Statistical-Based Insights in Spence's Theory of Honest Signaling

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ABSTRACT

Since Michael Spence revealed the secrets of (dis)honest signalling on labour market, an increasing body of literature in various fields struggled to find the best way to solve the game under imperfect information that describes the interaction between the employer and the employee. Despite the value of the signal originally acknowledged by Spence, the university degree, a recent trend of increasing in unemployment rate among graduates of higher education suggests that between higher education and labour market may be a less significant connection than universities claim, potentially resulting in a decreasing power of the signal consisting of an university diploma.

The aim of this study is to provide statistical evidence of the connection between higher education and labour market in Romania and to discuss some of the factors that potentially cause young people to choose a particular study program. Based on statistical analysis, we investigate the gap between the number of graduates in Law and the labour market capacity in the field, and draw conclusions regarding the accuracy of the mechanism that leads to equilibrium between supply and demand on the university market.

Keywords*: signaling theory, law path, labour market;*

INTRODUCTION

Since Michael Spence revealed the secrets of (dis)honest signalling on labour market, an increasing body of literature in various fields struggled to find the best way to solve the game under imperfect information that describes the interaction between the employer and the employee. Despite the value of the signal originally acknowledged by Spence, the university degree, a recent trend of increasing in unemployment rate among graduates of higher education suggests that between higher education and labour market may be a less significant connection than universities claim, potentially resulting in a decreasing power of the signal consisting of an university diploma. Considering that the number of graduates tripled from 1998 until 2012 (according with Eurostat in Romania in 1998 were 67799 graduates and in 2012 were 200106 graduates), a legitimate question about value the Romanian employers assign to a university diploma seems to arise.

In this study we will focus on the particularities of a career in Law: a Law graduates can either start working as a legal consultant (in which case the university

diploma is supposed to be enough for them to get hired, at least in theory) or pass an extra exam in order to eventually practice as lawyers, judges, notaries et.al., as member in the Romanian Bar, Romanian NIM or Romanian Notary. In the first choice case, only in 2012 there were 12521 graduates in Law who competed for the attention of an employer and many of them went for extra specialization in an attempt to strength the signal of their productivity and competencies. In the second choice case, the rejection rate of the applicants for the Romanian Bar, Romanian NIM or Romanian Notary is around 90% (data analysed for the last 4 years) which seemingly provides a strict selection of the future professionals in Law. Despite the strictness of this selection, the number of lawyers in Romania seems to be considerably high by comparing to the demand for this profession which leads to an increasingly need for extra specialization in this category, as well. In 2014 in Romania were around 23332 lawyers. This means that it will take years, in which the acceptance rate of law graduates admitted in the Romanian Bar should be the same as the last years, in order to diminish this gap.

The aim of this study is therefore to provide statistical evidence of the connection between higher education and labor market in Romania for Law professionals and to discuss some of the factors that potentially cause young people to choose this particular study program. Based on statistical analysis, we investigate the gap between the number of graduates in Law and the labor market capacity in the field, and draw conclusions regarding the accuracy of the mechanism that leads to equilibrium between supply and demand on this particular segment of the university market.

LITERATURE REVIEW

The signal transmitted on the labour market regarding education and knowledge plays an important role in the decisional process of the employers. The signalling theory was studied for the first time by the economist Michael Spence in his study *"Job Market Signalling"*. Spence's focus, in his writing mentioned above, was observing and analyzing the labour market where the employer is not aware of the real abilities and knowledge of the possible employees when he takes the decision to hire or not a person. What Spence points out is that the "truth" does not come to light right away after the hiring and that the employer makes an investment decision – he resembles the process of hiring someone to a lottery[1].

Passing the Bar/ NIM/ Notary exam represents a strong signal for the future employers (law firms, notary offices) due to the difficulty of the exam. One of the advantages for the law graduates that pass the Bar/ NIM/ Notary exam is that they receive higher earnings than the law graduates that choose to be a consultant in law. Same thing happens in other countries too. R. Frier et. al. present in their article "*The Earnings Returns to Graduating with Honors: Evidence from Law Graduates*" the path followed by the law graduates in Germany. Their findings suggest strong signalling effects of obtaining a honors degree for future labour earnings. They found that students of law who passed the state bar exam with a honors degree receive a sizeable and significant

1. Spence M. , *Job Market Signaling*, The Quarterly Journal of Economics, Vol. 87, No. 3 (Aug., 1973), p. 356

earnings premium of about 14 percent.[1] At the same conclusion arise A. Chevalier et al. in their writing "*Does education raise productivity, or just reflect it?"* in which emphasize that employers, believing that education is correlated with productivity, will screen their employees and pay higher wages to more educated workers.[2]

Another interesting aspect that R. Frier et. al. pointed out is that most graduates have highly educated parents with 49 percent of all fathers of law graduates having obtained a university entrance qualification.[3] We can conclude that an important aspect for the tertiary education graduates is the education of the parents. With regards to Romania, it is well known that the law path is often associated with one of the "*father to son career"*. It is much easier for the teenagers to use the "name" of their father in order to create a good reputation.

The difficulty of the Bar/ NIM/ Notary exam is not the same every year. This is reflected in the number of candidates enrolled at the Bar/ NIM/ Notary exam. In 2014 the number of candidates enrolled at the Bar exam was almost double compared to 2011 (4474 candidates compared to 2743 candidates).One of the reasons for this was that the methodology of the exam changed in 2014, being considered much easier by the candidates. M. Pagliero pointed out in his writing "*What is the Objective of Professional Licensing? Evidence from the US Market for Lawyers*" that the exam difficulty increases in periods of low demand and when the number of candidates and their quality increases. In addition, states with more and better candidates have more difficult examinations, other variables being equal. This implies that licensing boards do not set absolute standards. Rather, minimum standards depend on market conditions.[4] In the past years the Bar exam was held by the local Bar instead of being organised nationwide. This lead to discrepancies – the Bucharest Bar being the most prestigious one in all the country had the most difficult exam with the lowest percentage of admission. The discrepancies between the percentage of admission for each Bar lead to the adoption of the exam at national level.

DATA

The variables selected to be included in the analysis and to represent the influence for our purpose are: the population, the number of students at Law, the Law graduates, the number of candidates enrolled at the Bar admission exam, the number of candidates that passed the Bar exam, the number of lawyers, the number of candidates enrolled at the NIM admission exam, the number of candidates that passed the NIM exam, the number of judges and the number of cases on court. The data was collected from Eurostat, National Institute of Statistics, National Institute of

1. R. Frier, M. Schumann, T. Siedler, *The Earnings Returns to Graduating with Honors: Evidence from Law Graduates*, The Institute for Study of Labor (IZA) in Bonn, Discussion Paper No. 8825, January 2015, p. 4

2. Chevalier A., Harmon C., Walker I., *Does education raise productivity, or just reflect it?,* Version 1.01 14 November 2002, p. 1 http://cep.lse.ac.uk/events/conferences/cee/walker.pdf

3. R. Frier, M. Schumann, T. Siedler, *op. cit*., p. 9

4. M. Pagliero, What is the Objective of Professional Licensing? Evidence from the US Market for Lawyers, p. 3

Magistracy and others specific sites for this domain. For the mentioned indices there were included all the available data.

The number of Law graduates – in our opinion this variable is the most representative one for this study. A part of these Law graduates are included in the other indices. A part of the Law graduates are included in the candidates enrolled at the Bar/ NIM exam. In other words, this variable represents the starting point for the analysis part. The number of Law graduates follows the same path as the number of graduates (at total level - not divided by a specialization), having a more accelerated increase. According to the National Institute of Statistics, the number of Law graduates was in 2011 around ten times higher than it was in 1992 (19215 compared to 1898).

The number of candidates enrolled at the Bar admission exam – the statistical data is available starting with 2011, due to the fact that until 2011 the organization, the choice of the exam topics and the candidates grading was incumbent on each Bar, fact that resulted on several occasions with entirely different topics for the admission to the same legal profession. This choice for the Bar admission examination generated discrepancies in the final number of candidates admitted to the Bar, as a consequence of the different level of difficulty.

The number of candidates that passed the Bar exam – we can conclude by taking into account the available period that this index has significant smaller values than the index "Number of candidates enrolled at the Bar admission exam". This index is not influenced by the evolution of the number of Law graduates even if the number of Law graduates is increasing year by year. Is not representative to see what percent of people passed the Bar exam from the total number of Law graduates due to the fact that there are a lot of people that are enrolled at this exam for the 2nd time, 3rd time and so on. The highest value for this index was registered in 2013 – around 768 people passed the Bar exam (around 25% of the candidates enrolled passed the exam). We can conclude that this is a good fact – the Bar exam screens the candidates and only the best of them manage to become lawyers. Considering this, the problem that arise here is what path will follow the candidates that do not pass the Bar exam. Same thing happens for the candidates that do not pass the NIM exam, the Notary exam et. al.

The number of lawyers/ judges – if we analyze the index on the long term we can conclude that the "Number of judges" (only for this index we have a long period of data available) tripled in 2013 compared to 1990 (4466 judges compared to 1513 judges). But if we analyze the indices for a short period of time (for the last 4-5 years) the evolution is kind of stable with small deviations.

The number of cases on court – this index has an increasing trend but it is not sufficient to conclude this by analyzing this index without any other index in parallel. If we look at the population in Romania, we can observe that this index has a decreasing trend. We tend to affirm that the number of cases in court increases due to the increasing of the number of illegal actions. In the absence of the data, we can justify this increase by the fact that the people are much more informed and aware of all the procedures they have to do.

METHODOLOGY

We cannot conclude that the law labour market is saturated only by analyzing the trend of the young people that are admitted at the Bar exam, NIM exam, Notary exam. The population (how many people are incumbent to a lawyer or a judge) or the number of cases presented in the instance may be relevant when drawing the conclusion regarding the law labour market. In the next section we will analyze the relationship between "Number of cases in court" and "Number of judges" and the relationship between "Number of cases in court" and "Population" in Romania using the Engle-Granger method. After that we will develop an ECM (error correction model).

The general equation for the first analysis is:

$$\mathbf{NR}_{\mathbf{OF}_{\mathbf{JUDGES}}} = \mathbf{a} + \mathbf{b} * \mathbf{NR}_{\mathbf{OF}_{\mathbf{CASES}_{\mathbf{IN}_{\mathbf{COURT}}}}} + \varepsilon_t$$

And the equation for the second part of the analysis is:

$$\mathbf{NR}_{\mathbf{OF}_{\mathbf{CASES}_{\mathbf{IN}_{\mathbf{COURT}}}}} = \mathbf{a} + b * \mathbf{POPULATION} + \varepsilon_t$$

The Engle-Granger methodology is a method for testing the cointegration of two time series. Cointegration has become an important property in contemporary time series analysis for the following reasons. Time series often have trends - either deterministic or stochastic. The R2 statistic used in assessing adequacy of regressions gives substantially misleading results for time series with trends. If two or more series are individually integrated (in the time series sense) but some linear combination of them has a lower order of integration, then the series are said to be cointegrated. [1]

An error correction model is a dynamical system with the characteristics that the deviation of the current state from its long-run relationship will be fed into its short-run dynamics.

An error correction model is not a model that corrects the error in another model. Error Correction Models (ECMs) are a category of multiple time series models that directly estimate the speed at which a dependent variable—Y—returns to equilibrium after a change in an independent variable—X. ECMs are a theoretically-driven approach useful for estimating both short-term and long-term effects of one time series on another. Thus, they often mesh well with our theories of political and social processes. ECMs are useful models when dealing with cointegrated data, but can also be used with stationary data.[2]

1. http://en.wikipedia.org/wiki/Cointegration

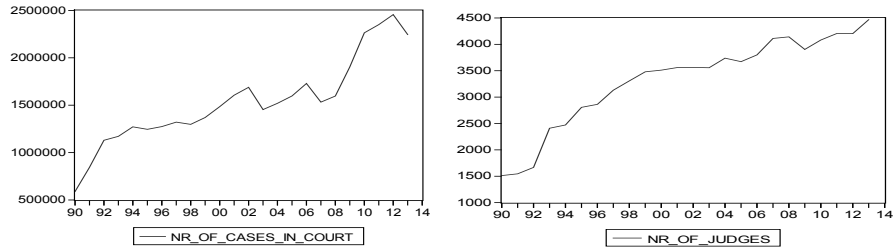
2._ http://en.wikipedia.org/wiki/Error_correction_model

ANALYSIS PART

Engle-Granger causality between "Number of cases in court" and "Number of judges"

The evolution of the number of cases in court and number of judges

Figure 1



From the picture above we can observe that between the two series of data (number of cases on court and number of judges) there is a direct connection.

In order to determine the existence of a cointegration relationship between the two series of data, we will follow the steps of the Engle-Granger methodology. To determine the order of integration we will apply the ADF test for both series. Due to the fact that the probability prob. has the value of 0.2731 we accept the null hypothesis – the series is not stationary. If we apply the ADF test for the 1st difference for the series "Number of judges" we can notice that the series is stationary (prob.=0.0007<0.05). In conclusion, the series "Number of judges" is integrated type 1 - I(1). Same thing happens with "Number of cases in court" – the series is integrated type 1 (prob.=0.0221<0.05).

ADF test for number of judges and for number of cases in court (1st difference)

Figure 2

Null Hypothesis: D(NR_OF_CASES_IN_COURT) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.403017	0.0221
Test critical values:	1% level	-3.769597	
	5% level	-3.004861	
	10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(NR_OF_JUDGES) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.939517	0.0007
Test critical values:	1% level	-3.769597	
	5% level	-3.004861	
	10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

The estimation of the linear regression

From the table below, in which we can find the results of the equation of regression between the two indicators, we can observe that both of the estimated coefficients are statistically significant and that the model is valid (the probabilities having a lower value than the level of significance of 5%). If we take a look at the coefficient of determination, we can notice that between the two indices we have a strong relationship. Around 73% of the variation of the "Number of judges" is directly influenced by the variation of the variable "Number of cases on court".

According to the Engle-Granger methodology, if both variables are integrated of the same order (in our case I(1)), the estimators for $\hat{a}\hat{a}_0$ and $\hat{a}\hat{a}_1$ are super consistent even if the errors are correlated.

The regression output

Figure 3

Dependent Variable: NR_OF_JUDGES
Method: Least Squares
Date: 03/21/15 Time: 16:10
Sample (adjusted): 1990 2013
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NR_OF_CASES_IN_COURT	0.001619	0.000208	7.801608	0.0000
C	828.5564	332.6371	2.490872	0.0208

R-squared	0.734508	Mean dependent var	3321.042
Adjusted R-squared	0.722440	S.D. dependent var	861.2193
S.E. of regression	453.7241	Akaike info criterion	15.15251
Sum squared resid	4529043.	Schwarz criterion	15.25068
Log likelihood	-179.8301	F-statistic	60.86508
Durbin-Watson stat	0.597864	Prob(F-statistic)	0.000000

ADF test for residuals (level)

Figure 4

Null Hypothesis: RES has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.411070	0.0003
Test critical values:	1% level	-3.788030	
	5% level	-3.012363	
	10% level	-2.646119	

*MacKinnon (1996) one-sided p-values.

In order to establish the order of integration for the residuals we will apply the ADF test. The residuals series is stationary due to the fact that prob.=0.0003<0.05. Due to the fact that the residuals are integrated type I(0), a smaller grade than the

two series studied, we can affirm that the two series are co-integrated. The estimated equation of the relation of cointegration is:

$$NR_{OF_{JUDGES}} = 828.5564 + 4.618565 * NR_{OF_{CASES_{IN_{COURT}}}} + \varepsilon_t ,$$

And the relationship of equilibrium is:

$$NR_{OF_{JUDGES}} = 828.5564 + 4.618565 * NR_{OF_{CASES_{IN_{COURT}}}}$$

We can conclude that with an increase of 1000 units of the series "number of cases on court" the series "number of judges" will increase in average with 1.619 units, between the two series being a direct relationship.

Developing an ECM model for the "Number of judges" and "Number of cases in court" time series

As we demonstrated above that the two series are cointegrated and they are evolving together on long- term. The long-term equilibrium can be sometimes "bothered" by some random shocks producing an imbalance. In order to describe the short-term relationship between the two series, we will apply an error correction model (ECM). The error of equilibrium is used to link the relationship between the short-term behaviour and long-term behaviour.

In the table below is estimated the model of error correction model. The probability associated to the residuals is smaller than the p value, so we can admit that the model is valid. The relationship between the two series for the error correction model is:

$$D\left(NR_{OF_{JUDGES}}\right) = 149.0560 - 0.000403 * D\left(NR_{OF_{CASES_{IN_{COURT}}}}\right) - 0.328465$$

Equation output

Figure 5

Dependent Variable: D(NR_OF_JUDGES)
Method: Least Squares
Date: 03/22/15 Time: 11:58
Sample (adjusted): 1993 2013
Included observations: 21 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	149.0560	38.61942	3.859612	0.0011
D(NR_OF_CASES_IN_COURT)	-0.000403	0.000258	-1.559709	0.1362
RES(-1)	-0.328465	0.123598	-2.657526	0.0160

R-squared	0.353867	Mean dependent var	133.2857
Adjusted R-squared	0.282074	S.D. dependent var	194.7206
S.E. of regression	164.9877	Akaike info criterion	13.18118
Sum squared resid	489977.2	Schwarz criterion	13.33040
Log likelihood	-135.4024	F-statistic	4.929016
Durbin-Watson stat	1.614781	Prob(F-statistic)	0.019629

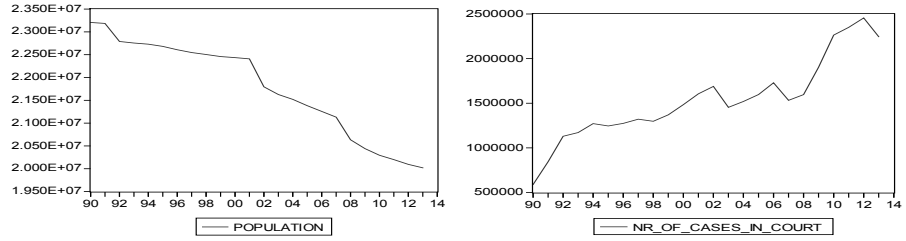
The residual coefficient of the cointegration equation is α=-0.328 is negative and significant and it confirm us the mechanism of establishing the equilibrium between the number of judges and the number of cases on court. The number of judges is adjusted plus or minus, depends on the imbalance in the previous period in the

cointegration equation. The variable "Number of judges" is an endogenous variable and the variable "Number of cases on court" is an exogenous variable. The coefficient of adjustment **α=-0.328**indicates that 0.328% of the deviation of the number of judges will be corrected in the next year.

Engle-Granger causality between "Number of cases in court" and "Population"

The evolution of the number of cases in court and population

Figure 6



From the above picture we can observe that between the two series of data (population and number of judges) there is an indirect connection. As we proceeded above, we will follow the steps of the Engle-Granger methodology. For the time series "Number of cases on court" we already know that this series is integrated type I(1). Same thing happens with "Population" – the series in integrated of type 1 (prob.=0.0017<0.05).

ADF test for population (1st difference)

Figure 7

Null Hypothesis: D(POPULATION) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.558888	0.0017
Test critical values:	1% level	-3.769597	
	5% level	-3.004861	
	10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

The estimation of the linear regression

From the below table, in which we can find the results of the equation of regression between the two indicators, we can observe that both of estimated coefficients are statistically significant and that the model is valid (the probabilities being small than the level of significance of 5%). If we take a look at the coefficient of determination, we can notice that between the two indices we have a strong relationship – around 83% of the variation of the "Number of cases in court" can be explained by the variation of the variable "Population".

The regression output

Figure 8

Dependent Variable: NR_OF_CASES_IN_COURT
Method: Least Squares
Date: 03/23/15 Time: 07:40
Sample (adjusted): 1990 2013
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10163979	817325.5	12.43566	0.0000
POPULATION	-0.395998	0.037486	-10.56400	0.0000

R-squared	0.835327	Mean dependent var	1539391.
Adjusted R-squared	0.827842	S.D. dependent var	455856.7
S.E. of regression	189143.8	Akaike info criterion	27.21806
Sum squared resid	7.87E+11	Schwarz criterion	27.31623
Log likelihood	-324.6167	F-statistic	111.5981
Durbin-Watson stat	0.669718	Prob(F-statistic)	0.000000

ADF test for residuals (level)

Figure 9

Null Hypothesis: RES2 has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.261501	0.0297
Test critical values:	1% level	-3.769597	
	5% level	-3.004861	
	10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

The residuals series shows is stationary due to the fact that prob.=0.0297<0.05. Due to the fact that the residuals are integrated type I(0), a smaller grade than the two series studied, we can affirm that the two series are co-integrated.
The estimated equation of the relation of co-integration is:

$$NR_{OF_{CASES_{IN_{COURT}}}} = 10163979 - 0.395998 * POPULATION + \varepsilon_t$$

And the relationship of equilibrium is:

$$NR_{OF_{CASES_{IN_{COURT}}}} = 10163979 - 0.395998 * POPULATION$$

We can conclude that at the decrease with 100 units of the population the number of cases on court will increase in average with 39.5998 units, between the two series being an indirect relationship.

Developing an ECM model for the "Number of cases in court" and "Population" time series

As we demonstrated above that the two series are cointegrated and they are evolving together on long- term. We will follow the same steps as we did for the previous model. In the table below is estimated the model of error correction model. The probability associated to the residuals is smaller than the p value, so we can admit that the model is valid. The relationship between the two series for the error correction model is:

$$D\left(NR_{OF_{JUNR_{OF_{CASES_{IN_{COURT}}}}}}\right) = 57664.25 - 0.102109 * D(POPULATION) - 0.444446$$

Equation output

Figure 10

Dependent Variable: D(NR_OF_CASES_IN_COURT)
Method: Least Squares
Date: 03/23/15 Time: 07:57
Sample (adjusted): 1991 2013
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	57664.25	36288.42	1.589054	0.1277
D(POPULATION)	-0.102109	0.176694	-0.577886	0.5698
RES2(-1)	-0.444446	0.145146	-3.062053	0.0062

R-squared	0.333025	Mean dependent var	71994.43
Adjusted R-squared	0.266328	S.D. dependent var	149999.9
S.E. of regression	128481.9	Akaike info criterion	26.48607
Sum squared resid	3.30E+11	Schwarz criterion	26.63418
Log likelihood	-301.5898	F-statistic	4.993075
Durbin-Watson stat	1.479728	Prob(F-statistic)	0.017422

The residual coefficient of the cointegration equation is α=-0.444 is negative and significant and it confirm us the mechanism of establishing the equilibrium between the number of judges and the number of cases on court. The number of cases in court is adjusted plus or minus, depends on the imbalance in the previous period in the cointegration equation. The variable "Number of cases in court" is an endogenous variable and the variable "Population" is an exogenous variable. The coefficient of adjustment **α=-0.444** indicates that 0.444% of the deviation of the number of cases in court will be corrected in the next year.

CONCLUSIONS

We may say that there are a lot of factors that cause the law graduates to enroll at the Bar/ NIM/ Notary exam. Even if the number of law graduates has an ascending trend, the acceptance rate for the Bar/ NIM/ Notary et. al. exams is very small (around 10% of candidates pass the exam) – fact that lead us to conclude that these exams imply a strong screening process. Due to the absence of data for a long period for the lawyers, we analyzed the law system by referring to the judges. Even if the difficulty of these exams is very high, there are a lot of candidates that are trying to pass these exams many times until they finally pass. One of the reasons for this fact can be the prestige of these professions and also the high level of wages compared to the wages of a simple law consultant.

After analyzing the data we can conclude that between the number of judges and the number of cases in court there is a positive relationship and that these two time series are evolving together on long-term. The coefficient of adjustment **α=-0.328** indicates that 0.328% of the deviation of the number of judges will be corrected in the next year, depends on the imbalance in the previous period in the cointegration equation. In the second part of the analysis, we found out that between the number of cases in court and the population there is a negative relationship. The coefficient of adjustment **α=-0.444** indicates that 0.444% of the deviation of the number of cases in court will be corrected in the next year, depends on the imbalance in the previous period in the cointegration equation. We are inclined to affirm that the number of cases in court increases due to the increasing of the number of illegal actions. In the absence of the data, we can accredit this increase to the fact that people are much more informed and aware of all the procedures that they have to do.

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References

1. M. Spence , Job Market Signaling, The Quarterly Journal of Economics, Vol. 87, No. 3 (Aug., 1973)
2. R. Frier, M. Schumann, T. Siedler, The Earnings Returns to Graduating with Honors: Evidence from Law Graduates, The Institute for Study of Labor (IZA) in Bonn, Discussion Paper No. 8825, January 2015
3. A. Chevalier, C. Harmon, I. Walker, Does education raise productivity, or just reflect it?, Version 1.01 14 November 2002
4. M. Pagliero, What is the Objective of Professional Licensing? Evidence from the US Market for Lawyers, 2005
5. (http://www.fep.up.pt/conferences/earie2005/cd_rom/Session%20II/II.G/Pagliero.pdf)
6. L. C. Levin, C. Zozula, P. Siegelman, A Study of the Relationship Between Bar Admissions Data and Subsequent Lawyer Discipline, Law School Admission Council Grants Report 13-01 March 2013

7. E. Yamamura, The Effect of Learning Varies According to Locality: Micro Data Analysis of the Lawyer Market in Japan, MPRA Paper No. 16338, July 2009
8. (http://mpra.ub.uni-muenchen.de/16338/)
9. P. Oyer, S. Schaefer, American BigLaw Lawyers and the Schools that Produce Them: A Profile and Rankings, November 2010
10. (https://faculty-gsb.stanford.edu/oyer/wp/rankings.pdf)
11. P. Oyer, S. Schaefer, FIRM/EMPLOYEE MATCHING: AN INDUSTRY STUDY OF AMERICAN LAWYERS, NBER Working Paper No. 18620, December 2012 (http://www.nber.org/papers/w18620)
12. V. Botis et. al., Invatamantul superior juridic din Romania, 2006
13. (http://www.criminologie.ro/SRCC/Lang/Romana/Study/Starea%20actuala%20a%20invatamantului%20juridic%20in%20Romania.pdf)
14. http://en.wikipedia.org/wiki/Demographics_of_Romania
15. www.insse.ro
16. http://data.un.org/Data.aspx?d=POP&f=tableCode%3A22
17. http://www.ccbe.eu/index.php?id=29
18. http://www.coe.int/t/dghl/cooperation/cepej/evaluation/2014/Rapport_2014_en.pdf
19. http://ec.europa.eu/eurostat
20. http://stats.oecd.org/Index.aspx?DatasetCode=RGRADSTY#
21. http://www.inm-lex.ro/displaypage.php?p=66&d=819