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Interpreting the Correlation Between the Capacity of Generating Added Value and the Use of Business Information Systems Through the Example of SMEs

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OBJECT OF THIS RESEARCH

The paper aims to investigate:

- the relation between ICT development and enterprise capacity to generate added value

- companies' IT infrastructure

with reference to Hungary, Slovakia, Italy and Portugal:

classifying companies into microenterprises, small and medium-sized enterprises, and corporations

BACKGROUND OF THE STUDY

ASSUMPTIONS:

- **IT/ ICT contribute to business competitiveness and development**
- **ICT's contribution can be appreciated at the national level in terms of its positive impact on GDP, usually calculated using added value**

Nevertheless, country-level factrs can affect the efficiency of transformation of ICT investments into macroeconomic outcomes (Dewan and Kraemer, 2000; Samoilenko, 2008; Harindranath, 2008; Samoilenko and Ngwenyama, 2011)

In addition, factors at the company level might influence the impact of ICTs-> type of IT infrastructure and business information systems (Haag et al., 2003; Williams et al., 2009) whose adoption seems to be linked to organization's size (Csermely and Vincze, 2003)

RESEARCH QUESTIONS

This paper aims to answer to the following questions:

(1) Are countries such as Hungary and Slovakia exploiting and transforming ICT into added value as efficiently as other European countries?

(2) Are there any differences in the level of ICT adoption (expressed in terms of IT infrastructure) in Hungarian, Slovakian, Italian and Portuguese enterprises?

(3) Is business size an explanatory variable of ICT adoption?

METHOD

Quantitative research:

1) Correlation analysis between ICT development level and enterprises added value at the country level

- integrated ICT index: ICT Development Index (IDI) instead of Networked Readiness Index (NRI)

- enterprise value added (from SBA Fact Sheets)

2) Online survey to know ICT usage at firm level

- investigation of the IT infrastructure (hardware, network and software)

- with a special focus on business information systems (TPS, MIS, ERP, DSS, ecc.)

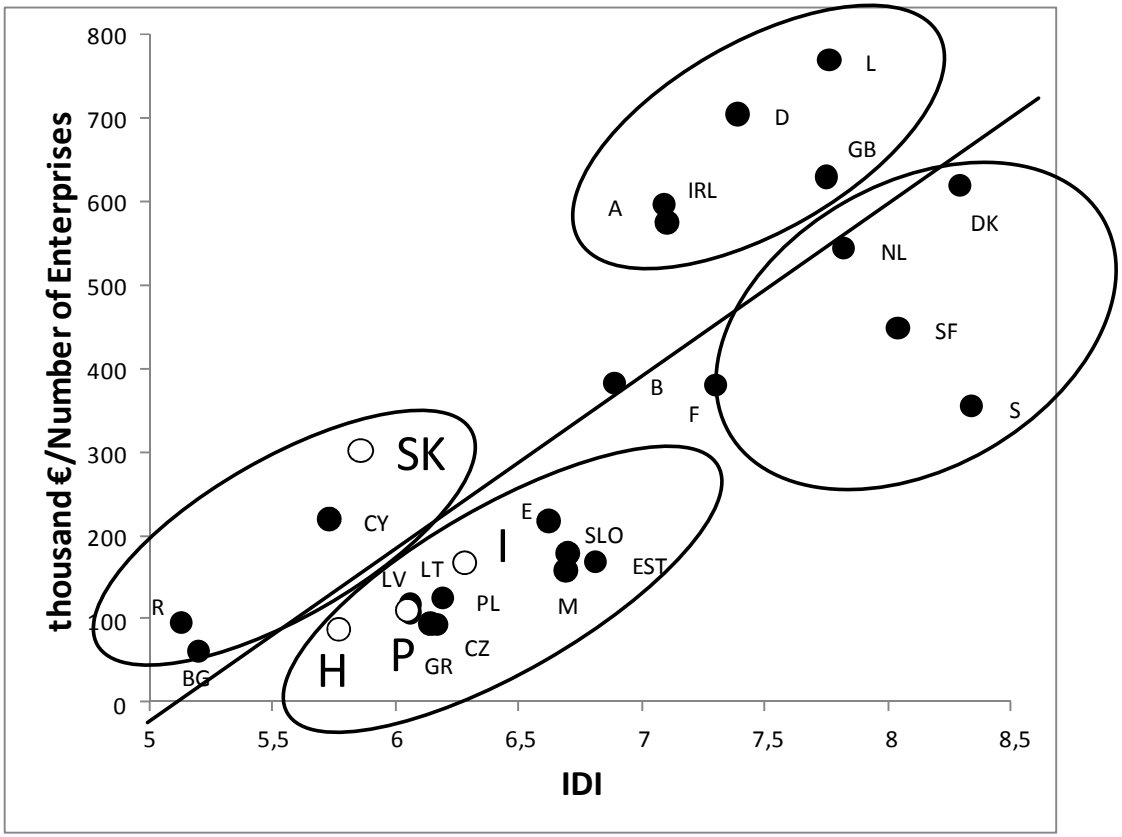
RESULTS

Correlation between IDI and the added value

The correlation coefficient is 0.791, which indicates a strong positive relationship.

EU member states can be divided into 4 groups:
1- high IDI and high added value (Germany, UK)
2- high IDI but lower added value (Finland, NL)
3- low IDI and low added value (Italy, Portugal, Hungary)
4- low IDI but higher added value (Slovakia)

Only Slokavia is above the regresson line when compared to I,P, H



RESULTS
The IT infrastructure

Number of Workstations (WS) and use of server-based Networks (N)

Size/ Country	*Micro-enterprises*		*Small-sized enterprises*		*Medium-sized enterprises*		*Corporations*	
	WS	N%	WS	N%	WS	N%	WS	N%
Italy	5	52	28	94	241	94	1,252	100
Portugal	5	67	33	100	145	100	1,647	100
Hungary	3	30	7	52	55	93	1,105	100
Slovakia	3	14	4	59	8	85	33	100

-> WS usage differs according to the country. The ranking is: I, P, then H and S. **The same ranking applies to N**

-> Size still pay a big difference in IT adoption

RESULTS
The IT infrastructure

The use of business information systems

Levels	IS	I	P	H	SK	I	P	H	SK	I	P	H	SK	I	P	H	SK
		Microenterprise				Small-sized				Medium-sized				Corporations			
Strategic	BI	4	-	0	3	27	-	7	5	62	-	7	18	73	-	20	71
	EIS	12	-	0	7	7	33	4	5	24	42	26	8	50	83	45	43
Tactical	DSS	12	-	0	3	16	29	0	5	27	21	19	9	50	83	35	57
	SCM	4	-	5	7	17	50	11	14	34	16	26	17	50	83	40	43
	SRM	12	-	5	7	24	0	15	9	40	18	37	18	40	67	60	57
	CRM	15	-	5	7	23	57	15	9	40	32	44	17	60	83	50	57
Operative	MIS	28	-	0	7	60	57	7	5	85	47	41	17	93	100	60	71
Task	ERP	24	-	0	7	61	71	15	27	82	89	41	58	87	100	60	86
	TPS	46	-	5	10	87		30	38	91	-	52	75	100	-	75	71

Again there are country differences in business information systems adoption: first I and P, then H and S

CONCLUSIONS

1) At a country level, a significant positive relationship can be observed between ICT development level and added value
2) This relationships differs from country to country. Transition economies are not all equal: Slovakia
3) IT infrastructure in the 4 examined countries shows a ranking quite in line with the ranking we could expect on the basis of average added value: I and P come first
4) Differences in ICT adoption lessen with the increase of company dimension