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**FDI IMPACT ON HOST COUNTRY'S MARKET
CONCENTRATION AND PROFITABILITY**

This research attempts to examine the effect of foreign direct investment and profitability (price-cost margins) on market concentration in 26 CEE and CIS countries. The hypothesis whether FDI and profitability make market concentration increase or decrease is tested using instrumental variables (IV) methods (business environment indicators are treated as instruments) in order to ensure that the possible endogeneity problem between FDI and concentration is eliminated. The results suggest that both FDI and market profitability are negatively correlated with the market concentration, which is in line with the results of recent research by Amess and Roberts (2004), Konings (2001), Siotis (2003), Rutkowski (2006).

Keywords: foreign direct investment; market concentration; profitability; instrumental variables.

JEL code: L16.

Рустем Оразалин, Раушан Дуламбаева
**ВПЛИВ ПРЯМИХ ІНОЗЕМНИХ ІНВЕСТИЦІЙ НА
КОНЦЕНТРАЦІЮ ТА ПРИБУТКОВІСТЬ
РИНКУ КРАЇНИ-РЕЦИПІЄНТА**

У статті зроблено спробу дослідити вплив прямих іноземних інвестицій і прибутковості (межі вартості-ціни) на ринкову концентрацію в 26 країнах ЦСЄ і СНД. Гіпотеза відносно того, підвищують або знижують ПІІ і прибутковість ринкову концентрацію, перевірено за допомогою методу інструментальних змінних (показники бізнес-середовища взяті як інструменти) для усунення можливості проблеми ендогенності між ПІІ і концентрацією. Результати показали, що ПІІ і прибутковість ринку негативно корелюють з ринковою концентрацією, що відповідає результатам останніх досліджень Амесса і Робертса (2004), Кенінгса (2001), Сіотіса (2003), Рутковського (2006).

Ключові слова: прямі іноземні інвестиції; ринкова концентрація; прибутковість; інструментальні змінні.

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РЕЦИПИЕНТА**

В статье сделана попытка исследовать влияние прямых иностранных инвестиций и прибыльности (границы стоимости-цены) на рыночную концентрацию в 26 странах ЦВЕ и СНГ. Гипотеза относительно того, повышают или понижают ПИИ и прибыльность рыночную концентрацию, проверена с помощью метода инструментальных переменных (показатели бизнес-среды взяты в качестве инструментов) для устранения возможной проблемы эндогенности между ПИИ и концентрацией. Результаты показали, что ПИИ и прибыльность рынка негативно коррелируют с рыночной концентрацией, что соответствует результатам последних исследований Амесса и Робертса (2004), Кенингса (2001), Сиотиса (2003), Рутковского (2006).

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Ключевые слова: прямые иностранные инвестиции; рыночная концентрация; прибыльность; инструментальные переменные.

1. Introduction. It is natural to expect foreign firms to crowd out domestic firms at a market. This may be in the form of dumping because foreign entrant has relatively small marginal cost of production. As a result market concentration can increase. However, it was argued by many researchers that FDI could be the reason for positive spillover for domestic firms, therefore productivity, efficiency and competitiveness of local enterprises are likely to increase, which in turn can lead to less concentrated markets.

This study aims at understanding the impact of FDI and profitability on market concentration of a hosting industry in transition countries. Thus the sample of 26 Central and Eastern European and CIS transition countries will be the subject for the observations. The study will seek the answer to the question whether FDI and price-cost margins in transition economies increase market concentration leading to higher concentration (hypothesis 1) OR whether FDI and profitability in transition economies contributes to lower concentration (hypothesis 2).

In terms of empirically assessing the FDI and concentration relationship two-way causality may arise, which leads to the endogeneity problem because not only foreign entrant can affect incumbent's decision but also the degree of competition between incumbents potentially may impact entry decision of investor. Moreover, most authors faced endogeneity problem and to deal with it they applied GMM-IV and TSLS methods (Jordaan, 2005; Amess and Roberts, 2004; Konings, 2001; Siotis, 2003). Potential endogeneity in this study which may arise because of circular causality (as FDI can be attracted where concentration and profitability is high) will be controlled by employing business environment as an instrument which is correlated with FDI, but must not be explained by concentration or profitability.

As cross-section data can give a broader image of FDI impact on market concentration and profitability, this study, in contrast to many previous researchers' individual-country approach, will employ a multiple regression analysis with cross-sectional data. The database will be the Business Environment and Enterprise Performance Survey (BEEPS) Questionnaire³ compiled by the European Bank for Reconstruction and Development and World Bank. Due to the survival nature of the data qualitative response model will be the main framework for modeling the FDI and concentration relationship.

In this context, our research aims to distinguish the positive or negative effect of FDI and profitability on market concentration within the framework of the given research work. In particular, this research project is designed to examine the competition and price-cost margins effect of foreign direct investment. Main focus will be on empirical methodology of testing whether FDI, profitability affect concentration and through exogenous variables. In order to put the plan into operation, instrumental variables estimator and two-stage least squares methods are going to be used to test the concentration and FDI, profitability relationship.

³ I am grateful for the guidance, constructive support of Professor Mike Waterson.

The article is structured as follows. Literature review in Section II is followed by the empirical model specification in section III. Then data description is described in Section IV. The next section reports the empirical findings. Section VI concludes the interpretation of the results and suggests further research directions.

2. Literature review. The implications of FDI for a host country's industry may be different in the cases of developed and developing countries. Starting with developed economies' example, Barrios et al. (2004) showed that although FDI in Ireland initially deterred the entry of local firms, afterwards positive externalities outweighed and overall impact of FDI became positive for domestic entry. The authors used a model with "semi-parametric regression techniques on plant level panel data for manufacturing sector of Ireland" (Barrios et al, 2004). Another example of FDI studies in a developed economy was presented by Driffield. Considering inward investments into the UK, Driffield (2001) also yields positive results of FDI impact on concentration changes. His conclusions suggest that inward investment reduces concentration and increases competitive pressure at the industry level.

Moving on to transition economies, Jordaan (2005) found no support for positive externalities from FDI in Mexico which is in line with recent researchers. Jordaan tested whether foreign-owned firms create externalities in Mexican manufacturing. In contrast to previous researchers he yielded negative externalities as a result of FDI after carefully examining the determinants of inward foreign investment.

Large number of studies has been done on the effect of FDI on competition, concentration, externalities, productivity and technological spillovers (Maioli et.al., 2006). However, despite the increasing importance of FDI rather than trade, literature on FDI and price-cost margins seems to be lacking and needs to be studied, although the importance of FDI outweighs the trade. According to the UNCTAD World Investment Report 2005 (cited in Maioli et al., 2006) aggregate production of MNCs in host countries prevails over aggregate exports.

Other examples of FDI effect on a developing country's economy were presented by Amess and Roberts (2004), Ghemawat and Kennedy (1999), Konings (2001), Siotis (2003). In general the researchers yielded a negative competition effect. Extending Ghemawat and Kennedy's⁴ (1999) work, Amess and Roberts (2004) examine the determinants of level and changes in concentration of Polish manufacturing industries during early years of transition. Employing GMM-IV method the authors conclude that FDI "leads to increased competition for domestic firms because investing firms own high technology and proprietary assets". Konings (2001) using firm-level panel data, investigates the implications of the FDI for the productivity performance of domestic firms in 3 emerging economies of CEEC. To deal with endogeneity of ownership and spillovers he applies fixed-effect model with instrumental variables. Konings (2001) yielded a negative competition effect that dominates a positive technology effect. Also there appears to be no support for the positive spillover effect to domestic firms. Siotis (2003) applying TSLS and GMM estimated sectoral markups in Spanish economy for the period 1983-1996 and found a huge drop in

⁴ Ghemawat and Kennedy (1999) looked at the implications of the competitive shocks for entry, concentration and foreign presence in manufacturing sector of Poland during early years of restructuring.

margins in industries which were the most exposed to international competition. These results seem to suggest that in developing economies FDI has potential negative implications for the industry concentration, competition and profitability of host country's market.

3. Econometric Methodology. In order to empirically specify the model building upon the model presented by Amess and Roberts (2004), Ghemawat and Kennedy (1999), Rutkowski (2006), let's start with the following model:

$$Y_i = f(T_i, S_i, G_i, F_i), \quad (1)$$

where Y_i is the measurement of concentration, S_i is the vector of strategic barriers, T_i is the vector of technological barriers to enter a market, G_i is the vector of variables representing government policy, F_i is the vector of variables related to international influences.

T_i as technological barriers to entry include:

$$T_i = f(PRELAS, CAPUTIL, MSIZE), \quad (2)$$

where *PRELAS* is price elasticity, *CAPUTIL* is capacity utilization, *MSIZE* is market size. Higher the price elasticity (*PRELAS*) of demand, lower the market power (*CONCENTR*) so that firms have less power of setting the price (above the marginal costs). *CAPUTIL* measures the level of utilization of facilities or manpower; it might have a positive effect on market concentration. Higher the market size (*MSIZE*), lower the concentration (*CONCENTR*) i.e. larger market can support more firms (Amess and Roberts, 2004).

S_i as strategic barriers to entry include:

$$S_i = f(INTASSETPCMARGIN), \quad (3)$$

where *INTASSET* stands for intangible non-physical assets (trademarks, R&D, patents) and *PCMARGIN* is a price-cost margin. A firm can invest in R&D so that it produces innovative goods or services which can be patented or licensed, which in turn allows to this differentiating incumbent firm to deter the entry for new entrant firms, as a result market concentration (*CONCENTR*) is higher. Price-cost margins (*PCMARGIN*) can affect market concentration either positively, or negatively. If an incumbent firm has a high price mark-up it can prevent new entrants into the market because it is costly to perform at such a market. One convention is that if price-cost margins are high, then the concentration will be high. On the other hand, high price-cost margins may attract new entrants leading to decline in market concentration.

G_i — government can control market concentration through legislation, import tariffs and quotas, fixing production output and prices:

$$G_i = GOVINFL_i, \quad (4)$$

where *GOVINFL_i* is government influence on market concentration. Often large-scale state-owned firms tend to be oriented to a domestic market and have lower export intensity which leads to higher market concentration.

F_i as international influences include the following:

$$F_i = f(EXP_i, IMP_i, FDI_i) \quad (5)$$

where EXP_i is export, IMP_i is import, FDI_i is foreign direct investment in country i . FDI of multinational enterprises tend to have advanced technology and production technique, established brand and organizational experience, all give competitive advantages compared to existing firms. Due to these capabilities MNEs can potentially change market concentration. Entered MNE can strengthen its market position and increase its share; therefore, small firms exit the market or merge.

Based on this model empirical specification is expressed as follows:

$$Y_i = \beta_0 + \beta_1 PRELAS + \beta_2 CAPUTIL + \beta_3 MSIZE + \beta_4 PCMARGIN + \beta_5 GOVINFL_i + \beta_6 EXP_i + \beta_7 IMP_i + \beta_8 FDI_i + \varepsilon_i, \quad (6)$$

where Y_i is market concentration (CONCENTR), PRELAS is price elasticity, CAPUTIL is capacity utilization, MSIZE is market size, PCMARGIN — price-cost margin, GOVINFL_{*i*} is government influence on market concentration, EXP_i is export, IMP_i is import, FDI_i is foreign direct investment in country i , ε_i is an error term capturing country-specific factors.

There is a possibility of two-way causality between foreign direct investment and concentration, and also between FDI and profitability, which can result in endogeneity. On one hand, a foreign entrant can affect the decision of an incumbent, on the other hand, competition intensity and price-cost margins can potentially impact entrant's decision to enter a market. Potential endogeneity in this study which may arise because of circular causality (as FDI can be attracted where concentration and profitability is high) will be controlled by employing business environment as an instrument which is supposed to be correlated with FDI, but must not explain by itself concentration or profitability. Number of instruments can be used to solve endogeneity, i.e. macroeconomic stability, competition policy in a given country (anti-competitive behaviour), public regulation, court system and law, security, taxes, bureaucratic burden and corruption, infrastructure (telecommunication, electricity, water etc.) — all can proxy foreign direct investment. The modeling framework adopted here is similar to that employed by Amess and Roberts (2004), Rutkowski (2006). Two-step method of moment's instrumental variables method will be employed to run the regression.

4. Data. This study provides some new contributions, first of which is an attempt to combine hard measures of foreign direct investment and soft data on the perception of managers. Intensity of competition does not always accurately represent the market concentration, because of the likelihood of imperfect information or prevailing short-term concerns of managers. As Sutcliffe and Huber (1998) found in the case of a particular industry managers' perceptions are homogeneous, i.e. general perception is of a uniform industrial conditions, however, it is heterogeneous in the case of different industries. Therefore, managers' perception would fit the objective measurement of market structure. In addition, this way of measuring provides more qualitative results since it is different from objective assessment or historical data. Second

novelty of this research would be an attempt to draw a general view of FDI impact in transition countries since it contains 26 CEEC and CIS economies as compared to the previous authors' single-country approach. This provides unbiasedness of country specificities.

The cross-country analysis is based on the data for 26 countries. All market characteristics used in this research except FDI indicator are drawn from the survey database compiled by the European Bank for Reconstruction and Development and the World Bank which was conducted in 2001 interviewing 6,500 enterprises in 26 transitional economies: 15 from CEE (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, FYR Macedonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia, Turkey) and 11 from the CIS (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine, Uzbekistan).

FDI_{*i*} is foreign direct investment in country *i*, i.e. inward foreign direct investment stock in 2000 is used in this study. It is drawn from the World Investment Directory of UNCTAD for 2000. General measure of the inward FDI stock in relation to the gross domestic product is used in this study. Log form is used to ensure a normal distribution.

Dependent variable Y_{*i*} concentration (CONCENTR) is a binary variable based on the responses to the question how many competitors does firm face in major product/service line at the domestic market. The answers can be grouped into 3 groups according to the grades that respondents gave: monopoly (if a firm does not face any competitor, high concentration, CONCENTR takes value 1), oligopoly (if a firm faces 1-4 competitors, high concentration, takes value 1), competitive market (if a firm faces more than 4 competitors, low concentration, value 0).

PRELAS is price elasticity, consumers' reaction to 10% change in the price for a main product or service. The respondents' answers can be grouped into 4 groups: PRELAS takes value 1 if demand remains the same; PRELAS takes value 2 if demand decreases slightly; PRELAS takes value 3 if demand decreases remarkably; PRELAS takes value 4 if customers buy from competitors instead.

CAPUTIL is capacity utilization, i.e. level of utilization of facilities or manpower. CAPUTIL represents current output compared to the maximum output possible using the firm's facilities and/or manpower at the time. If firm uses its facilities or manpower to the full, the answer is 100%; if output was 60% of capacity, the answer is 60%.

MSIZE is market size, represents the economy of scale. MSIZE is constructed as the response to the question how many full-time employees work in a company. MSIZE takes value 1 if the number of employed workers in the company is between 2 and 49; MSIZE takes value 2 if the number of employed workers in a company is between 50 and 249; MSIZE takes value 3 if the number of employed workers in a company is between 250 and 9999.

PCMARGIN is price-cost margin, representing profitability of a company and showing the level of gross profits in relation to the total sales (in %, 2001). PCMARGIN takes value 1 if profits are negative; PCMARGIN takes value 2 if a firm makes

no profits (zero profits); *PCMARGIN* takes value 3 if profits are between 1 and 10%; 4 — profits are between 11 and 20%; 5 — profits are between 21 and 30%; 6 — profits are between 31 and 40%, 7 — profits are more than 40%.

GOVINFL_i is government influence on market concentration; it shows ambiguous impact of state/ government. *GOVINFL* takes value 1 if the responding firm indicates its legal organization of its company as a state/municipal/district-owned enterprise or corporatized state-owned enterprise; and *GOVINFL* takes value 0 if the legal status of a company is one of the following: single proprietorship, partnership, cooperative, corporation, privately held, corporation listed on a stock exchange. Ownership type can influence concentration through profitability.

EXP_i is a share of non-domestic sales of a firm. Export is included in the model, because although *MSIZE* captures the impact of the scale of economies, it does not include employment in affiliates abroad. Therefore, export (*EXP*) can complement the market size (*MSIZE*). Variable import (*IMP*) controls the profitability impact of international trade and shows importance of competition from imports for the main product line at a domestic market. *IMP_i* is graded on the 7-point scale: from 1 (not important) to 7 (do not know; 6 — product is not imported, 5 — extremely important).

To control for endogeneity problem a group of variables which describes business environment in a country are chosen as following:

ACP is anti-competitive practices, it represents how effective is the work of authorities that regulate competition. Variable is graded on the 5-point scale: from 1 (no obstacles) to 5 (don't know; 4 — major obstacles).

CRT1 is a court system; *LBRREG* is a burdensomeness of labor regulations. These two instrumental variables can proxy FDI, i.e. if these two systems work efficiently, then there is a higher likelihood that investor puts in its investments. *CRT1* represents how often court system is fair and impartial in resolving business disputes. *CRT2* can be also useful in explaining FDI; it shows how often court system is able to enforce its decisions when resolving business disputes. Both *CRT* variables are graded by 7 points (1 — never, 7 — do not know; 6 — always). *LBRREG* represents how problematic is labor regulations factor for operations and growth of business. The variable is graded on the 5-point scale: from 1 (no obstacles) to 5 (don't know; 4 — major obstacles).

TELECOM is telecommunications system, in particular, the number of days when mainline telephone service was unavailable. Variable takes numeric values (days in a year).

SCRT is a dummy variable for security, if a firm pays protection payments, then *SCRT* takes value 1, otherwise 0.

POTIME is time that senior management spends dealing with public officials about laws application or interpretation and access to public services (%).

TRINTENS is trade intensity, which is an average of export *EXP* (share of non-domestic sales, in %) and import *IMP* (observed importance of competition from imports for the main product line at a domestic market). The variable represents the level of tradability of certain goods at a market.

Summing up, these are the instruments which potentially characterize the business environment: anti-competitive practices *ACP*, court system *CRT1*, *CRT2*, labor regulations *LBRREG*, telecommunication system *TELECOM*, security *SCRT*, time that senior management spends dealing with public officials about the law application or interpretation *POTIME*, trade intensity *TRINTENS*. However, we will keep our attention on the instruments which are best proxies for FDI, so we will be left only with the instrumental variables which are strongly correlated with FDI (with significance below 0.01) and with those which are correlated with more than one variable are left out (to prevent collinearity of the instruments).

5. Empirical Results. Hausman endogeneity test conducted in order to define whether it is better to estimate the model using ordinary least squares (OLS) or instrumental variables method (IV) suggests that the consistency of the OLS should be rejected and 2SLS has to be used instead. However, the postestimation Durbin-Wu-Hausman test which uses augmented regressors and produces a robust test statistics provides evidence that the foreign direct investment variable is endogenous. Testing the relevance of the instruments, performed on the basis of Shea, Anderson, Cragg and Donald's approaches, suggests that the instruments are relevant.

Evaluating the correlation degree between the instruments and endogenous regressor it appears that the anticompetitive practices *ACP*, fairness of court system *CRT1*, labour regulations *LBRREG*, time that senior management spends dealing with public officials *POTIME* are not correlated with FDI and only court system's decision enforcement *CRT2*, telecommunication system *TELECOM*, security *SCRT* passes the test of instrument correlation with the regressor. Nevertheless, the next stage — instrumental variables (2SLS) regression — shows that endogenous regressor FDI has an IV coefficient which is well distinguished from zero and conditioning on other factors FDI appears to play an important role in determining the market concentration *CONCENTR* (Table 1).

Table 1. Instrumental Variables (2SLS) regression (author's own estimations)
First-stage regressions

Source	SS	df	MS		Number of obs	=	4448
					F(14, 4433)	=	19.31
Model	19.1461464	14	1.36758189		Prob > F	=	0.0000
Residual	313.90722	4433	.070811464		R-squared	=	0.0575
					Adj R-squared	=	0.0545
Total	333.053366	4447	.074893943		Root MSE	=	.2661
	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]		
lnfdi							
prelast	.0267659	.0036696	7.29	0.000	.0195717		.0339601
caputil	.0011017	.0002005	5.49	0.000	.0007086		.0014948
msize	.0050166	.0060471	0.83	0.407	-.0068386		.0168719
pcmargin	-.0194079	.0035793	-5.42	0.000	-.026425		-.0123907
govinfl	.0147882	.0124291	1.19	0.234	-.0095791		.0391556
exp	.0220782	.018308	1.21	0.228	-.0138147		.0579711
imp	.0118181	.0026565	4.45	0.000	.0066102		.0170261

The End of Table 1

Source	SS	df	MS	Number of obs = 4448			
acp	-.0056072	.0039169	-1.43	0.152		-.0132863	.0020719
crt1	.0026004	.0032222	0.81	0.420		-.0037166	.0089175
crt2	-.0252838	.0030035	-8.42	0.000		-.0311722	-.0193954
lbrreg	-.0081829	.0044792	-1.83	0.068		-.0169644	.0005987
telecom	-.0005305	.0001275	-4.16	0.000		-.0007805	-.0002805
scrt	.0485697	.010949	4.44	0.000		.0271041	.0700353
potime	-.0004888	.00035	-1.40	0.163		-.0011749	.0001972
trintens	(omitted)						
_cons	1.214077	.0296792	40.91	0.000		1.155891	1.272263
Instrumental variables (2SLS) regression							
	SS	df	MS	Number of obs = 4448			
Source				F(8, 4439) = 51.28			
Model	67.4242939	8	8.42803674	Prob > F = 0.0000			
Residual	740.143152	4439	.166736461	R-squared = 0.0835			
				Adj R-squared = 0.0818			
Total	807.567446	4447	.181598256	Root MSE = .40833			
	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]		
concentr							
lnfdi	-.1249267	.1387812	-0.90	0.368	[-.3970071, .1471536]		
prelast	.0525379	.0067064	7.83	0.000	[.0393899, .0656859]		
caputil	-.0005861	.0003464	-1.69	0.091	[-.0012653, .0000931]		
msize	-.0563546	.0091929	-6.13	0.000	[-.0743774, -.0383319]		
pcmargin	-.0061265	.0062629	-0.98	0.328	[-.0184049, .0061518]		
govinfl	-.1816588	.018955	-9.58	0.000	[-.21882, -.1444975]		
exp	-.1732356	.0281266	-6.16	0.000	[-.2283776, -.1180935]		
imp	-.0150549	.0043898	-3.43	0.001	[-.0236612, -.0064487]		
_cons	3.070613	.1601368	19.17	0.000	[2.756665, 3.384561]		
	lnfdi						
Instrumented:							
Instruments:	prelast caputil msize pcmargin govinfl exp imp acp crt1 crt2						
	lbrreg telecom scrt potime trintens						

Summing up, IV is more appropriate in comparison with OLS according to Hausman endogeneity test due to the endogeneity problem, however there is a possibility of loss in precision. Postestimation DWH test suggests that FDI should be treated as an endogenous variable. Testing the relevance of instruments suggests that the instruments are adequate to identify the equation. Although evaluating the correlation degree between the instruments and endogenous regressor shows that the anti-competitive practices ACP, fairness of court system CRT1, labour regulations LBR-REG, time that senior management spends dealing with public officials POTIME is not correlated with the foreign direct investments and only court system's decision enforcement CRT2, telecommunication system TELECOM, security SCRT passes the test of instrument correlation with regressor. Nevertheless, the next stage — instrumental variables (2SLS) regression — shows that endogenous regressor FDI has an IV coefficient which is well distinguished from zero and conditioning on other factors FDI appears to play an important role in determining the host country's market

concentration. Test of overidentifying restrictions suggests that the instruments are valid at the 1% level. There is no problem with heteroscedasticity in the disturbance term of the model according to Pagan and Hall test.

6. Conclusion. The results of key specification tests show that the p-value associated with the null hypothesis that the instruments affect concentration through their effects on foreign direct investment is equal to $p = 0.0000$ (Sargan (score) $\chi^2(2) = 49.789$). The test passes the test at the 1% critical value level which indicates that the instruments are well identified. Thus, the tests of overidentifying restrictions do pass and foreign direct investment can play influential role for market concentration.

Summarizing the strength of the instruments it was observed that the F-statistics from the first-stage regressions of FDI indicator on the instruments is significant ($F(14, 4433) = 19.44$) which means that the instruments have explanatory power for foreign direct investments. In summary, the specification tests suggest that the IV estimator is producing consistent estimates of β and captures the causal effect from FDI to market concentration.

The results obtained in this study are consistent with the empirical findings of Amess and Roberts (2004), Konings (2001) who found large and highly significant negative effects of FDI on concentration. 1% change of FDI leads to 12.50% (21.51% in the case of GMM method) decrease in concentration. This result suggests that foreign direct investment (multinational enterprises) tend to have increased competition at a market despite advanced technologies and production techniques, established brand and organizational experience, which all give competitive advantages compare to existing firms. Although spillover and technology effect was not considered specifically in this study it can be clearly seen that MNEs encourage existing firms by increasing competition and decreasing concentration. In addition, 1% change in price-cost margins leads to 6.71% decrease in concentration which supports the theory that high price-cost margins may attract new entrants which can lead to the decline in market concentration. These results are not at odd with Amess and Roberts (2004), Konings (2001), Siotis (2003) results who studied FDI impact in developing economies. Amess and Roberts (2004) studying concentration of Polish manufacturing during early years of transition concluded that FDI "leads to increased competition for domestic firms because investing firms own high technology and proprietary assets". Konings (2001) using firm-level panel data, investigated the implications of FDI for productivity performance of domestic firms in 3 emerging economies of CEEC. To deal with endogeneity of ownership and spillovers he applies fixed-effect model with instrumental variables. Konings (2001) yielded a negative competition effect that dominates a positive technology effect. Also there appears to be no support for the positive spillover effect to domestic firms. Siotis (2003) applying TSLS and GMM estimated sectoral markups in Spanish economy for the period 1983-1996 and found a huge drop in margins in industries which were the most exposed to international competition. These results seem to suggest that in developing economies FDI has potential negative implications for industry concentration, competition and profitability of a host country's market.

This research improved in identifying endogeneity between FDI and concentration as opposed to Jordaan (2005) who also found no support for positive externali-

ties from FDI (in Mexico) but who did not control for FDI which appeared to be endogenous to the model.

The research could be further developed by assessing the effect of FDI looking at the set of developed countries, then separating the effect of FDI into greenfield and acquisition investments. Alternatively causal effect running in the opposite direction from concentration to FDI would be interesting to investigate.

FDI as measured by inward FDI stock (of GDP) in the specified model plays important role for industry outcome. The evidence for a negative causal relationship of FDI and concentration has been provided in the research.

Nevertheless, this study is limited in terms of strategic motives and entry modes, i.e. either market or efficiency seeking character of entering MNEs or deterring/accomodating modes of entry are not specified in the model.

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