans ($i = 1$, Albania; $i = 2$, Bosnia and Herzegovina; $i = 3$, Croatia; $i = 4$, Republic of Macedonia; $i = 5$, Serbia and Montenegro).

On the basis of international cooperation, it is possible to realize the mutual substitution of the positive action of basic factors for the formulation of new socio-economic orientations if one keeps in mind that P_{RSE} , K_{RSEP} and C_{RSEB} are sufficient because of the large amount of knowledge (K_{RSEP}) necessary to

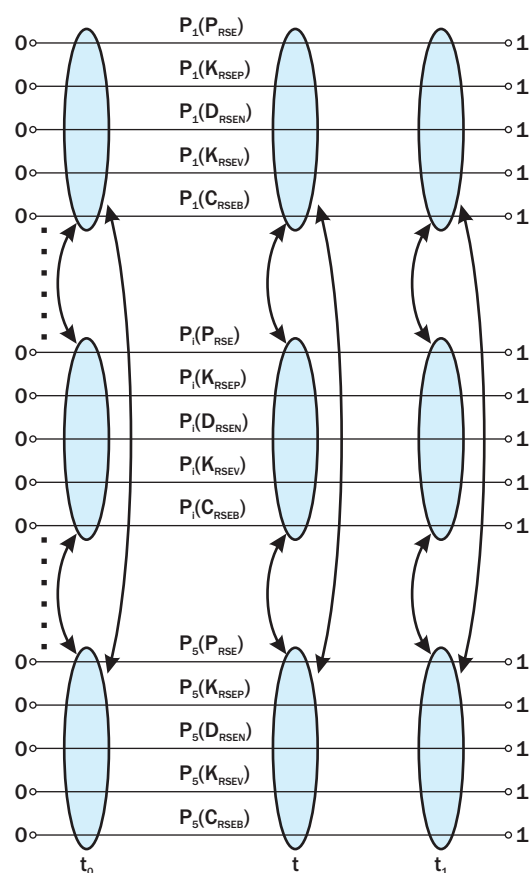


Figure 2.4.1. Graphic illustration of the classification of chances for the appearance of a new socio-economic orientations concerning the role of rural regions in the Western Balkans

define these new orientations (due to the exchange of expert knowledge between the countries of the Western Balkans) and the conditions' high degree of suitability for their implementation (due to the pressure of EU institutions on national political elites).

2.5. Critical observation on the applied modeling methodology for the precise definition of the general rural socio-economic orientations for the future role of rural regions

The basic feature of the methodology presented here for the definition of general socio-economic orientation as the basis for the precise and transparent definition of the goals and actions of rural development and their realization is its high precision based on the radical study of the experiences of countries with similar social and economic problems and historical heritages. For this reason the possible effective realization of this methodology should be based upon an adequate integration of the "learning" paradigm, which in turn would be based on a precisely and transparently defined set of goals and actions for rural development that acknowledges the necessary integration into Europe of the Western Balkans. Socio-economic orientation pertaining to the future role of rural regions in the Western Balkans should be the result of complex interactions composed of changes in the perceptions and reactions of political and economic elites, institutional changes and changes in the culture of rural businessmen and the population at large.

3. Basic Methodological Conception of Modeling Rural Policies as Ill-structured Problems

3.1 Introduction

This attempt to model rural policy within the frame of conscious action, and to identify this process of employing knowledge toward an ill-structured problem, necessitated a valid theoretical way of treating the ambiguities that result from subjective determinations of preference and the limitations and goals of private and public actors within a context to which a scientific analysis of formal structures was inapplicable.

Before attempting a detailed description of the model, arguments will be presented to show why the precise and transparent definition of regional rural policy is necessary. The essence of the Western Balkans' rural socio-economic crisis

comes from belated structural, social, cultural and economic adaptation. In this context the regional rural policy creates cooperation between countries to establish the goals and actions of national rural policies that would foster European Union integration.

National rural policy in this paper is considered a vague assemblage of goals and actions- social, economic and development policies that exceed all social, cultural and economic limits in advancing the development and cooperation between rural populations, entrepreneurs, managers, farms and small and medium rural enterprises.

This section will try to show the preliminary goals and actions of rural policy. Considering the actual level of external and internal ambiguities, we can say that the model for describing and evaluating the goals and actions of rural policy is an open model of inadequately clear structure, organization and dynamics.

One of the alternatives to the approach of describing and evaluating the goals and actions of rural policy is the use of the theory of multivariate planning based on a soft system combined with a multi-criteria compromise – choice. The high level of subjectivity and ambiguity in profiling rural policy does not diminish the value of this methodological approach, especially if the paradigm "learning" is incorporated to a larger extent into its formulation and evaluation, which (with the additional information from institutions and the praxis of rural development of the European Union), adds an analysis based on the experiences of other governments of integration into the European Union. This should enable the realization of more effective reform.

3.2 Application of the concept of a functional hierarchy of layers in modeling rural policies

Since the basic problems in the definition of the attributes (the goals and actions) of rural policies in the Western Balkans countries we located in the domain of those of decision making, decisions, we proposed to install for our in modeling- modeling an approach being the based on the developed the concept of the functional hierarchy of layers in decision making decisions (SchemFigure 3.2.1). This hierarchy is firmly based on natural principles because it and covers three basic aspects of decision making decisions under the conditions of uncertainty: (1) the choice of strategy to be used in the process of problem solving, resolving. (2) the reduction and eventual removal of uncertainty, and (3) looking for the desirable di-

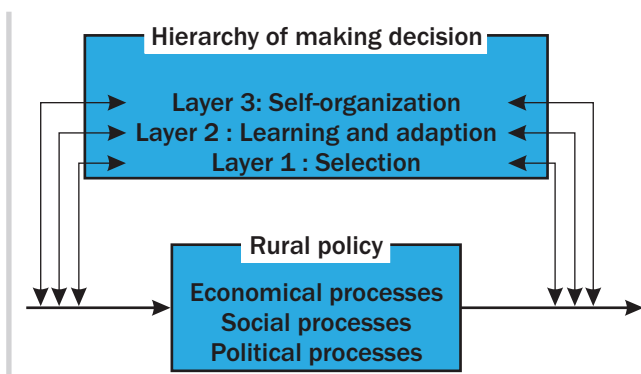


Figure 3.2.1.
Hierarchy of decision making by layers

rectioncourse of action under in advance of acceptable conditions.

The basic tasks of each layer are as follows:

1. Layer of selection - the selection of the course of action from an assortment of possibilities. On the basis of information from immediate sources and an algorithm defined by superordinate layers, the course of action is decided upon.

2. Layer of adaptation and learning – the reduction of uncertainty by using paradigms such as competition, cooperation and learning specified by the superordinate self-organizing layer. The feature of adaptability allows the correction of parameters and the improvement of the procedure governing an action on the selected layer.

3. Self-organizing layer – evaluation of correctness and justification for resolutions and corrections.

On the basis of the general application of the principle of functional hierarchy in the formation of layers in decision making and the methodology of soft systems, the model of multivariate planning was selected for the analysis of the effects and costs of various combinations of attributes of rural policies in the Western Balkans.

3.3 Multivariate planning (programming) and modeling of rural policies

For describing and evaluating the goals and actions of rural policies we used a multivariate version of Checkland's methodology for soft systems (Scheme 3.3.1.). This methodology is a seven-level analytical process thought the most appropriate system of learning for its use of nine mental processes: perception, comparison, assertion and desision making, which enables flexible problem solving.

In the first and second phases, it is necessary to gather information to locate the main difficulties in adaptation for rural societies and economies in the open market economy. Based on the entirety of our research, relevant standpoints were formed abstractly: "Rural societies and economies in the Western Balkans are incapable of functioning in an open market environment. Are the elements of a country's economic, social and political organization and their interactions the main reasons for this problem?" Collected and systematically arranged knowledge should create a picture within which the following relevant topics require definition.

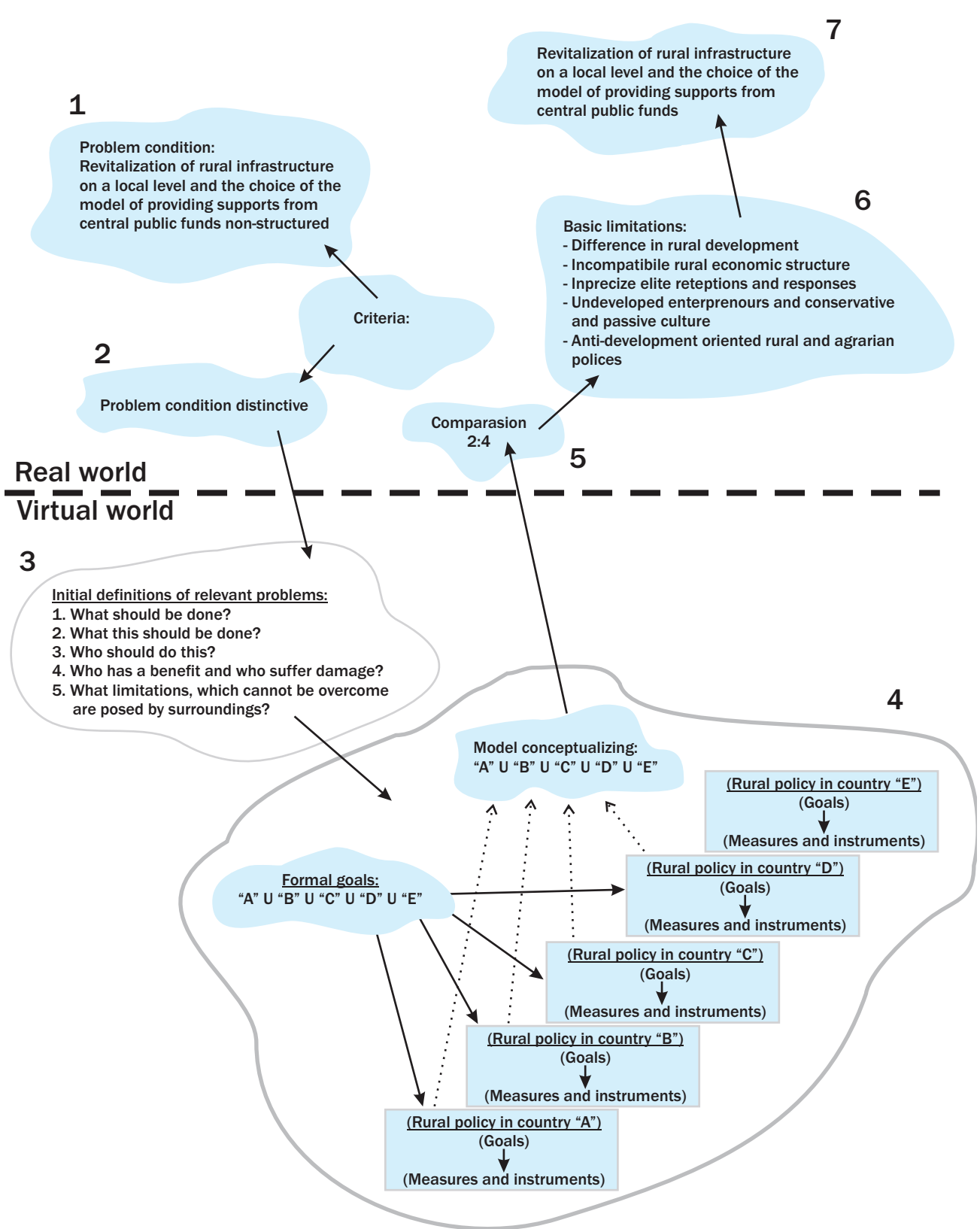


Figure 3.3.1.
 Checkland's methodology for soft systems

Example: Revitalization of rural infrastructure on a local level and the choice of the model for providing support from central funds

1. *Problems* – in the form of a vague assembly: *{The elite receptions and responses in relation to the role of rural society in development (unclear, imprecise and in essence negative for rural development), The political institutions (low credibility with regard to rural areas), the rural physical infrastructure (undeveloped, in ruin), the agrarian administrative infrastructure (undeveloped, without development strategy), the agrarian organisation and economic structure (lack of concurrence between internal and external markets, financial and technological ruin), financial system (undeveloped, disinterest in market behaviors), the rural entrepreneurs and their managerial knowledge (scarce and archaic), the rural education system (poor quality, separated socially and culturally from the rural population), rural social problems (old age of the rural population, weak condition of the rural population, widespread and pronounced poverty)}*

2. *Actors* - also in the form of a vague assembly: *{the rural population, rural entrepreneurs, rural managers, the political elite, the economic elite, the central institutions for rural development, the local institutions for rural development, the institutions of the European Union for rural development, ... }*

3. *Aggregates* - also in the form of a vague assembly: *{the government administration for rural development, the local administration for rural development, public regulation, local regulation, national capital, local capital, the administration of the European Union, European regulation, ... }*

From the picture established, different topics arise, generating relevant perspectives in the form of a vague assembly:

$$\begin{aligned} & \{Problems, Actors, Aggregates\}_{Western\ Balkans} = \{Problems, Actors, Aggregates\}_{Albania} \\ & \cup \{Problems, Actors, Aggregates\}_{Bosnia\ and\ Herzegovina} \cup \{Problems, Actors, Aggregates\}_{Croatia} \\ & \cup \{Problems, Actors, Aggregates\}_{Macedonia} \cup \{Problems, Actors, Aggregates\}_{Serbia\ and\ Montenegro} \end{aligned}$$

On the basis of the totality of research presented in the form of a vague assembly $\{Problems, Actors, Aggregates\}_{Western\ Balkans}$ in the third phase of a vague assembly *{Abstract picture: The rural policy -> to activate work and natural rural resources -> to restart stalled rural development -> the structural adjustment of rural regions of the Western Balkans to European Union integration criteria -> rural infrastructure}* is formed giving the original definitions of the problem in the form of refined verbal statements. The basic goals in the third phase are to determine:

- What should be done?
- Why should it be done?
- Who should do it?
- Who should benefit, and who should suffer ?
- What are the environmental limitations for each region and which are incapable of reform?

The content of our example, in a vague assembly *{Abstract picture: the rural policy -> to activate work and the use of natural rural resources -> to restart stalled rural development -> the structural adjustment of rural regions of the Western Balkans to European Union integration criteria -> the rural infrastructure}* shall be focused on:

1. The basic political and economic grouping and their ability for structural transformation of rural infrastructure and revitalization of development functions of the agricultural complex (modernizing of the rural physical infrastructure, agrarian administration, agriculture transformation, transformation of the finance system for servicing agriculture and the rural population, structural adjustment of the education system, development of rural social infrastructure, development of regional cooperation in the domain of agricultural and rural social policies.

2. Internal and external factors of the surroundings that reinforce existing regional social and economic depression.
3. Determining potential actors ready and motivated to intensify development cooperation (the rural population, rural entrepreneurs, rural managers, European institutions, ...).

In the fourth stage, the transformation of the vague assembly *{abstract picture: the rural policy -> to activate work and the use of natural rural resources -> To restart stalled rural development! -> The structural adjustment of rural regions of the Western Balkans to European Union integration criteria -> the rural infrastructure}* into main activities is carried out in the form of the vague assembly *{Regional (rural) cohesion policy}*. Due to the abovementioned particularities concerning the structural adaptation of all rural infrastructure, it is necessary to create an abstract picture in the form of a vague assembly, with the parallel existence of several possible solutions:

Picture «A» = *{Albania: Rural policy}*_{Preparation for European Union integration}

Picture «B» = *{Bosnia and Herzegovina: Rural policy}*_{Preparation for European Union integration}

Picture «C» = *{Croatia: Rural policy}*_{Preparation for European Union integration}

Picture «D» = *{Macedonia: Rural policy}*_{Preparation for European Union integration}

Picture «E» = *{Serbia and Montenegro: Rural policy}*_{Preparation for European Union integration}

This context includes:

{Rural policy: Goals -> Preparation of rural areas for European Union integration} = {Albania: Measures and Instruments of Rural policy} U {Bosnia and Herzegovina: Measures and Instruments of Rural policy} U {Croatia: Measures and Instruments of Rural policy} U {Macedonia: Measures and Instruments of Rural policy} U {Serbia and Montenegro: Measures and Instruments of Rural policy}

The final results may be modeled:

{Rural policy: Goals -> Preparation of rural areas for European Union integration}

with a structure comprising several parallel levels of realization of the national rural policy.

In the fifth stage, a comparison of the structured model:

{Rural policy: Goals -> Preparation of rural areas for European Union integration}

– in reality serves to forecast how the chosen structure of the model will behave in the future with the definition of {Actors} influencing the process of developing cooperation. In the context presented, the transformation of the vague assembly:

{Multilateral programs for building the modern rural infrastructure of the Western Balkans}

composed of the combination of measures and instruments of all national rural policy.

On the basis of its structure, formed by comparison, in the sixth stage it is necessary to perform the analysis of limitations (i. e. restrictions) as the final framework for changes. In the concrete example, the following restrictions have particular importance:

- Differences in rural economic and social development between regions in all Western Balkan countries.
- Incompatible rural economic structure in all Western Balkan countries.
- Imprecise elite receptions and responses to the development of problems in the modern rural social infrastructures of all Western Balkan countries.

- Undeveloped entrepreneurs and a conservative and passive culture in all Western Balkan countries.
- Incompetent rural and agrarian administrations in all Western Balkan countries.
- Anti-development oriented rural and agrarian policies in all Western Balkan countries.

Accordingly the following vague assembly is formed:

$\{Restriction\} = \{Difference\ in\ rural\ development\} \cup \{Incompatible\ rural\ economic\ structure\} \cup \{Imprecise\ elite\ receptions\ and\ responses\} \cup \{Undeveloped\ entrepreneurs\ and\ a\ conservative\ and\ passive\ culture\} \cup \{Incompetent\ rural\ and\ agrarian\ administrations\} \cup \{Anti-development\ oriented\ rural\ and\ agrarian\ policies\}$

On this basis, a comparison between desirable and feasible changes can be carried out:

$\{Multilateral\ programs\ for\ building\ the\ modern\ rural\ infrastructure\ in\ Western\ Balkan\ countries\} \cup \{Restriction\} = \{Multilateral\ programs\ for\ building\ modern\ rural\ infrastructure\ in\ Western\ Balkan\ countries\}$

The phase of implementation (seventh phase), based upon the large spectrum of measures and instruments of social, economic and development policies adapted to different rural structures (rural and agrarian administrations, rural physical infrastructure, agriculture, financial systems for servicing the agriculture and rural populations, the education system, rural small and medium enterprises, ...) in all Western Balkan countries.

The methodology presented here is based on the procedure of system observation to discover "What are the best ways to solve the observed problem?" – in which a large number of actors with partial observations and truths, and fusible analysis are incorporated. The integration of these-

$\{Actors, Aggregates\} \rightarrow \{Goals: The\ effective\ integration\ of\ rural\ areas\ into\ the\ European\ Union\} \rightarrow \{Measurement\ and\ mechanism\ of\ rural\ policy\}$

enables one, through a learning process, to conduct a more robust and flexible structuring of content for the realization of rural policies in the social, economic and development sectors.

3.4 Critical observation on the applied modeling methodology of rural policies

The methodological conception of the definition of rural policy attributes presented here provides: (1) an improvement to the systematic approach in researching basic causes and alternative models when resolving rural social and economic problems, (2) the introduction and application of models which, regardless of an open and insufficiently precise structure, may be used for the definition and correction of goals and activities in the realization of desirable rural changes and (3) the creation of a culture of behavior for actors wherein an openness towards their surroundings and efforts to overcome conflict between subjects have priority.

The methodology presented here is based on the suppositions that: (1) a culture of participation exists and (2) differences in individual perceptions relating to key phenomena in the social sphere, differences in the opinions of experts and other participants may be harmonized in a natural way, without compulsion.

There also emerge basic problems in the proposed methodology because it is impossible to specify: (1) "Who should be included?" and (2) "How much participation?"

The advantage of the application of the proposed methodology should be sought in the sphere of the system of didactics of all relevant participants. The presented methodology is based on the systematic observation: "What is the best mode of resolving this problem?" wherein a series of feasibility analyses and actions are included on one hand and a large circle of actors with partial views and subjective convictions on the other. The integration of views and approaches on the principle of *step by step* in the form of vague outlines and transformations in the chain $\{Actors, Aggregates\} \rightarrow \{Goals\ of\ rural\ policy\} \rightarrow \{Measures\ and\ instruments\ of\ rural\ policy\}$ makes possible the process of learning – which, at this moment, has priority with regard to the paradigm of optimization expressed as *Cost* \rightarrow *Results*.

4. Decision Making in Modeling the Attributes of Rural Policies

4.1 Introduction

One suggested technique for modeling the attributes of rural policies is based on information and decisions in the form of verbal statements. In accordance with this, a methodology developed on a “fuzzy system” theory was chosen for analyzing the decision making problems in modeling the rural policy attributes. The introduction of a fuzzy system is connected to the theory of fuzzy (spreading) assemblies, in order to provide a standard mathematical treatment of imprecision, which is characteristic for the linguistic approach to modeling.

The fuzzy system connects the inputs of vague assemblies with output assemblies. Fuzzy systems are determined through three phases: (1) determination of variables, (2) definition of the values of variables and (3) setting rules for fuzziness.

How does the fuzzy system work? All the rules are located within the fuzzy system. These rules are activated in parallel and partially. Each rule has the shape: *If A then B*. The input

value x activates the A part of each rule to some degree. It gives us then part B of the rule to some degree. As a result we get a fuzzy approximate average. That average is the center of mass or center which clarifies the vague assembly.

Fuzzy logic enables us to make decisions based on estimated values. These values are based on incomplete information. The valuable conclusions thereof are presented in a linguistic form. Of course, decisions can be incorrect and then cause the need for corrective actions based on additional available information.

The implementation of fuzzy logics into the rural policy model (in the chosen example: the reconstruction of rural infrastructure and its financial model on a local level) is based on the following key feed back relating to subsystems:

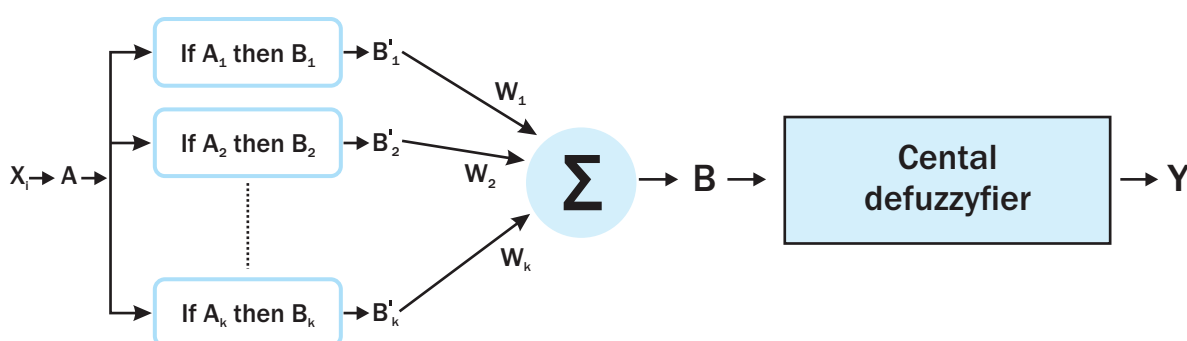


Figure 4.1.1. “Conclusion” scheme of a fuzzy system

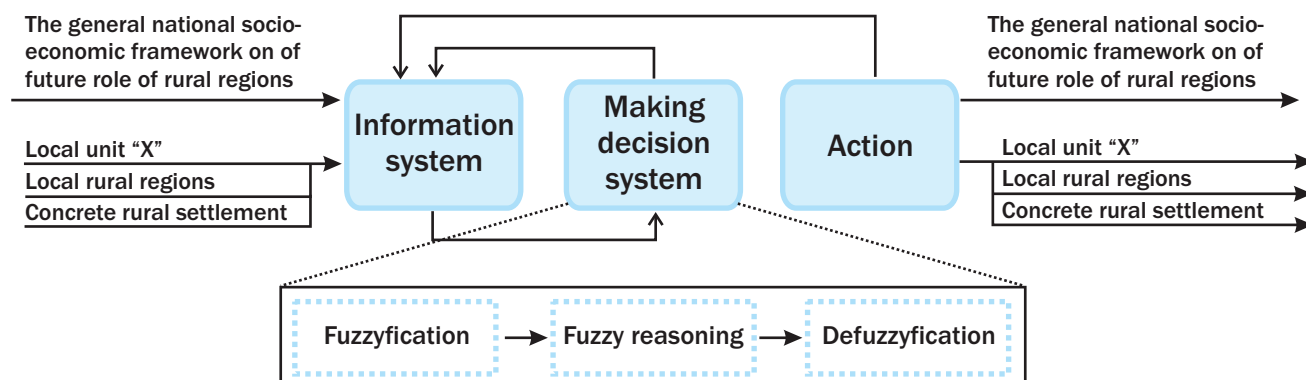


Figure 4.1.2. Fuzzy logics implementation methodology

4.2 The methodology for making multi-criteria decisions and the problem of overcoming indefiniteness in modeling rural policies

The basic idea behind structuring a fuzzy model for making multi-criteria decisions in order to overcome the problems of indefiniteness in modeling rural policies is based on its application to the second, third and fifth phases of Chekland's soft system methodology in outlining the goals and actions of rural policy.

In order to illustrate the suggested methodology, we will use the example of the program: REVITALIZATION OF RURAL INFRASTRUCTURE ON A LOCAL LEVEL AND THE CHOICE OF THE MODEL FOR PROVIDING SUPPORT FROM CENTRAL FUNDS. We will present the following decision making process: "Is it necessary to selectively provide additional means from central public funds for the participation of the cost of revitalization of rural infrastructure for a local unit "X"?" We introduce fuzzy variables, described verbally (Table 4.2.1.):

Because the variables in the above table – from which any decisions must be made – are described verbally their values are determined to be relative values or to varying degrees based on experts' estimates. Hence, the variables used in deciding on the actions for achieving determined goals are characterized by: (1) polysemia, due to the possibility of different interpretations of the described phenomena, (2) lack of coordination and (3) meagerness of content. All of this is due to the problems in the unique determination of different content and mistakes in the definition of limits between different phenomena.

Decision making is based on a fuzzy reasoning algorithm (Figure 4.2.1)

EXTERNAL FACTORS	development, status quo, reduction
Medium-term changes in the dynamics of development of rural regions in the local unit "X":	development, status quo, reduction
Long-term changes in the dynamics of development of rural regions in the local unit "X":	development, status quo, reduction
INTERNAL FACTORS	favorable, neutral, unfavorable
National standardization of minimal infrastructural services being ensured from public means for rural regions and population:	high, average, low
Total public revenues from local economy and population:	high, average, low
Public revenues from local rural economy and rural population:	high, average, low
Total local public expences:	high, average, low
Expences from from central funds (for rural development, for subventions, for subventions for rural economy, for education of rural population, for social protection of rural population) – in rural regions in the local unit "X":	high, average, low
Local public expences in rural regions (for rural development, for subventions for rural economy, for education of rural population, for social protection of rural population):	high, average, low
External financigement (non-governmental organizations, international help):	high, average, low
IMPLEMENTATION	high, average, low
Corruption:	enormous, significant, minor
Administrative compulsion:	high, average, low
Ethical (political) compulsion:	aggressive, moderate, passive
Expertnessise (public managers and administrations):	high, average, low

Table 4.2.1.

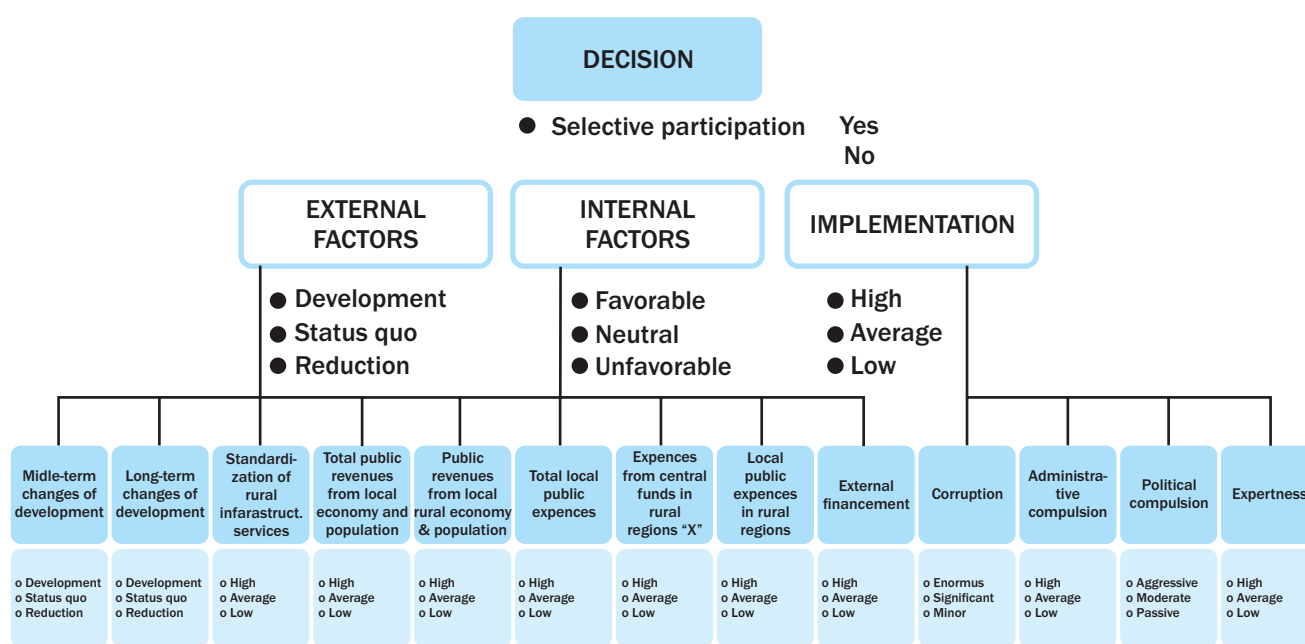


Figure 4.2.1. Algorithm of fuzzy reasoning

EXTERNAL FACTORS	INTERNAL FACTORS	IMPLEMENTATION	DECISION
unfavorable	Low	high	Yes
unfavorable	Low	<high	No
unfavorable	Average	high	Yes
unfavorable	Average	<high	No
unfavorable	High	1)	Yes
Neutral	Low	>low	No
Neutral	Low	low	Yes
Neutral	Average	>low	No
Neutral	Average	low	Yes
Neutral	High	high	No
Neutral	High	<high	Yes
Favorable	Low	1)	No
Favorable	Average	>low	Yes
Favorable	Average	low	No
Favorable	High	>low	Yes
Favorable	High	low	No

¹mark for any variable value (<, i.e.>) any value of that variable which is lower, i.e. higher than the given value

Table 4.2.2.

Input values for a concrete local milieu in linguistic forms are “fuzzified”, associated with numerical values and the degree of pertinence of output variables: EXTERNAL FACTORS, INTERNAL FACTORS, IMPLEMENTATION are ascertained with the minimum degree of pertinence.


The output values are defined by rules having different values based on experts’ estimates, with different degrees of pertinence. “Defuzzification” gives us concrete numerical values for output variables, while the final output decision, selective provision of additional means from central public funds for the participation of the costs of revitalization of rural infrastructure for a local unit “X”, yes or no, we obtain on the basis of the IF THEN rule:

If : EXTERNAL FACTORS development
INTERNAL FACTORS low
Then the decision is: IMPLEMENTATION yes

4.3 Critical observations on applied multi-criteria decision methodology in modeling the attributes of rural policies

The suggested multi-criteria methodology of decision making is characterized by the high level of subjectivity and indefiniteness caused by experts' estimates. However, in combination with the abovementioned hierarchy of decision making methodology through layers (specifically layers for adaptation and learning), it is possible to increase the objective degree of making decision by involving three paradigms: (1) **Competition**, as the frame for individual and collective decisions, (2) **Cooperation**, as the main way for providing rare resources (in this case resources and institutions for implementing social policy actions) and (3) **Learning**, in order to provide in due time an effective decision based on additional information resulting from analysis of the effects of social policies attributes, mainly from an "ex ante" outlined assembly of actions.

5. Conclusion

Application of the presented methodology for the modeling of rural development and its realization in two steps serves as a basis for the combination of different methodological concepts with different levels of precision. To gradually make volume and time dimensions narrower as common research measures would provide a valid way for treating ambiguities and fuzziness which are inherent in subjective determination and the preferences and limitations for actors collaborating within an environment lacking science, practice or tradition with respect to formal structures. Their basic characteristic is a high level of precision in making fundamental social and economic decisions on the one hand, and high subjectivity in determining the concrete content of problems to make decisions on the other. The achieved results can be used for a satisfactory open version of rural policy. Its effective realization depends on the adequate integration of the paradigm learning with a precise set of goals along with passive and unaddressed measures and mechanisms of rural policy. A clearly defined course of action and the development of cooperation should result from a complex interaction between institutional changes, changes among the elite and changes in the cultural behavior of the rural population and its entrepreneurs. 

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Impacts of Financial Stock Prices and Exchange Rates on the Demand for Money in Poland

Yu Hsing

Abstract

Applying the extended Box-Cox model and the Newey-West method, this paper finds that the demand for real M2 is positively influenced by real GDP and the real effective exchange rate, negatively affected by the deposit rate and the world interest rate, and not correlated with the real financial stock price. Hence, real depreciation of the zloty or a lower world interest rate would raise real output. The widely used log-linear form or the linear form can be rejected at the 5% or 1% level in favor of the extended Box-Cox model, suggesting that the elasticity or the slope is not a constant but varies with the values of the dependent and independent variables.

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1. Introduction

Since its transition to a market economy, the quantity of money in Poland has increased in the long run with some fluctuations in the short run partly due to economic growth. Real M2 declined from 207,847 million zlotys in 1990 to 161,125 million zlotys in 1991. An analysis of macroeconomic variables suggests that the decline in real M2 may be associated with a decrease in real GDP from 276,213 million zlotys to 256,954 million zlotys, an increase in the deposit rate from 41.67% to 53.50%, and/or an increase in the zloty/USD exchange rate from 0.95 to 1.06 during the same period. Real M2 rose from 189,800 million zlotys in 1995 to 207,472 million zlotys in 1996. The increase may be attributable to an increase in real GDP from 337,222 million zlotys to 358,261 million zlotys, a decrease in the deposit rate from 26.78% to 20.02%, and/or real appreciation of the zloty during the same period. It is surprising to observe the decline in real M2 from 306433 million zlotys in 2001 to 321173 million zlotys in 2002 in view of an increase in real GDP, a decrease in the deposit rate, and real depreciation of the zloty.

The demand for money is an important macroeconomic foundation. The interaction between money demand and money supply determines the money market equilibrium.

While monetary policy is determined by the European Central Bank (ECB) since Poland joined the EU in May 2004, unique relationships may exist between money demand and its determinants in Poland. The sensitivity of money demand to a change in one of the explanatory variables may vary among EU member countries

This paper examines the demand for money for Poland with several focuses. First, the paper will discuss the interaction between the money market equilibrium and the goods market equilibrium and the impact of a change in one of the explanatory variables in money demand on the equilibrium output. Second, the extended Box-Cox model (Box-Cox, 1964; Seaks and Layson, 1983; Hsing and Chang, 2003; Hsing, 2006) is applied in empirical work to determine whether the widely used log-linear form or the linear form would be appropriate. Many previous studies chose the log-linear form a priori partly

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because the log-linear form exhibits a constant elasticity of money demand. Third, the Newey-West (1987) method will be employed in empirical work to yield consistent covariance and standard errors when the forms of heteroskedasticity and autocorrelation are unknown.

There are several recent studies of money demand for Poland and/or its neighboring countries. Van Aarle and Budina (1996) showed that there was evidence of currency substitution for Poland, Hungary, Bulgaria, and Romania. Buch (2001) examined the money demand functions for Poland and Hungary and found that in several specifications, money demand and other variables are cointegrated and that estimated money demand functions can serve as useful tools for the central banks. Rusek (2001) indicated that a stable money demand function for Poland and the other three East European countries could not be estimated and that there was a lack of equilibrium relationships among the nominal variables in money demand. Kruska (2003) studied the demand for cash for four Eastern European countries during 1994-2003 and showed that variables in the demand for money for Poland were I(1) and had at least one cointegrating relationship, that the income elasticity was estimated to be 0.997, and that the coefficients of the nominal interest rate and the inflation rate had wrong signs. Reimers (2004) conducted large-scale research on the long-run money demand function for eleven Eastern European countries based on a sample from 1993 to 2001. He found that for Poland, the coefficients estimated by the FM-OLS and two-step method for real income, the interest rate and the inflation rate were 2.91, -0.03, and 3.90, respectively and that large differences were found across countries. Dreger and Reimers (2005) examined the money demand function for ten Eastern European countries during 1995-2004 and revealed that real broad money demand in general had a positive relationship with real income and the euro exchange rate and a negative relationship with the domestic interest rate and the U.S. dollar exchange rate.

2. The Model

Suppose that the demand for money in Poland is determined by real output, the domestic interest rate, the real financial stock price, the real exchange rate, and the world interest rate and can be expressed as

$$M = L(Y, R, W, E, R^*) \quad (1)$$

$$L_Y > 0, L_R < 0, L_W > 0, L_E > 0, L_{R^*} > 0$$

where:

M = demand for real money balances,

Y = real output,

R = the domestic interest rate,

W = the real stock price,

E = the real effective exchange rate, and

R* = the world interest rate.

The demand for money is expected to have a positive relationship with real output and a negative relationship with the domestic interest rate. An increase in the real stock price may reduce or increase the demand for money due to the substitution effect or the wealth effect (Friedman, 1988; Fase and Winder, 1998). Real appreciation of the zloty may increase or reduce the demand for money due to the substitution effect or the wealth effect (Arango and Nadiri, 1981; McKinnon, 1982; Bahmani-Oskooee and Techaratanachai, 2001; Bahmani-Oskooee and Ng, 2002). A higher world interest rate may reduce or increase the demand for money because of the capital mobility effect or the cost of borrowing effect (Marquez, 1987; Bahmani-Oskooee and Ng, 2002).

The signs of the partial derivative of the demand for money with respect to the real stock price, the real effective exchange rate, and the world interest rate in equation (1) are crucial because they may influence the equilibrium real output differently. Suppose that the goods market equilibrium is given by

$$Y = H(Y, R - \pi^e, G, T, W, E) \quad (2)$$

where

H = aggregate spending,

π^e = the expected inflation rate,

G = government spending, and

T = government tax revenues.

The impact of a change in the real stock price, the real effective exchange rate, or the world interest rate on the equilibrium output can be expressed as

$$\partial \bar{Y} / \partial W = (-H_w L_R + H_R L_w) / |J| > 0 \text{ if } L_w < 0 \text{ and } > 0 \text{ if } L_w > 0 \quad (3)$$

$$\partial \bar{Y} / \partial E = (-H_E L_R + H_R L_E) / |J| < 0 \text{ if } L_E > 0 \text{ and } > 0 \text{ if } L_E < 0 \quad (4)$$

$$\partial \bar{Y} / \partial R^* = H_R L_{R^*} / |J| > 0 \text{ if } L_{R^*} < 0 \text{ and } < 0 \text{ if } L_{R^*} > 0 \quad (5)$$

where H_x is the partial derivative of aggregate spending with respect to any exogenous variable X and $|J|$ is the Jacobian of the endogenous variables with a positive value. As shown, the sign of L_w , L_E and L_r crucial in determining whether a change in one of the variables would affect the equilibrium real output positively or negatively. The equilibrium real GDP is expected to increase if the demand for money responds to the real stock price or the world interest rate negatively and to decline if the demand for money responds to the real appreciation of the zloty positively.

The extended Box-Cox model is employed to transform all the variables with positive values as follows

$$\begin{aligned} M^{(1)} &= (M^1 - 1) / \lambda, \\ X^{(1)} &= (X^1 - 1) / \lambda, \end{aligned} \quad (6)$$

where X is any of the right-hand-side variables and λ is the transformation parameter. It can be shown that when λ approaches zero, equation (1) reduces to a log-linear form, and when $\lambda=1$, equation (1) becomes a linear form. The test statistic has a χ^2 distribution with one degree of freedom and is given by

$$2[\ln \hat{L}(\lambda) - \ln L(\lambda = 0 \text{ or } 1)] \sim \chi^2_{(1)} \quad (7)$$

3. Empirical Results

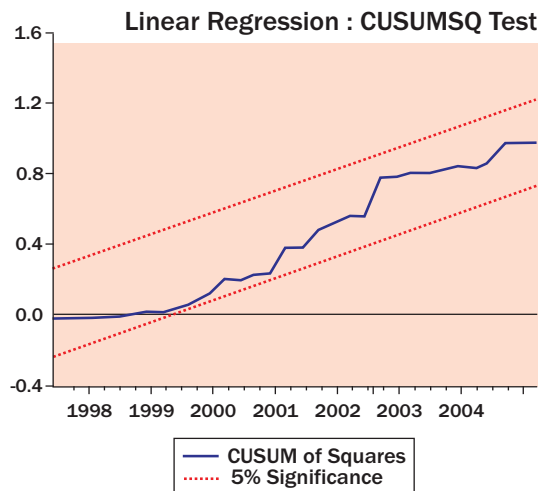
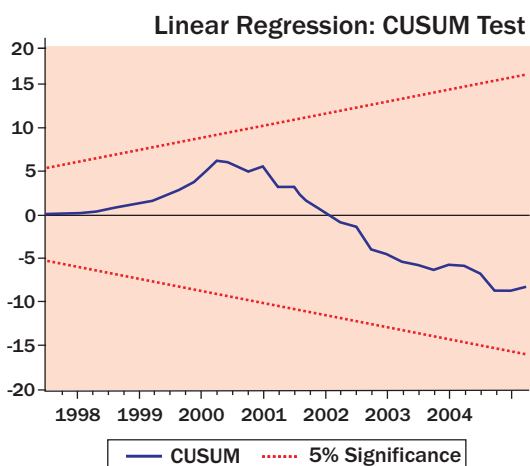
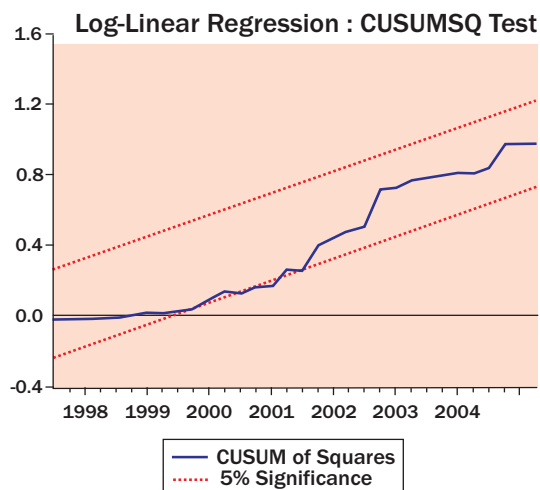
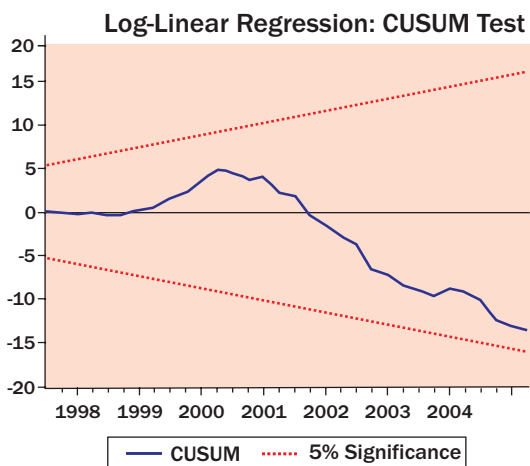
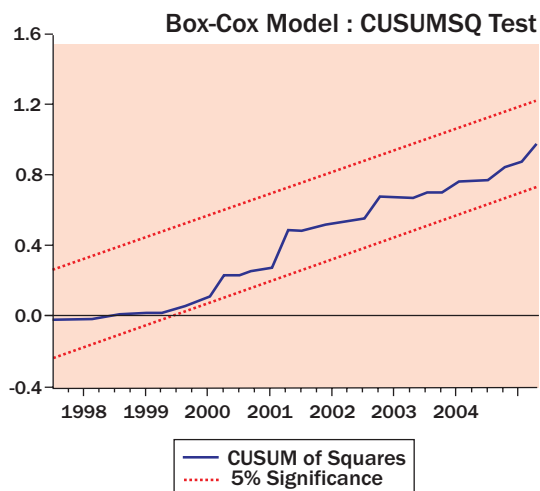
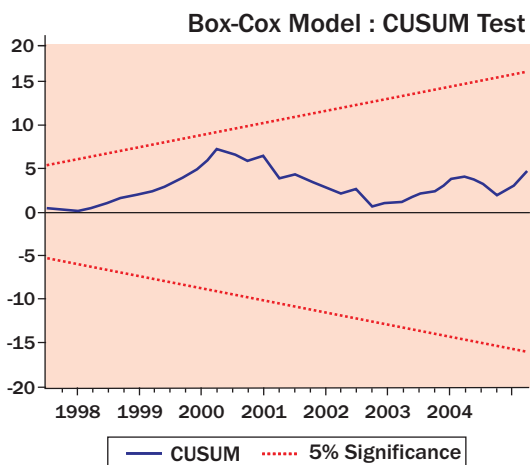
The data source came from the *International Financial Statistics* published by the International Monetary Fund. Real M2 is chosen as the monetary aggregate because it contains saving or money market deposits, small time deposits, and money market mutual funds and is regarded as a broader measure of money. Real M2 is equal to nominal M2 divided by the CPI and measured in million zlotys. Real GDP is measured in million zlotys at the 2000 price. The deposit rate is selected to represent the domestic interest rate. The real effective exchange rate is an index number with 2000=100. An increase in the real effective exchange rate means real appreciation of the zloty, and vice versa. The euro government bond rate is chosen to represent the world interest rate. The sample runs from 1996.Q1 to 2005.Q2.

Real effective Exchange Rate	Box-Cox Regression	Log-Linear Regression	Linear Regression
Real Output	0.894 (4.370)	0.682 (5.210)	0.706 (5.468)
Deposit Rate	-1.69E+08 (-13.530)	-0.066 (-2.184)	-3268.972 (-6.066)
Real Stock Price	9.325 (1.290)	-0.114 (-2.117)	-0.706 (-1.315)
Real effective Exchange Rate	5849468 (7.452)	0.578 (4.676)	1457.048 (7.531)
Euro Interest Rate	-3.50E+08 (-2.405)	-0.217 (-2.734)	-7342.920 (-3.073)
Constant	3.19E+10 (2.813)	3.128 (1.494)	90074.060 (2.108)
R ²	0.970	0.927	0.955
D-W Statistic	1.629	0.935	1.022
λ	2.06	0.000	1.000
Log Likelihood	-395.569	-416.284	-404.423
Test statistic		39.430	17.708
	2.346	4.199	2.912
Theil Inequality Coef.	0.014	0.026	0.018

The Newey-West method is employed to estimate standard errors and covariance.
 Figures in the parenthesis are t-ratios.
 ***, **, * denote 1%, 5%, and 10% significance levels.
 MAPE is the mean absolute percent error.

Table 1.
 Estimated Regressions of the Demand for Money in Poland:
 1996.Q1-2005.Q2

The ADF unit root test is performed first. The critical value is -3.62 at the 1% level and -2.94 at the 5% level. All the variables in levels have unit roots and all the variables in first difference are stationary at the 5% or 1% level. The Johansen



Graph 1
Stability Tests

cointegration test shows that there are 3 cointegrating relationships at the 5% level when the trace test is applied.

The functional form is tested next. The value of $L(\lambda)$ is -395.569 with an estimated λ of 2.06. The value of $L(\lambda=0)$ for the log-linear form is -416.284. The test statistic of 39.430 is far greater than the critical value of 6.635 at the 1% level. Hence, the log-linear form can be rejected. The value of $L(\lambda=1)$ for the linear form is -404.423. Comparing the test statistic of 17.708 with the critical value of 6.635 at the 1% level, the linear form can be rejected at the 1% level.

Table 1 presents empirical results for the regression based on the extended Box-Cox model, the log-linear regression, and the linear regression. In the Box-Cox regression, the value of R^2 is 0.970. Real M2 demand has a positive relationship with real output and the real effective exchange rate and a negative relationship with the deposit rate and the euro interest rate. The coefficient of the real stock price is insignificant at the 10% level. The mean absolute percent error and the Theil inequality coefficient are estimated to be 2.346 and 0.014, respectively. The values of the estimated elasticity of money demand at the means with respect to real output, the deposit rate, the real effective exchange rate, and the world interest rate are 0.369, -0.168, 0.486, and -0.203, respectively.

In the log-linear regression, the value of R^2 is 0.927, which is lower than that in the Box-Cox model. Real M2 is positively associated with real output and the real effective exchange rate and negatively affected by the deposit rate, the real stock price, and the euro interest rate. The mean absolute percent error and the Theil inequality coefficient are estimated to be 4.199 and 0.026, respectively. In the linear regression, the value of R^2 is 0.955. The coefficients of real output and the real effective exchange rate are positive and significant, the coefficients of the deposit rate and the euro interest rate are negative and significant, and the coefficient of the real stock price is negative and insignificant. The mean absolute percent error and the Theil inequality coefficient are 2.912 and 0.018, respectively.

The critical values of the Durbin-Watson test at the 1% level are $d_L = 1.019$ and $d_U = 1.585$, respectively. Compared with the test statistics, the absence of autocorrelation in the Box-Cox regression cannot be rejected whereas the absence of autocorrelation in the log-linear or linear regression can be rejected or is inconclusive. Hence, an incorrect functional form may be one of the reasons for serial correlation.

The CUSUM and CUSUMSQ tests are reported in Graph 1. As shown, the Box-Cox model exhibits better results than the log-linear or linear regression because the cumulative sums of the recursive residuals become larger over time or because part of the cumulative sum of squares in the log-linear regression is

outside of the critical lines, suggesting variance instability. If the rejected log-linear regression is chosen, we may draw the misleading conclusion that the demand for real M2 reacts negatively to a change in the real stock price. In comparison, the extended Box-Cox model shows better statistical outcomes in terms of the value of R^2 , the log likelihood value, the mean absolute percent error, the Theil inequality coefficient, or the stability tests.

Based on empirical results, the coefficient of the real stock price is insignificant, the coefficient of the real effective exchange rate is positive and significant, and the coefficient of the world interest rate is negative and significant. Hence, their respective impacts on the equilibrium output can be shown as follows:


$$\begin{aligned} \frac{\partial \bar{Y}}{\partial W} &> 0 && \text{because } L_W = 0 \\ \frac{\partial \bar{Y}}{\partial E} &< 0 && \text{because } L_E > 0 \\ \frac{\partial \bar{Y}}{\partial R^*} &> 0 && \text{because } L_{R^*} < 0 \end{aligned}$$

Several different measures of the variables are considered. When the yield on a U.S. 10-year Treasury bond is used as a proxy for the world interest rate, the coefficient is positive and insignificant. It may suggest that the euro interest rate is a better proxy for the world interest rate due to Poland's geographical position in Europe. If the real zloty/USD exchange rate is employed, the coefficient is positive and insignificant at the 10% level. It suggests that the real effective exchange rate may be a better proxy because it is a trade-weighted measure including major currencies such as the U.S. dollar, the euro, the British pound, etc.

3. Summary and Conclusions

This paper has examined the demand for money in Poland. Explanatory variables include real output, the deposit rate, the real stock price, the real effective exchange rate, and the world interest rate. The study finds that both the log-linear and linear forms can be rejected in favor of the Box-Cox model. The Box-Cox model exhibits a higher value of R^2 , lack of serial correlation, a lower value of the mean absolute percent error, a lower value of the Theil inequality coefficient, and more parameter stability. In the Box-Cox model, real M2 is positively affected by real output and the real effective exchange rate and negatively associated with the deposit rate and the world interest rate. The coefficient of the real financial stock price is found to be insignificant at the 10% level. These findings suggest that the substitution effect of the real effective exchange rate is

greater than the wealth effect, that the capital mobility effect of the world interest rate is greater than the cost of borrowing effect, and that via the money and goods market equilibrium, real depreciation or a higher world interest rate is expected to raise real output.

There are several policy implications. Because the log-linear form can be rejected, the constant elasticity as implied in the log-linear form does not apply to money demand in Poland. Instead, the elasticity of money demand would vary with the transformation parameter, the value of money demand, and the value of the explanatory variable. The insignificance of the real stock price suggests that LM will not shift when the real stock price changes. Hence, a higher real stock price is expected to shift IS upward and raise real output. The positive sign of the coefficient of the real effective exchange rate suggests that real appreciation is expected to hurt real output. Hence, real depreciation may be considered in stimulating exports, reducing imports, and reducing the demand for money. 

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