Analysis and Forecast GDP of Romania during 1995-2014

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Abstract: Analysis carried out on macro-regions and counties reveals a disproportionate development of areas of Romania, with growth rates of GDP high in Bucharest-Ilfov, but and Gorj, Arad and Timis and very low, even negative in the nearby counties of Arges, Giurgiu Prahova and Teleorman indicating many weaknesses of the Romanian economy. Counties with a high agricultural potential such as Giurgiu Teleorman fail to transform this geographical advantage into an economic one, and some with great tourism potential: Prahova and Arges contribute not expected to raise living standards. The preferential allocation of budgetary funds for infrastructure development led to counties Transylvanian record, mostly, growth rates healthy, while the counties of Moldavia, Muntenia and Oltenia by SOUTH struggle somewhere to limit growth or worse, recorded negative rates.

Keywords: GDP; Production; region; county

JEL Classification: F37

1. Introduction

Gross Domestic Product (GDP) represents the gross value added of the final output of goods and services produced in a given period of time, usually one year, by domestic and foreign businesses in the country. (Ioan & Ioan, 2017)

The Gross Domestic Product can be determined by three methods which result, at least in theory, the same result, potential differences can result from the use of different data sources.

Production method is the final output of goods and services valued at basic prices. GVA or GDP expressed in factor prices (basic prices) is calculated as the difference between the Gross Global Product and Intermediate Consumption or amount of Gross Value Added. This method shows the contribution of each sector of the economy to gross domestic product.

$$\mathbf{GDP_{bp} = \sum_{i=1}^{n} GVA_i}$$

The GDP at market prices (abbr. mp) is calculated by adding the one expressed in the prices of inputs (abbr. pi), net indirect taxes (I_{indn}). Net indirect taxes (I_{indn}) is calculated as the difference between indirect taxes (I_{ind}) and subsidies (S).

$$\mathbf{I_{indn} = I_{ind} - S}$$

Indirect taxes are compulsory payments of establishments producing state: taxes on products, VAT, customs duties, excise duties etc.

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Subsidies (*as defined INSSE*) are current unrequited payments which general government or the institutions of the European Union resident producers pay them to influence their levels of production, their prices or the remuneration of the factors of production.

The relation between GDP expressed in market prices and that expressed in factor prices is:

$$\mathbf{GDP_{mp} = GDP_{fp} + I_{indn}}$$

Method expenses or of **end use**. By this method, GDP is determined by aggregating all costs incurred by businesses in the national economy (*financial corporations, non-financial corporations, general government, households, rest of world*).

$$\mathbf{GDP = C + I_b + G + EX_{net}}$$

where:

- C - private consumption;
- I_b – gross investment or gross capital formation;
- G – government consumption;
- EX_{net} – net exports (*difference between exports and that of imports*)

Private Consumption includes households expenditure for purchasing goods and services to meet their members' needs.

Gross Investment Capital Formation or (I_b, GICF) comprising Fixed Capital Formation (FCF) and Inventories (ΔS).

$$\mathbf{I_b = FCF + \Delta S}$$

Gross Fixed Capital Formation represents the value of durable goods (*for purposes other than military ones*) acquired by resident units in order to be used later in the production process.

Changes in Inventories are measured by the difference between the stock at the end of the period considered and the original. Inventories are goods, other than capital assets owned at one time by the production units.

Government or Public Consumption includes expenditure for collective consumption of government (*general public services, national defense and territory security, public order and security, legislative and regulatory activities, research and development etc.*)

Private Consumption summing with the Government Final Consumption (CF) is given by:

$$\mathbf{C + G = CF}$$

Net Exports is the difference between exports and imports of goods and services.

$$\mathbf{EX_{net} = E - I}$$

Based on the above relations we can rewrite formula GDP calculated by expenditure approach:

$$\mathbf{GDP = CF + FCF + \Delta S + (E - I)}$$

Income method allows to calculate GDP by aggregating economic income obtained from economic activity and heritage.

GDP=R+EBE+I+TV-S

where:

- R – wages;
- EBE – gross operating surplus;
- I – taxes;
- TV – customs duties;
- S – subsidies.

Gross Operating Surplus is the balance of the operation and is what remains of the added value created in production by compensation of employees and taxes on production.

2. Evolution Analysis of Gross Domestic Product for Romania's Regions During 1995-2014

2.1. The analysis of Romania's GDP for the period 1995-2014

Statistics on GDP corresponding to the region ROMANIA are the following:

Table 1

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	7648. 9	7648. 9	2005	290488. 8	10167. 1
1996	11384. 2	7900. 6	2006	347004. 3	11104. 1
1997	25529. 8	7531. 3	2007	418257. 9	11711. 2
1998	37055. 1	7374. 0	2008	524388. 7	12585. 3
1999	55191. 4	7340. 5	2009	510522. 8	11742. 0
2000	81275. 3	7558. 6	2010	533881. 1	11745. 4
2001	118327. 2	7927. 9	2011	565097. 2	11867. 0
2002	152630. 0	8394. 7	2012	595367. 3	11907. 3
2003	198761. 1	8944. 2	2013	637456. 0	12111. 7
2004	248747. 6	9701. 2	2014	668143. 6	12694. 7

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	326. 1235873	-643816. 8401
Standard Error X Variable/Standard Error Intercept	27. 24138297	54605. 5781
Adjusted R Square/Standard Error	0. 888420375	702. 4897217
F/Residual	143. 3197752	18
SS Regression/SS Residual	70727135. 14	8882852. 565
Correlation coefficient R	0. 942560542	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 401802588 which implies that errors undergoes a positive autocorrelation.

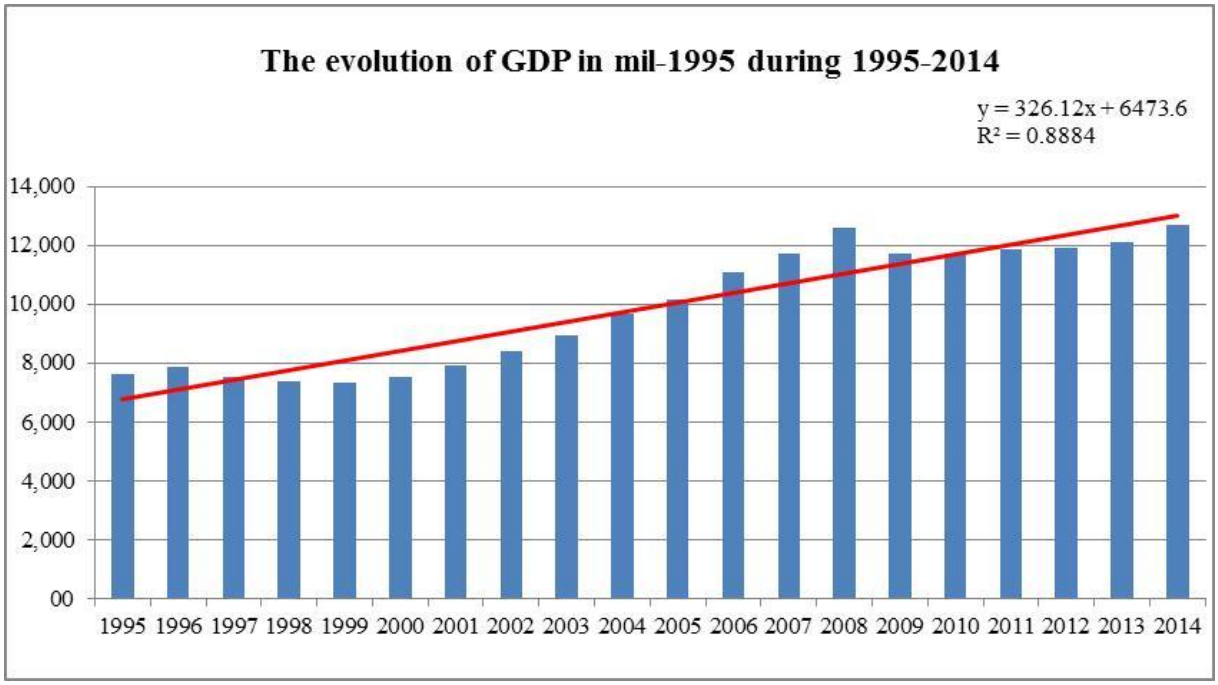

Figure 1

The coefficient of autocorrelation of errors being ρ=0. 793676349 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	377. 9940607	-154390. 812
Standard Error X Variable/Standard Error Intercept	84. 55752946	35046. 90901
Adjusted R Square/Standard Error	0. 540332024	416. 5227499
F/Residual	19. 98321591	17
SS Regression/SS Residual	3466912. 132	2949350. 421
Correlation coefficient R	0. 735072802	

Durbin-Watson statistic calculation implies a value d=1. 383370125 which implies that the test is inconclusive. Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4; 2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 793676349·GDP_{2014}+377. 9940607·2015-300. 0049462·2014-154390. 812=13132. 76442 mil. lei-1995, respectively: 729598. 0235 mil. lei currents, representing a variation of 3. 45%.

2.2. The Analysis of GDP for MACROREGION ONE during 1995-2014

Statistics on GDP corresponding to the region MACROREGION ONE are the following:

Table 2

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	1852. 2	1852. 2	2005	66838. 4	2339. 3
1996	2772. 2	1923. 9	2006	81131. 1	2596. 2
1997	6138. 3	1810. 8	2007	99190. 6	2777. 3
1998	8885. 2	1768. 2	2008	117374. 8	2817. 0
1999	13332. 4	1773. 2	2009	117073. 2	2692. 7
2000	19024. 7	1769. 3	2010	120151. 6	2643. 3
2001	27922. 9	1870. 8	2011	123638. 5	2596. 4
2002	36769. 3	2022. 3	2012	135333. 6	2706. 7
2003	47500. 7	2137. 5	2013	142214. 9	2702. 1
2004	58609. 2	2285. 8	2014	149846. 5	2847. 1

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	64. 6969006	-127388. 3303
Standard Error X Variable/Standard Error Intercept	6. 451326419	12931. 73731
Adjusted R Square/Standard Error	0. 848191081	166. 3641859
F/Residual	100. 5701084	18
SS Regression/SS Residual	2783483. 15	498186. 7624
Correlation coefficient R	0. 920972899	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 392658155 which implies that errors undergoes a positive autocorrelation.

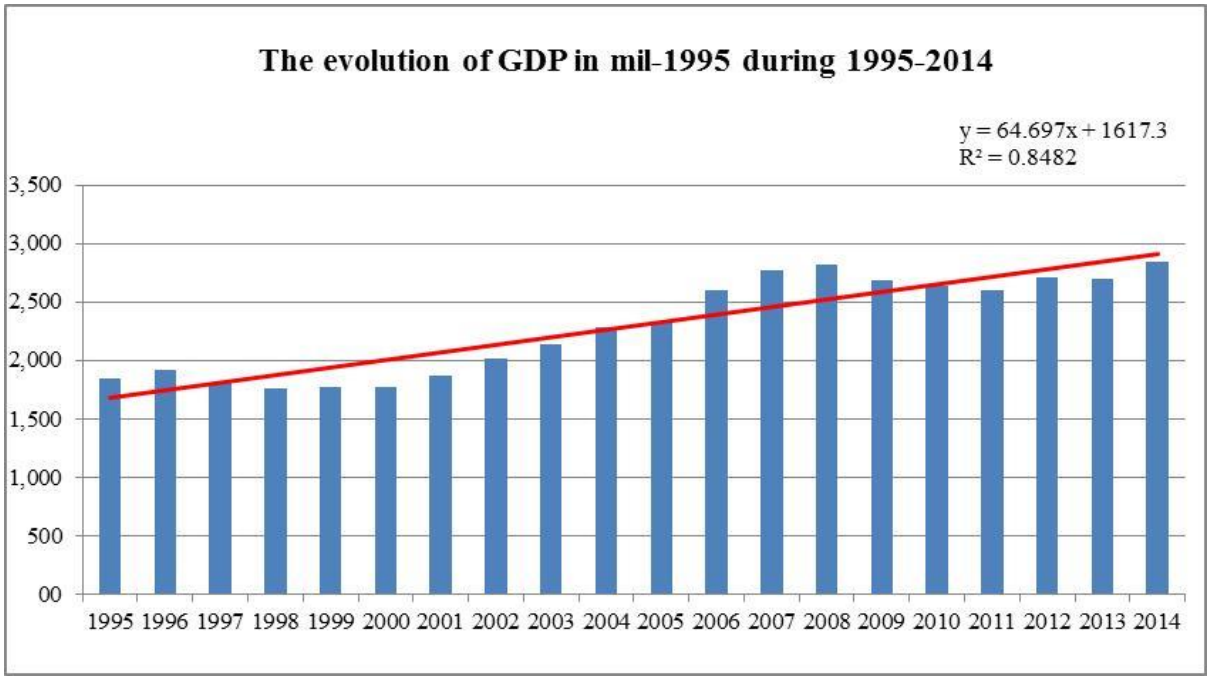

Figure 2

The coefficient of autocorrelation of errors being ρ=0. 799862141 implies that we will perform a data transformation of the form: $GDP^{*}_{n}=GDP_{n}-\rho GDP_{n-1}$ and $Year^{*}_{n}=Year_{n}-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	75. 12017115	-29697. 83638
Standard Error X Variable/Standard Error Intercept	20. 69420054	8320. 67788
Adjusted R Square/Standard Error	0. 436656652	98. 8815649
F/Residual	13. 1769783	17
SS Regression/SS Residual	128838. 747	166218. 5859
Correlation coefficient R	0. 660800009	

Durbin-Watson statistic calculation implies a value d=1. 142517228 which implies that errors undergoes a positive autocorrelation.

The coefficient of autocorrelation of errors being ρ'=**0. 415763463** implies that we will perform a data transformation of the form: $GDP^{**}_{n}=GDP^{*}_{n}-\rho' GDP^{*}_{n-1}$ and $Year^{**}_{n}=Year^{*}_{n}-\rho' Year^{*}_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	90. 19886885	-20897. 74878
Standard Error X Variable/Standard Error Intercept	35. 22639879	8279. 968705
Adjusted R Square/Standard Error	0. 290667067	90. 66362955
F/Residual	6. 556403716	16
SS Regression/SS Residual	53892. 94175	131518. 2996
Correlation coefficient R	0. 539135481	

Durbin-Watson statistic calculation implies a value d=1. 688557203 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=1. 215625604·GDP_{2014}-0. 332553454·GDP_{2013}+90. 19886885·2015-109. 6480544·2014+29. 99594534·2013-20897. 74878=2741. 542298 mil. lei-1995,

respectively: 152307. 9054 mil. lei currents, representing a variation of -3. 71%.

Analysis of the results reveals a surprising situation at the macroregion level, the data aggregation level counties leads to a tendency of decreasing GDP.

2.3. The Analysis of GDP for Region NORTHWEST during 1995-2014

Statistics on GDP corresponding to the region Region NORTHWEST are the following:

Table 3

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	911. 1	911. 1	2005	34080. 0	1192. 8
1996	1355. 0	940. 4	2006	41185. 2	1317. 9
1997	2976. 5	878. 1	2007	50519. 3	1414. 5
1998	4399. 7	875. 5	2008	59281. 6	1422. 8
1999	6653. 1	884. 9	2009	58937. 5	1355. 6
2000	9190. 2	854. 7	2010	60199. 8	1324. 4
2001	13675. 0	916. 2	2011	61648. 4	1294. 6
2002	18127. 7	997. 0	2012	67600. 8	1352. 0
2003	23577. 2	1061. 0	2013	71712. 0	1362. 5
2004	29641. 1	1156. 0	2014	76641. 5	1456. 2

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	34. 49194609	-67990. 69662
Standard Error X Variable/Standard Error Intercept	3. 543978693	7103. 934683
Adjusted R Square/Standard Error	0. 840315833	91. 39068338
F/Residual	94. 72250898	18
SS Regression/SS Residual	791146. 7395	150340. 6262
Correlation coefficient R	0. 916687424	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 393390922 which implies that errors undergoes a positive autocorrelation.

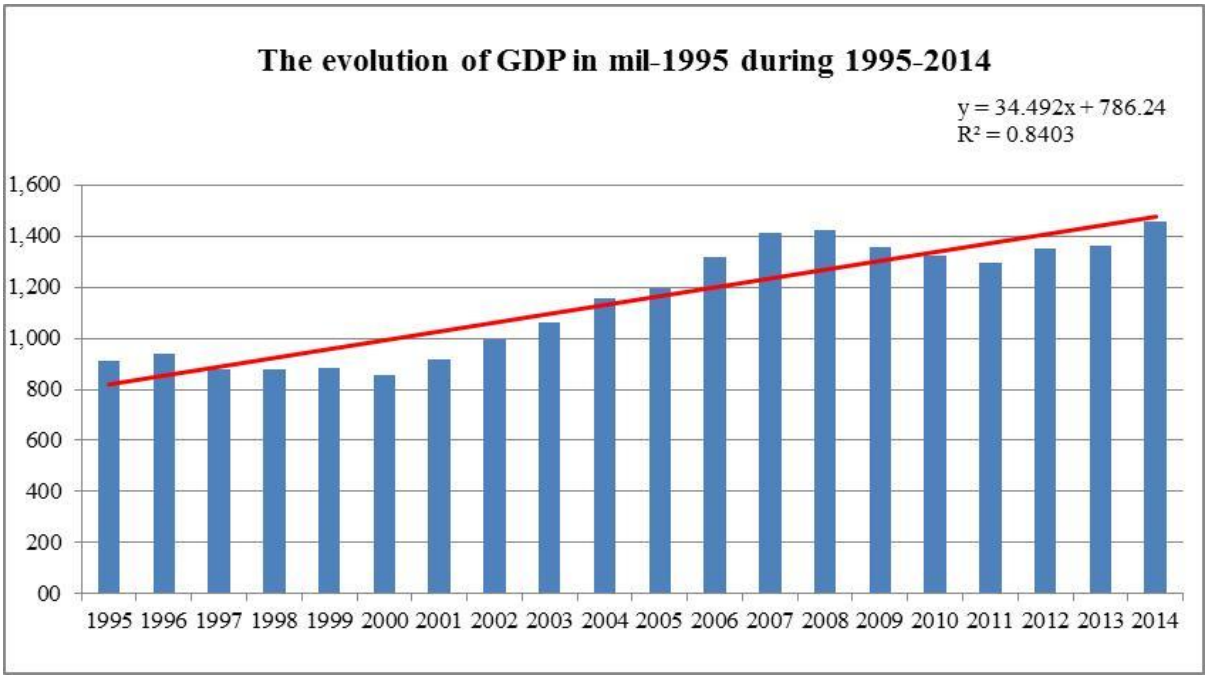

Figure 3

The coefficient of autocorrelation of errors being ρ=0. 799735192 implies that we will perform a data transformation of the form: $GDP^{*}_{n}=GDP_{n}-\rho GDP_{n-1}$ and $Year^{*}_{n}=Year_{n}-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	41. 01436268	-16245. 90544
Standard Error X Variable/Standard Error Intercept	11. 36418627	4572. 177722
Adjusted R Square/Standard Error	0. 433815069	54. 33509234
F/Residual	13. 02552533	17
SS Regression/SS Residual	38455. 28785	50189. 13841
Correlation coefficient R	0. 658646391	

Durbin-Watson statistic calculation implies a value d=1. 128299286 which implies that errors undergoes a positive autocorrelation.

The coefficient of autocorrelation of errors being ρ'=**0. 421929552** implies that we will perform a data transformation of the form: $GDP^{**}_{n}=GDP^{*}_{n}-\rho' GDP^{*}_{n-1}$ and $Year^{**}_{n}=Year^{*}_{n}-\rho' Year^{*}_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	48. 78999196	-11201. 61337
Standard Error X Variable/Standard Error Intercept	19. 63873581	4570. 299683
Adjusted R Square/Standard Error	0. 278373055	50. 0432866
F/Residual	6. 172121085	16
SS Regression/SS Residual	15457. 03129	40069. 28853
Correlation coefficient R	0. 527610704	

Durbin-Watson statistic calculation implies a value d=1. 716975988 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=1. 221664745·GDP_{2014}-0. 337431912·GDP_{2013}+48. 78999196·2015-59. 60501306·2014+16. 46330026·2013-11201. 61337=1379. 535485 mil. lei-1995, respectively: 76640. 86028 mil. lei currents, representing a variation of -5. 26%.

Analysis of the results reveals a surprising situation at regional level, the data aggregation level counties leads to a downward trend in GDP at a very high level.

2.4. The analysis of GDP for Bihor during 1995-2014

Statistics on GDP corresponding to the region Bihor are the following:

Table 4

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	214. 6	214. 6	2005	7964. 2	278. 7
1996	318. 2	220. 8	2006	9886. 6	316. 4
1997	711. 5	209. 9	2007	11692. 8	327. 4
1998	1055. 2	210. 0	2008	13462. 3	323. 1
1999	1583. 2	210. 6	2009	12827. 8	295. 0
2000	2134. 3	198. 5	2010	13442. 8	295. 7
2001	3249. 6	217. 7	2011	12841. 3	269. 7
2002	4524. 2	248. 8	2012	13155. 5	263. 1
2003	5683. 2	255. 7	2013	13982. 5	265. 7
2004	7200. 8	280. 8	2014	15289. 6	290. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	5. 18392812	-10131. 54227
Standard Error X Variable/Standard Error Intercept	1. 117545879	2240. 129984
Adjusted R Square/Standard Error	0. 544502976	28. 81881931
F/Residual	21. 51727246	18
SS Regression/SS Residual	17870. 61865	14949. 43824
Correlation coefficient R	0. 737904449	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 383753294 which implies that errors undergoes a positive autocorrelation.

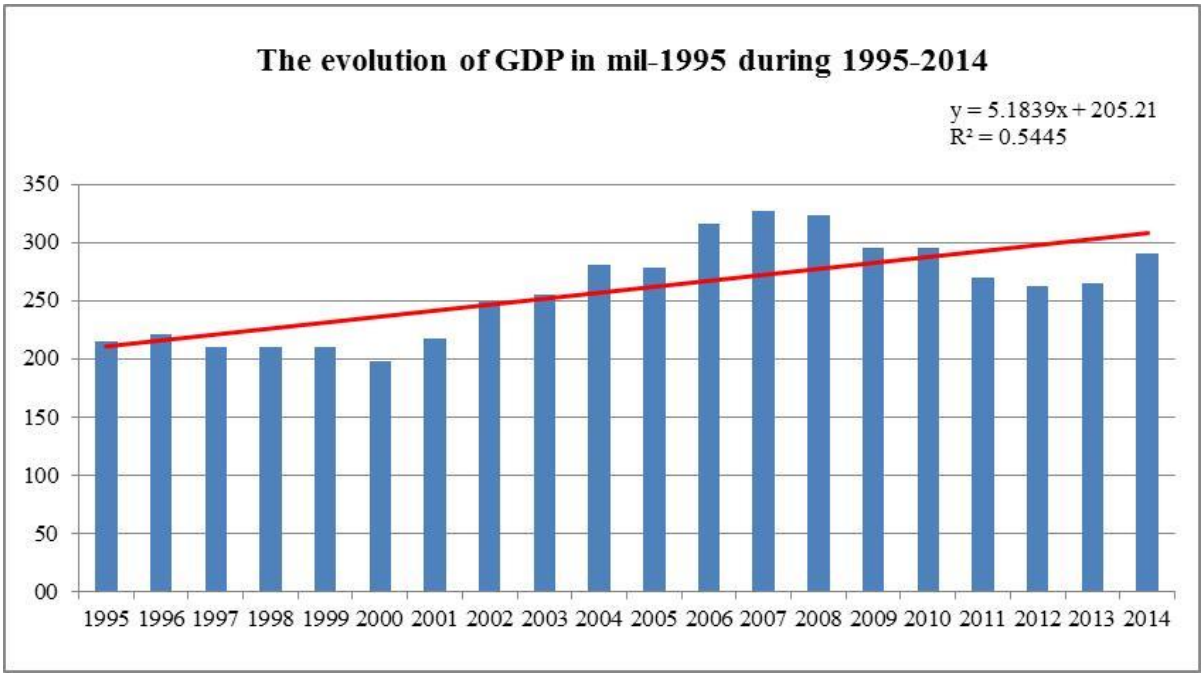

Figure 4

The coefficient of autocorrelation of errors being ρ=0. 806652159 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	4. 219762998	-1585. 36545
Standard Error X Variable/Standard Error Intercept	3. 787682927	1471. 403143
Adjusted R Square/Standard Error	0. 068041888	17. 4843854
F/Residual	1. 241163189	17
SS Regression/SS Residual	379. 4282197	5196. 963456
Correlation coefficient R	0. 260848401	

Durbin-Watson statistic calculation implies a value d=1. 441277808 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 806652159·GDP_{2014}+4. 219762998·2015-3. 403880934·2014-1585. 36545=296. 3751792 mil. lei-1995, respectively: 16465. 28773 mil. lei currents, representing a variation of 2. 02%.

Analysis of the results obtained show that, for this county in the region NORTHWEST there exists a most addictive from GDP in the year before (more than 80%) which means the existence of a number of projects in the longer term, so a premise healthy growth . Variation of 2. 02% is the lowest in the region, being located about 59% of the national average.

2.5. The Analysis of GDP for Bistrita-Nasaud during 1995-2014

Statistics on GDP corresponding to the region Bistrita-Nasaud are the following:

Table 5

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	92. 0	92. 0	2005	3361. 5	117. 7
1996	135. 0	93. 7	2006	4062. 1	130. 0
1997	287. 8	84. 9	2007	4891. 1	137. 0
1998	396. 7	78. 9	2008	5998. 4	144. 0
1999	631. 4	84. 0	2009	6129. 9	141. 0
2000	947. 0	88. 1	2010	5717. 2	125. 8
2001	1260. 6	84. 5	2011	5949. 4	124. 9
2002	1701. 2	93. 6	2012	6582. 8	131. 7
2003	2275. 3	102. 4	2013	6535. 0	124. 2
2004	2724. 7	106. 3	2014	6779. 1	128. 8

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	3. 143061654	-6189. 610136
Standard Error X Variable/Standard Error Intercept	0. 461744191	925. 5700605
Adjusted R Square/Standard Error	0. 720211603	11. 90727169
F/Residual	46. 33433341	18
SS Regression/SS Residual	6569. 426314	2552. 096144
Correlation coefficient R	0. 848652817	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 409854995 which implies that errors undergoes a positive autocorrelation.

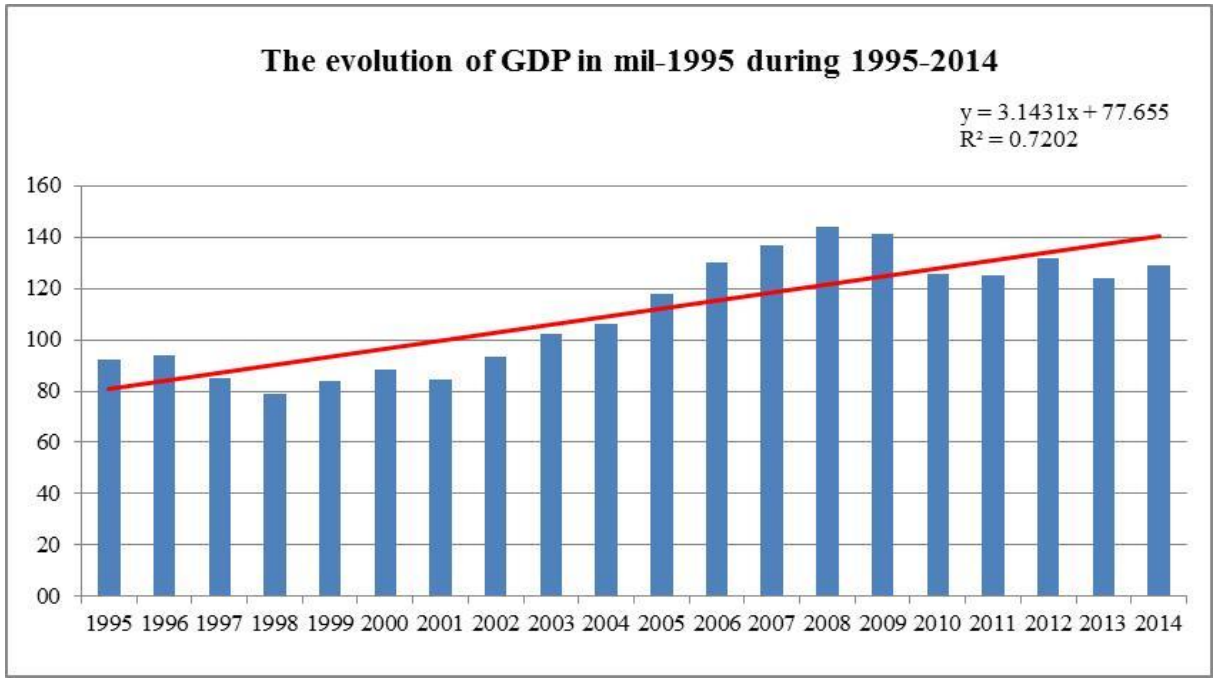

Figure 5

The coefficient of autocorrelation of errors being ρ=0. 789062386 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	3. 306054961	-1375. 760981
Standard Error X Variable/Standard Error Intercept	1. 45486909	616. 4579371
Adjusted R Square/Standard Error	0. 232984703	7. 32681751
F/Residual	5. 163834374	17
SS Regression/SS Residual	277. 2062727	912. 598332
Correlation coefficient R	0. 48268489	

Durbin-Watson statistic calculation implies a value d=1. 290450879 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4; 2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 789062386·GDP_{2014}+3. 306054961·2015-2. 608683615·2014-1375. 760981=133. 6844888 mil. lei-1995, respectively: 7426. 916046 mil. lei currents, representing a variation of 3. 79%.

Analysis of the results obtained show that, for this county in the region NORTHWEST, the variation of 3. 79% is the highest, being higher than the national level.

2.6. The Analysis of GDP for Cluj during 1995-2014

Statistics on GDP corresponding to the region Cluj are the following:

Table 6

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	266. 9	266. 9	2005	11627. 4	407. 0
1996	398. 0	276. 2	2006	13779. 4	440. 9
1997	908. 2	267. 9	2007	18083. 0	506. 3
1998	1376. 1	273. 8	2008	20857. 8	500. 6
1999	2162. 9	287. 7	2009	20900. 2	480. 7
2000	3062. 0	284. 8	2010	21670. 3	476. 7
2001	4532. 9	303. 7	2011	23082. 9	484. 7
2002	6058. 8	333. 2	2012	25759. 2	515. 2
2003	7868. 0	354. 1	2013	27741. 6	527. 1
2004	9820. 2	383. 0	2014	29805. 6	566. 3

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	17. 12471549	-33929. 64837
Standard Error X Variable/Standard Error Intercept	1. 043032388	2090. 767072
Adjusted R Square/Standard Error	0. 937403786	26. 89729566
F/Residual	269. 5573271	18
SS Regression/SS Residual	195015. 1606	13022. 36125
Correlation coefficient R	0. 968196151	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 562662462 which implies that errors undergoes a positive autocorrelation.

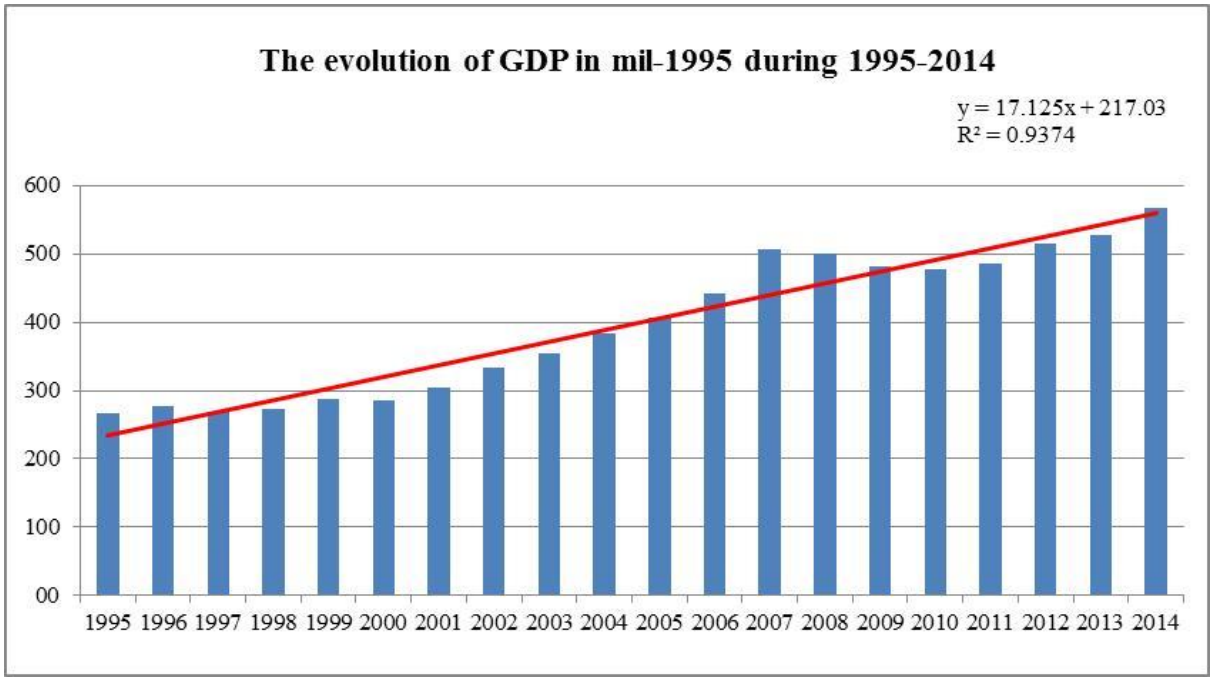

Figure 6

The coefficient of autocorrelation of errors being ρ=0. 707450432 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	19. 37570038	-11249. 5092
Standard Error X Variable/Standard Error Intercept	2. 622983464	1540. 403485
Adjusted R Square/Standard Error	0. 762457698	18. 3202941
F/Residual	54. 56620054	17
SS Regression/SS Residual	18314. 22719	5705. 763991
Correlation coefficient R	0. 873188238	

Durbin-Watson statistic calculation folosind următorul tabel implies a value d=1. 355050374 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4;2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 707450432·GDP_{2014}+19. 37570038·2015-13. 70734761·2014-11249. 5092=586. 5626839 mil. lei-1995, respectively: 32586. 81577 mil. lei currents, representing a variation of 3. 58%.

Analysis of the results obtained shows that, for the county in the region Northwest variation of 3. 58% is the second largest, being greater than that of the national level.

2.7. The Analysis of GDP for Maramures during 1995-2014

Statistics on GDP corresponding to the region Maramures are the following:

Table 7

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	143. 0	143. 0	2005	4760. 1	166. 6
1996	214. 7	149. 0	2006	5837. 4	186. 8
1997	446. 1	131. 6	2007	6886. 6	192. 8
1998	669. 3	133. 2	2008	8202. 3	196. 9
1999	921. 9	122. 6	2009	8341. 8	191. 9
2000	1310. 7	121. 9	2010	8550. 9	188. 1
2001	1855. 1	124. 3	2011	8730. 2	183. 3
2002	2416. 8	132. 9	2012	9940. 0	198. 8
2003	3180. 5	143. 1	2013	10212. 4	194. 0
2004	4219. 8	164. 6	2014	10893. 6	207. 0

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	4. 460011053	-8776. 47116
Standard Error X Variable/Standard Error Intercept	0. 580053706	1162. 722464
F/Residual	59. 12014062	18
SS Regression/SS Residual	13227. 97956	4027. 453752
Correlation coefficient R	0. 875555787	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 462112826 which implies that errors undergoes a positive autocorrelation.

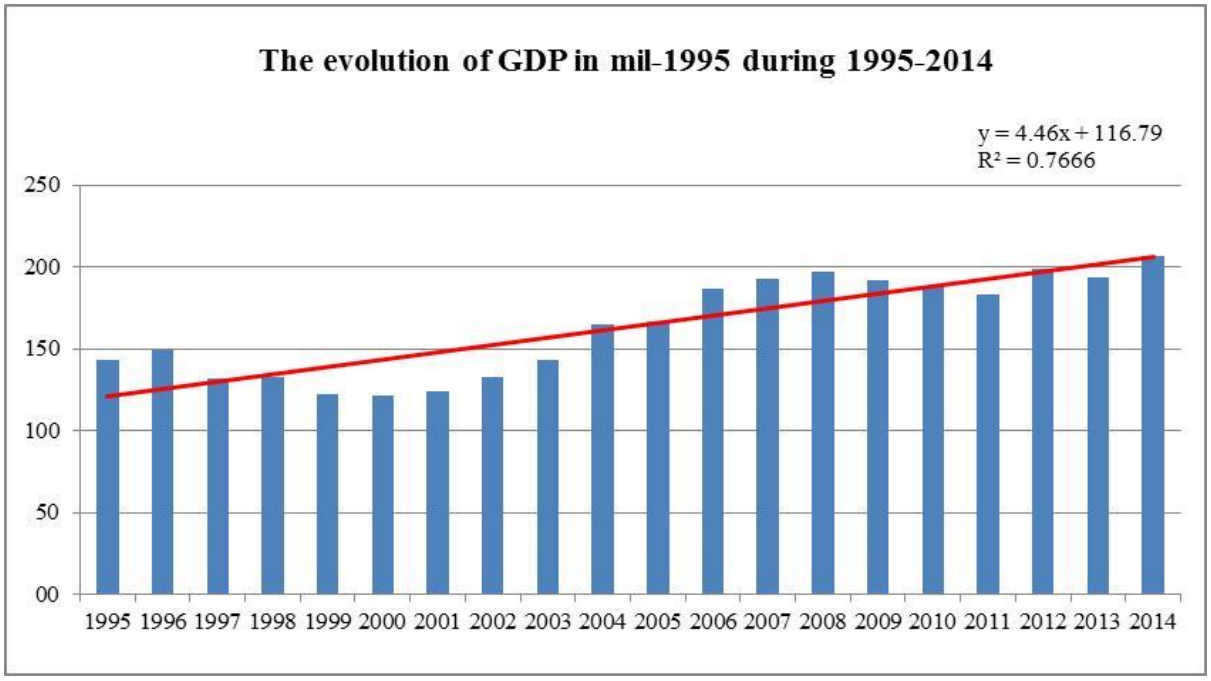

Figure 7

The coefficient of autocorrelation of errors being ρ=0. 758330194 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	6. 093224641	-2914. 722193
Standard Error X Variable/Standard Error Intercept	1. 584257514	768. 8529973
Adjusted R Square/Standard Error	0. 465283409	9. 140829248
F/Residual	14. 79254258	17
SS Regression/SS Residual	1235. 987336	1420. 430909
Correlation coefficient R	0. 682116858	

Durbin-Watson statistic calculation implies a value d=1. 934674567 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 758330194·GDP_{2014}+6. 093224641·2015-4. 620676226·2014-2914. 722193=214. 0415098 mil. lei-1995, respectively: 11891. 19499 mil. lei currents, representing a variation of 3. 41%.

Analysis of the results obtained show that, for this county in the region NORTHWEST, variation of 3. 41% is great, being close to the national.

2.8. The Analysis of GDP for Satu Mare during 1995-2014

Statistics on GDP corresponding to the region Satu Mare are the following:

Table 8

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	116. 9	116. 9	2005	3937. 0	137. 8
1996	174. 2	120. 9	2006	4482. 7	143. 4
1997	367. 2	108. 3	2007	5214. 7	146. 0
1998	561. 3	111. 7	2008	6334. 0	152. 0
1999	833. 8	110. 9	2009	6270. 3	144. 2
2000	1057. 4	98. 3	2010	6287. 4	138. 3
2001	1770. 0	118. 6	2011	6481. 2	136. 1
2002	2135. 8	117. 5	2012	7175. 7	143. 5
2003	2783. 5	125. 3	2013	7856. 7	149. 3
2004	3575. 2	139. 4	2014	8106. 8	154. 0

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	2. 388966466	-4658. 056541
Standard Error X Variable/Standard Error Intercept	0. 347478397	696. 5233279
Adjusted R Square/Standard Error	0. 724212751	8. 960631787
F/Residual	47. 26770207	18
SS Regression/SS Residual	3795. 261916	1445. 272596
Correlation coefficient R	0. 851006904	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 855307258 which implies that errors undergoes a positive autocorrelation.

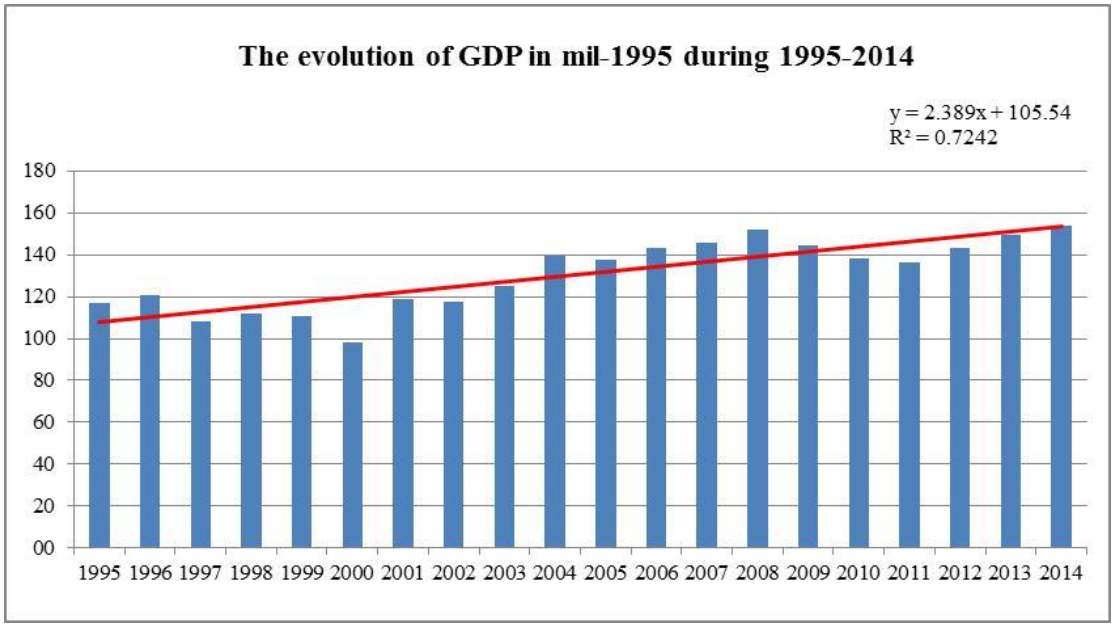

Figure 8

The coefficient of autocorrelation of errors being ρ=0. 560892123 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 763136136	-2375. 473532
Standard Error X Variable/Standard Error Intercept	0. 700787593	617. 376677
Adjusted R Square/Standard Error	0. 477669908	7. 346746577
F/Residual	15. 54646871	17
SS Regression/SS Residual	839. 1157554	917. 5696494
Correlation coefficient R	0. 691136678	

Durbin-Watson statistic calculation implies a value d=2. 075199078 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 560892123·GDP_{2014}+2. 763136136·2015-1. 549821295·2014-2375. 473532=157. 2994594 mil. lei-1995, respectively: 8738. 858858 mil. lei currents, representing a variation of 2. 12%.

Analysis of the results obtained show that, for this county in the region NORTHWEST, variation of 2. 12% is very low, significantly below the national level.

2. 9. The analysis of GDP for Salaj during 1995-2014

Statistics on GDP corresponding to the region Salaj are the following:

Table 9

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	77. 7	77. 7	2005	2429. 8	85. 0
1996	114. 9	79. 7	2006	3137. 0	100. 4
1997	255. 7	75. 4	2007	3751. 1	105. 0
1998	341. 1	67. 9	2008	4426. 8	106. 2
1999	519. 9	69. 1	2009	4467. 5	102. 8
2000	678. 8	63. 1	2010	4531. 2	99. 7
2001	1006. 8	67. 5	2011	4563. 4	95. 8
2002	1290. 9	71. 0	2012	4987. 6	99. 8
2003	1786. 7	80. 4	2013	5383. 8	102. 3
2004	2100. 4	81. 9	2014	5766. 8	109. 6

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	2. 191263308	-4305. 368151
Standard Error X Variable/Standard Error Intercept	0. 33117227	663. 837562
Adjusted R Square/Standard Error	0. 708646163	8. 540136017
F/Residual	43. 78054902	18
SS Regression/SS Residual	3193. 087199	1312. 810617
Correlation coefficient R	0. 84181124	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 434604842 which implies that errors undergoes a positive autocorrelation.

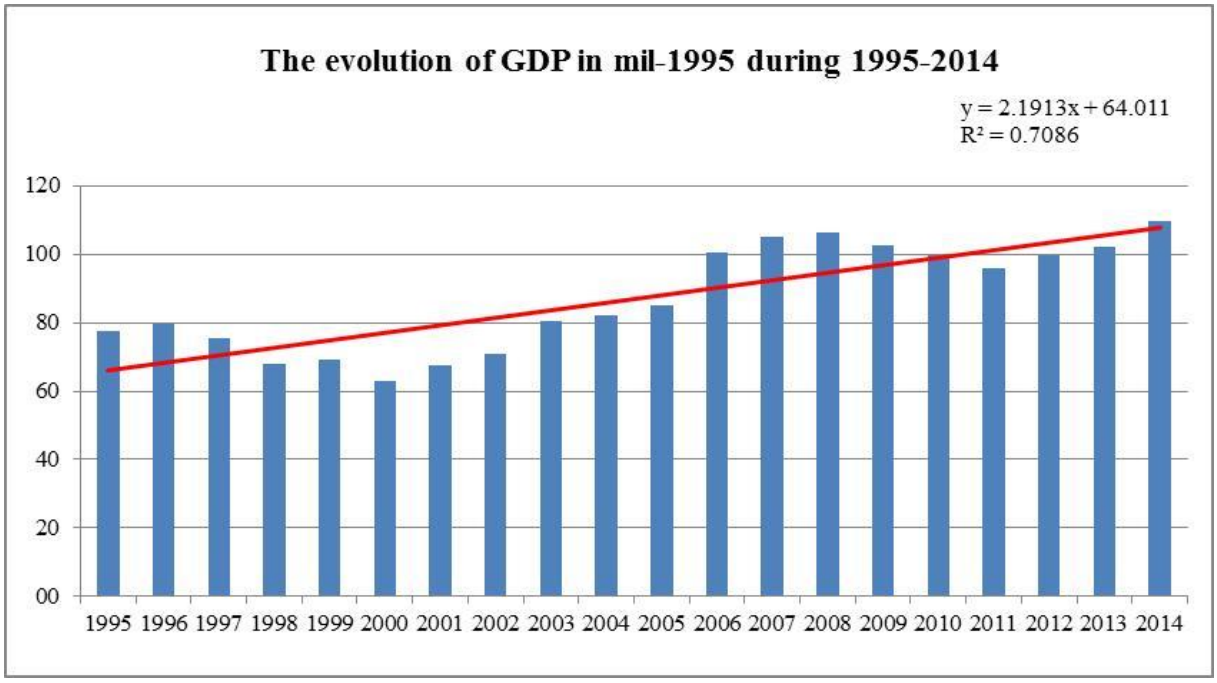

Figure 9

The coefficient of autocorrelation of errors being ρ=0. 773425378 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	3. 185338434	-1428. 381162
Standard Error X Variable/Standard Error Intercept	0. 945712612	430. 3533666
Adjusted R Square/Standard Error	0. 400240491	5. 115733043
F/Residual	11. 34469441	17
SS Regression/SS Residual	296. 8988726	444. 9023176
Correlation coefficient R	0. 632645628	

Durbin-Watson statistic calculation implies a value d=1. 417469564 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 773425378·GDP_{2014}+3. 185338434·2015-2. 463621581·2014-1428. 381162=113. 0855169 mil. lei-1995, respectively: 6282. 528716 mil. lei currents, representing a variation of 3. 21%.

Analysis of the results obtained show that, for this county in the region NORTHWEST, variation of 3. 21% is slightly below the national level, hovering at a relatively high rate.

2.10. The Analysis of GDP for Region CENTER during 1995-2014

Statistics on GDP corresponding to the region Region CENTER are the following:

Table 10

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	941. 1	941. 1	2005	32758. 4	1146. 5
1996	1417. 2	983. 5	2006	39945. 9	1278. 3
1997	3161. 8	932. 7	2007	48671. 3	1362. 8
1998	4485. 5	892. 6	2008	58093. 2	1394. 2
1999	6679. 3	888. 3	2009	58135. 7	1337. 1
2000	9834. 5	914. 6	2010	59951. 8	1318. 9
2001	14247. 9	954. 6	2011	61990. 1	1301. 8
2002	18641. 6	1025. 3	2012	67732. 8	1354. 7
2003	23923. 5	1076. 6	2013	70502. 9	1339. 6
2004	28968. 1	1129. 8	2014	73205. 0	1390. 9

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	30. 20495451	-59397. 63365
Standard Error X Variable/Standard Error Intercept	2. 965656557	5944. 683165
Adjusted R Square/Standard Error	0. 852134751	76. 47714699
F/Residual	103. 7324562	18
SS Regression/SS Residual	606705. 6192	105277. 5722
Correlation coefficient R	0. 923111451	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 420106313 which implies that errors undergoes a positive autocorrelation.

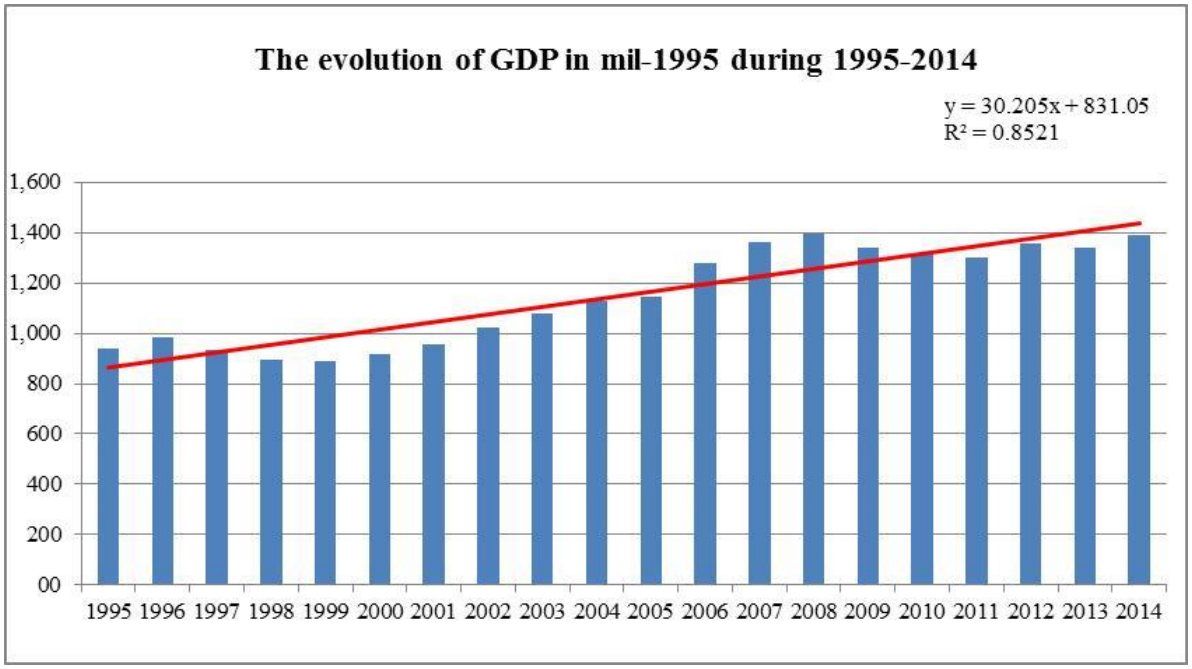

Figure 10

The coefficient of autocorrelation of errors being ρ=0. 785040179 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	33. 88671841	-14363. 84572
Standard Error X Variable/Standard Error Intercept	9. 151219175	3951. 323362
Adjusted R Square/Standard Error	0. 446470611	46. 96492974
F/Residual	13. 71200976	17
SS Regression/SS Residual	30244. 64335	37496. 97863
Correlation coefficient R	0. 668184564	

Durbin-Watson statistic calculation implies a value d=1. 217013369 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4;2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 785040179·GDP_{2014}+33. 88671841·2015-26. 60243548·2014-14363. 84572=1432. 495276 mil. lei-1995, respectively: 79583. 07088 mil. lei currents, representing a variation of 2. 99%.

Analysis of the results obtained show that, in the region in the macroregion ONE, the variation of 2. 99% is important, this level being lowered counties Covasna and Mures.

2.11. The analysis of GDP for Alba during 1995-2014

Statistics on GDP corresponding to the region Alba are the following:

Table 11

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	132. 3	132. 3	2005	4483. 8	156. 9
1996	195. 3	135. 5	2006	5766. 7	184. 5
1997	431. 2	127. 2	2007	7698. 7	215. 6
1998	585. 3	116. 5	2008	8755. 2	210. 1
1999	864. 2	114. 9	2009	8538. 7	196. 4
2000	1261. 8	117. 3	2010	9349. 4	205. 7
2001	1824. 8	122. 3	2011	9351. 3	196. 4
2002	2301. 3	126. 6	2012	10162. 2	203. 2
2003	3209. 5	144. 4	2013	10393. 2	197. 5
2004	4094. 5	159. 7	2014	11009. 3	209. 2

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	5. 699271353	-11260. 5769
Standard Error X Variable/Standard Error Intercept	0. 692894399	1388. 912569
Adjusted R Square/Standard Error	0. 789856434	17. 86807938
F/Residual	67. 65572758	18
SS Regression/SS Residual	21600. 32648	5746. 828696
Correlation coefficient R	0. 888738676	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=0. 5010615 which implies that errors undergoes a positive autocorrelation.

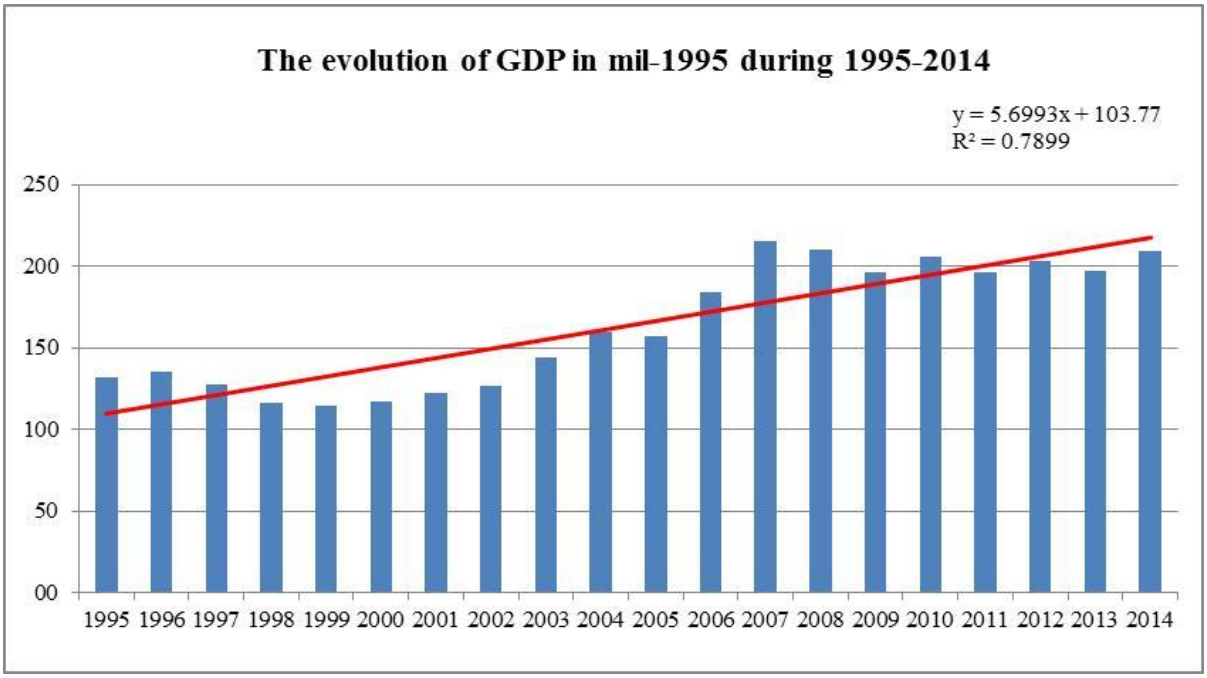

Figure 11

The coefficient of autocorrelation of errors being ρ=0. 740509049 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	6. 813314709	-3503. 992489
Standard Error X Variable/Standard Error Intercept	1. 879824426	979. 4295134
Adjusted R Square/Standard Error	0. 43590149	11. 64600396
F/Residual	13. 13658022	17
SS Regression/SS Residual	1781. 706602	2305. 699941
Correlation coefficient R	0. 660228362	

Durbin-Watson statistic calculation implies a value d=1. 595711561 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 740509049·GDP_{2014}+6. 813314709·2015-5. 045321197·2014-3503. 992489=218. 4569971 mil. lei-1995, respectively: 12136. 49984 mil. lei currents, representing a variation of 4. 44%.

Analysis of the results obtained show that, for this county in the region CENTER, the variation of 4. 44% is very high and is far above the national level.

2.12. The Analysis of GDP for Brasov during 1995-2014

Statistics on GDP corresponding to the region Brasov are the following:

Table 12

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	258. 9	258. 9	2005	9355. 3	327. 4
1996	395. 0	274. 1	2006	10956. 1	350. 6
1997	877. 1	258. 7	2007	13721. 9	384. 2
1998	1327. 0	264. 1	2008	16443. 6	394. 6
1999	1946. 2	258. 8	2009	16918. 0	389. 1
2000	2739. 8	254. 8	2010	18064. 0	397. 4
2001	4089. 2	274. 0	2011	18370. 9	385. 8
2002	5403. 3	297. 2	2012	20237. 2	404. 7
2003	6721. 4	302. 5	2013	21242. 0	403. 6
2004	7905. 9	308. 3	2014	22014. 4	418. 3

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	9. 908056316	-19530. 33582
Standard Error X Variable/Standard Error Intercept	0. 706320432	1415. 825163
Adjusted R Square/Standard Error	0. 916191977	18. 21430447
F/Residual	196. 7765737	18
SS Regression/SS Residual	65282. 77067	5971. 69597
Correlation coefficient R	0. 957179177	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 530346423** which implies that errors undergoes a positive autocorrelation.

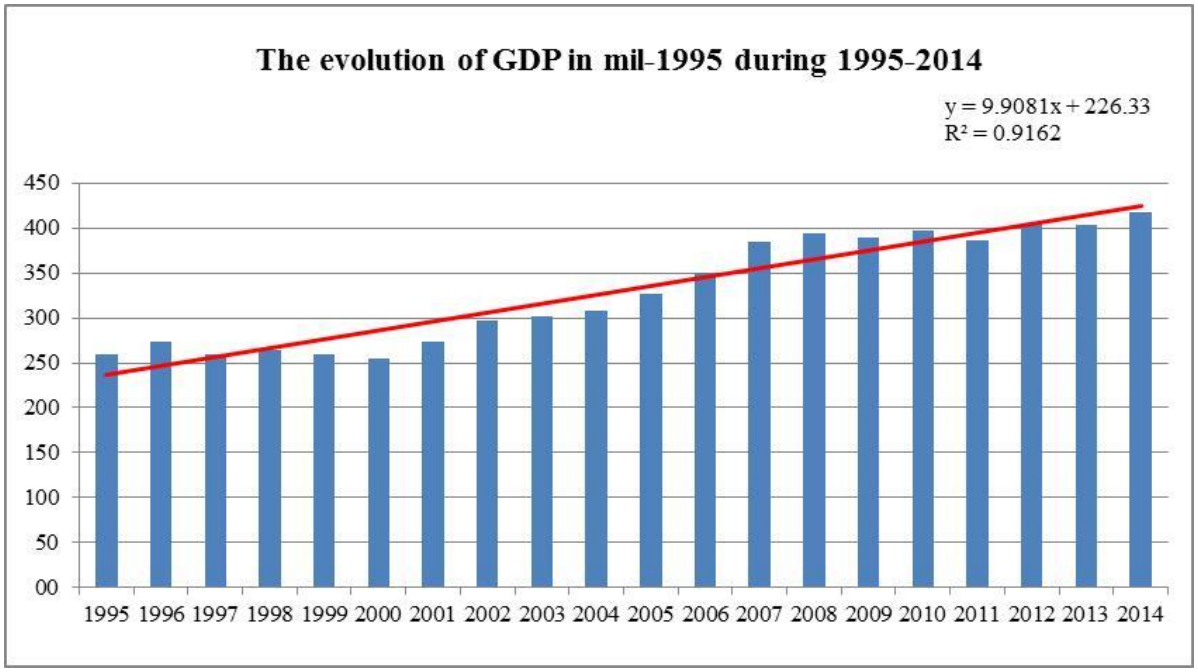

Figure 12

The coefficient of autocorrelation of errors being ρ=0. 725825728 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	11. 06954944	-5995. 484235
Standard Error X Variable/Standard Error Intercept	1. 859194516	1023. 388581
Adjusted R Square/Standard Error	0. 67587876	12. 16995454
F/Residual	35. 4495094	17
SS Regression/SS Residual	5250. 348619	2517. 83249
Correlation coefficient R	0. 822118459	

Durbin-Watson statistic calculation implies a value d=1. 718444852 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 725825728·GDP_{2014}+11. 06954944·2015-8. 034563783·2014-5995. 484235=431. 6401651 mil. lei-1995, respectively: 23980. 00917 mil. lei currents, representing a variation of 3. 2%.

Analysis of the results obtained show that, for this county in the region CENTER, the variation of 3. 2% is a large one, is approximately equal to that of the national level.

2.13. The analysis of GDP for Covasna during 1995-2014

Statistics on GDP corresponding to the region Covasna are the following:

Table 13

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	84. 3	84. 3	2005	2500. 4	87. 5
1996	128. 6	89. 2	2006	2778. 9	88. 9
1997	299. 0	88. 2	2007	3442. 4	96. 4
1998	413. 3	82. 2	2008	4037. 5	96. 9
1999	575. 4	76. 5	2009	4054. 6	93. 3
2000	885. 1	82. 3	2010	3875. 4	85. 3
2001	1164. 4	78. 0	2011	4284. 1	90. 0
2002	1574. 9	86. 6	2012	4349. 0	87. 0
2003	1861. 7	83. 8	2013	4657. 1	88. 5
2004	2399. 6	93. 6	2014	4723. 7	89. 8

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	0. 419152556	-752. 7783143
Standard Error X Variable/Standard Error Intercept	0. 190241861	381. 341388
Adjusted R Square/Standard Error	0. 212404144	4. 905879854
F/Residual	4. 854360974	18
SS Regression/SS Residual	116. 8330956	433. 2178286
Correlation coefficient R	0. 46087324	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**1. 222927945** which implies that the test is inconclusive.

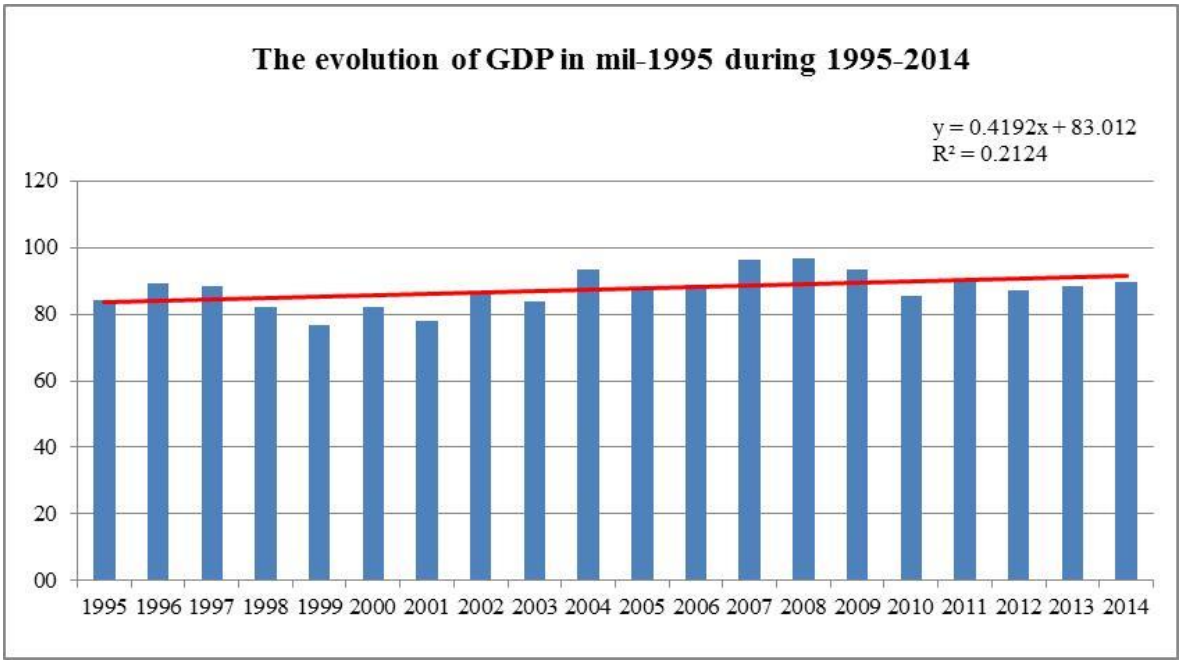

Figure 13

The coefficient of autocorrelation of errors being ρ=0. 386341428 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	0. 425830192	-470. 2466873
Standard Error X Variable/Standard Error Intercept	0. 317510989	390. 7850225
Adjusted R Square/Standard Error	0. 095681479	4. 651820995
F/Residual	1. 798686096	17
SS Regression/SS Residual	38. 92255728	367. 8704557
Correlation coefficient R	0. 30932423	

Durbin-Watson statistic calculation implies a value d=2. 001948067 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 386341428·GDP_{2014}+0. 425830192·2015-0. 164515844·2014-470. 2466873=91. 14049781 mil. lei-1995, respectively: 5063. 360989 mil. lei currents, representing a variation of 1. 55%.

Analysis of the results obtained show that, for this county in the region CENTER, the variation of 1. 55% is very low, significantly below the regional level and also well below the growth rate at the national level.

2.14. The Analysis of GDP for Harghita during 1995-2014

Statistics on GDP corresponding to the region Harghita are the following:

Table 14

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	112. 5	112. 5	2005	3351. 1	117. 3
1996	170. 1	118. 0	2006	4412. 8	141. 2
1997	367. 2	108. 3	2007	5087. 6	142. 5
1998	513. 7	102. 2	2008	6027. 8	144. 7
1999	794. 3	105. 6	2009	5977. 7	137. 5
2000	1161. 6	108. 0	2010	5918. 2	130. 2
2001	1473. 4	98. 7	2011	6295. 9	132. 2
2002	1981. 8	109. 0	2012	6549. 0	131. 0
2003	2469. 4	111. 1	2013	6915. 6	131. 4
2004	3054. 8	119. 1	2014	7104. 3	135. 0

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	1. 876935489	-3640. 535937
Standard Error X Variable/Standard Error Intercept	0. 378272677	758. 2507174
Adjusted R Square/Standard Error	0. 577663461	9. 754742172
F/Residual	24. 6200396	18
SS Regression/SS Residual	2342. 719741	1712. 789907
Correlation coefficient R	0. 76004175	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 659125174** which implies that errors undergoes a positive autocorrelation.

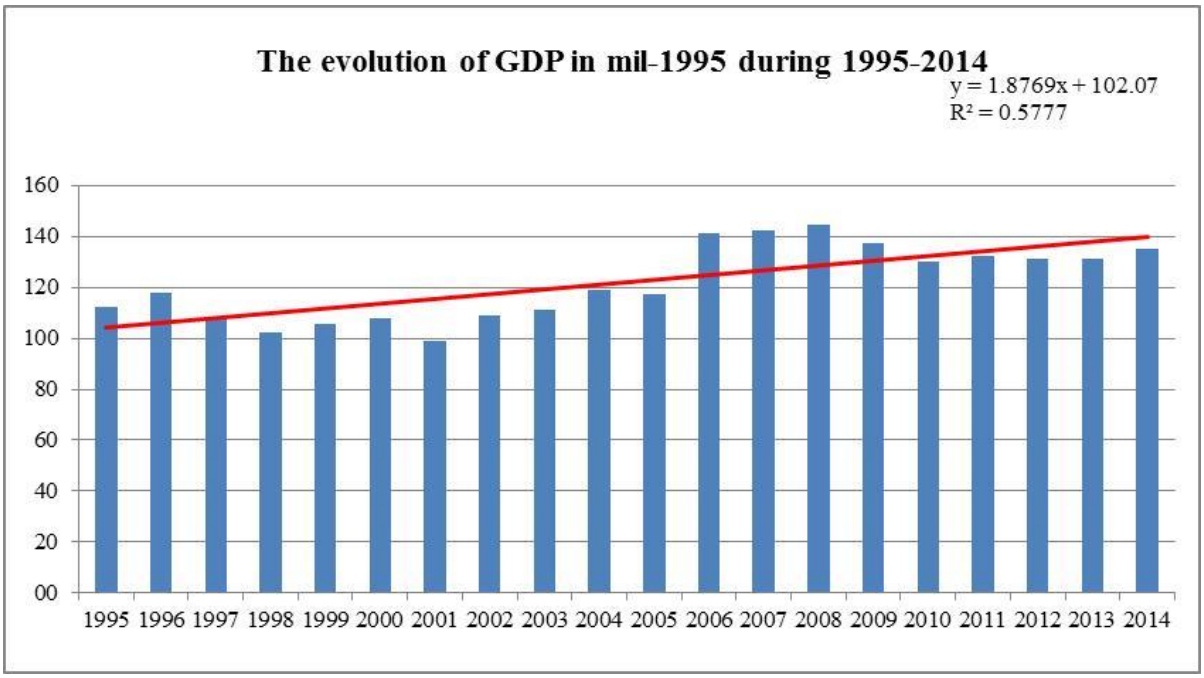

Figure 14

The coefficient of autocorrelation of errors being ρ=0. 663414707 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 162451974	-1418. 833734
Standard Error X Variable/Standard Error Intercept	0. 910871342	615. 3113014
Adjusted R Square/Standard Error	0. 248987313	7. 31963798
F/Residual	5. 636102275	17
SS Regression/SS Residual	301. 9660161	910. 8107027
Correlation coefficient R	0. 498986285	

Durbin-Watson statistic calculation implies a value d=1. 911141219 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 663414707·GDP_{2014}+2. 162451974·2015-1. 434602442·2014-1418. 833734=138. 7665192 mil. lei-1995, respectively: 7709. 251065 mil. lei currents, representing a variation of 2. 8%.

Analysis of the results obtained show that, for this county in the region CENTER, 2. 8% variation is a relatively small, being approximately in the region below the growth rate and the national level.

2.15. The Analysis of GDP for Mures during 1995-2014

Statistics on GDP corresponding to the region Mures are the following:

Table 15

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	202. 8	202. 8	2005	6968. 9	243. 9
1996	301. 3	209. 1	2006	8262. 2	264. 4
1997	699. 4	206. 3	2007	9509. 5	266. 3
1998	936. 3	186. 3	2008	11348. 1	272. 4
1999	1443. 6	192. 0	2009	10955. 9	252. 0
2000	2140. 5	199. 1	2010	11014. 1	242. 3
2001	3257. 9	218. 3	2011	11449. 9	240. 4
2002	4066. 2	223. 6	2012	13220. 1	264. 4
2003	5498. 6	247. 4	2013	13616. 0	258. 7
2004	6289. 8	245. 3	2014	14445. 9	274. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	4. 098209398	-7979. 384844
Standard Error X Variable/Standard Error Intercept	0. 592896871	1188. 466696
Adjusted R Square/Standard Error	0. 726353194	15. 28938375
F/Residual	47. 77822074	18
SS Regression/SS Residual	11168. 88798	4207. 7746
Correlation coefficient R	0. 852263571	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 726913516** which implies that errors undergoes a positive autocorrelation.

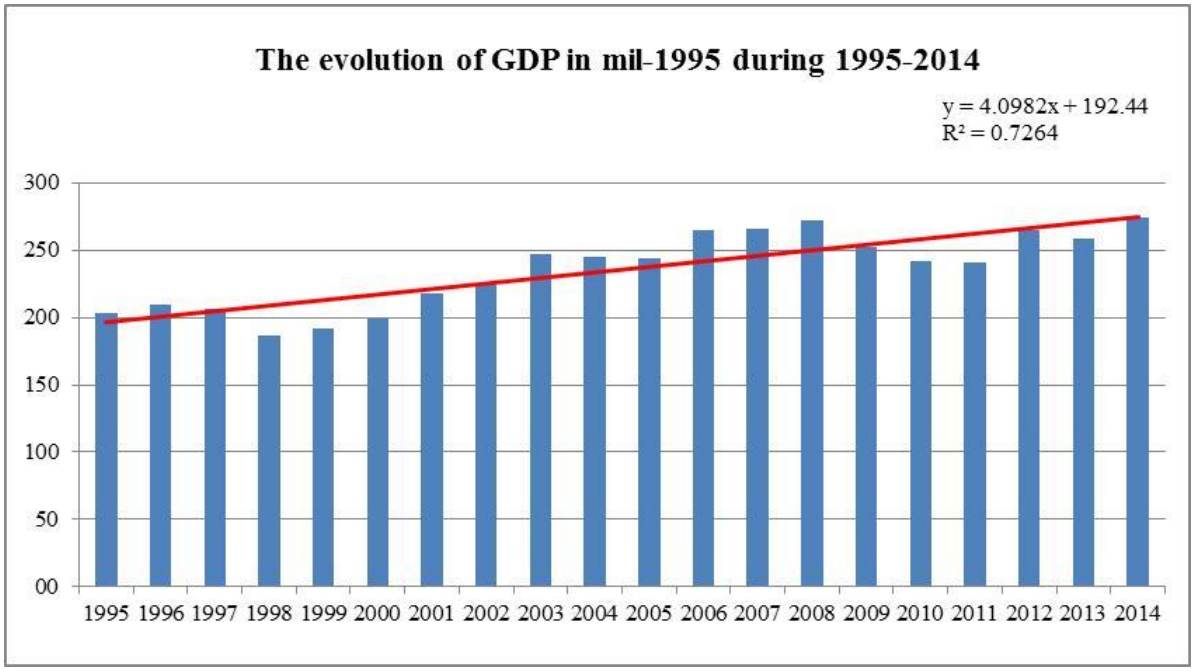

Figure 15

The coefficient of autocorrelation of errors being ρ=0. 635003215 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	4. 400891059	-3134. 477279
Standard Error X Variable/Standard Error Intercept	1. 385916371	1015. 123156
Adjusted R Square/Standard Error	0. 37230934	12. 07712305
F/Residual	10. 08340443	17
SS Regression/SS Residual	1470. 734124	2479. 567321
Correlation coefficient R	0. 610171566	

Durbin-Watson statistic calculation implies a value d=1. 742519237 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 635003215·GDP_{2014}+4. 400891059·2015-2. 794579972·2014-3134. 477279=279. 3248062 mil. lei-1995, respectively: 15518. 04479 mil. lei currents, representing a variation of 1. 77%.

Analysis of the results obtained show that, for this county in the region CENTER, the variation of 1. 77% is very low, being at a level much lower than the growth in the region and at national level.

2.16. The Analysis of GDP for Sibiu during 1995-2014

Statistics on GDP corresponding to the region Sibiu are the following:

Table 16

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	150. 3	150. 3	2005	6098. 9	213. 5
1996	226. 9	157. 5	2006	7769. 2	248. 6
1997	487. 9	143. 9	2007	9211. 2	257. 9
1998	709. 9	141. 3	2008	11481. 0	275. 5
1999	1055. 6	140. 4	2009	11690. 8	268. 9
2000	1645. 7	153. 1	2010	11730. 7	258. 1
2001	2438. 2	163. 4	2011	12238. 0	257. 0
2002	3314. 1	182. 3	2012	13215. 3	264. 3
2003	4162. 9	187. 3	2013	13679. 0	259. 9
2004	5223. 5	203. 7	2014	13907. 4	264. 2

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	8. 203329398	-16234. 02183
Standard Error X Variable/Standard Error Intercept	0. 748555663	1500. 486035
Adjusted R Square/Standard Error	0. 86965682	19. 30344946
F/Residual	120. 0969839	18
SS Regression/SS Residual	44750. 91779	6707. 216901
Correlation coefficient R	0. 932553923	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 380494094** which implies that errors undergoes a positive autocorrelation.

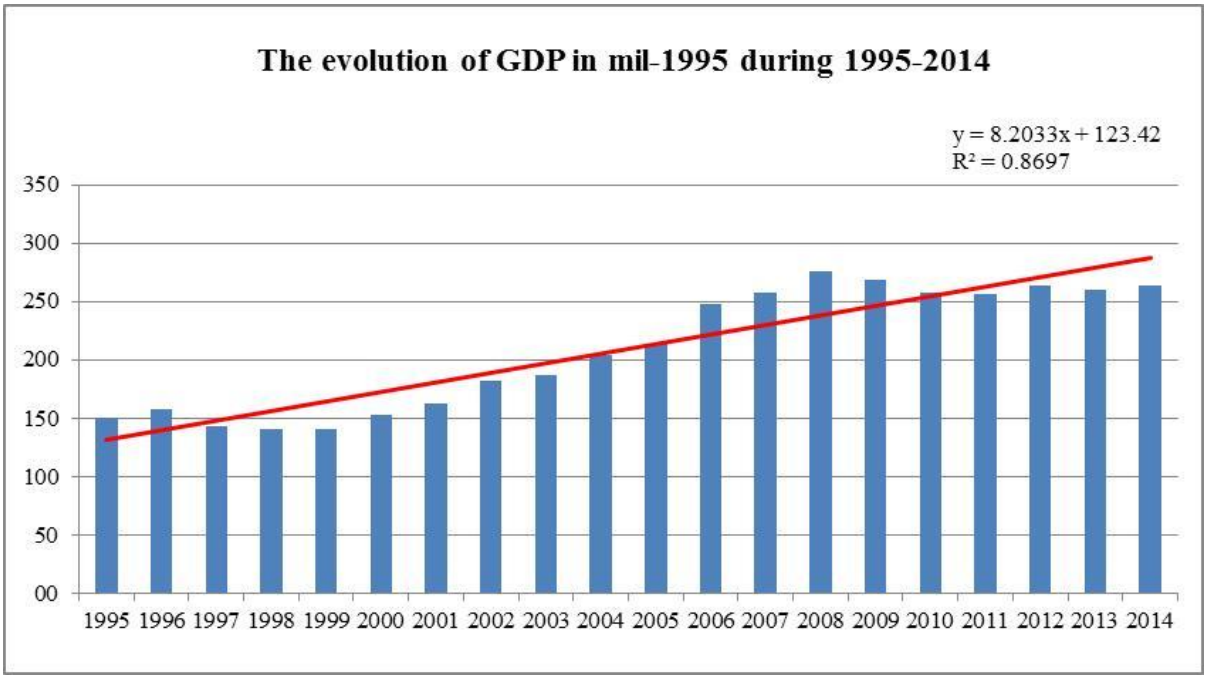

Figure 16

The coefficient of autocorrelation of errors being ρ=0. 803000587 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	8. 204715304	-3200. 606753
Standard Error X Variable/Standard Error Intercept	2. 447634306	968. 7450055
Adjusted R Square/Standard Error	0. 397943986	11. 5119499
F/Residual	11. 23657536	17
SS Regression/SS Residual	1489. 127042	2252. 924837
Correlation coefficient R	0. 630828017	

Durbin-Watson statistic calculation implies a value d=1. 309089024 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4;2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 803000587·GDP_{2014}+8. 204715304·2015-6. 588391208·2014-3200. 606753=275. 0600484 mil. lei-1995, respectively: 15281. 1138 mil. lei currents, representing a variation of 4. 09%.

Analysis of the results obtained show that, for this county in the region CENTER, variation of 4. 09% is very high, much above the growth region and across national.

2.17. The analysis of GDP for MACROREGION TWO during 1995-2014

Statistics on GDP corresponding to the region MACROREGION TWO are the following:

Table 17

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	2051. 3	2051. 3	2005	65480. 9	2291. 8
1996	3042. 6	2111. 6	2006	77183. 9	2469. 9
1997	6646. 0	1960. 6	2007	89929. 8	2518. 0
1998	9450. 5	1880. 6	2008	109443. 2	2626. 6
1999	13447. 4	1788. 5	2009	108520. 6	2496. 0
2000	19172. 8	1783. 1	2010	112816. 4	2482. 0
2001	28109. 4	1883. 3	2011	116790. 2	2452. 6
2002	36403. 6	2002. 2	2012	126250. 0	2525. 0
2003	46709. 9	2101. 9	2013	137534. 0	2613. 1
2004	58298. 3	2273. 6	2014	142408. 7	2705. 8

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	44. 97139767	-87894. 28697
Standard Error X Variable/Standard Error Intercept	5. 906624485	11839. 87777
Adjusted R Square/Standard Error	0. 763060516	152. 3176336
F/Residual	57. 96876497	18
SS Regression/SS Residual	1344913. 695	417611. 9073
Correlation coefficient R	0. 873533351	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i-e_{i-1})^2}{\sum_{i=1}^{n}e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 407980647** which implies that errors undergoes a positive autocorrelation.

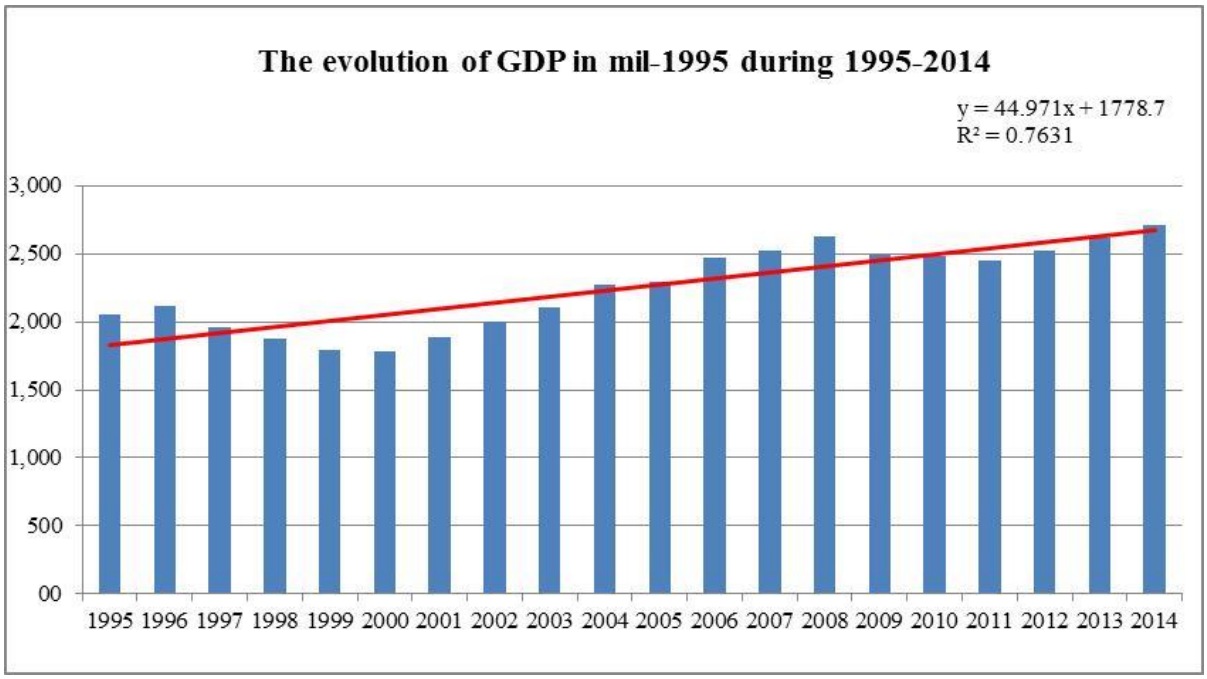

Figure 17

The coefficient of autocorrelation of errors being ρ=0. 786098323 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	65. 42595317	-27600. 05572
Standard Error X Variable/Standard Error Intercept	17. 05375738	7327. 326928
Adjusted R Square/Standard Error	0. 464033125	87. 09068337
F/Residual	14. 71837815	17
SS Regression/SS Residual	111635. 7651	128941. 3812
Correlation coefficient R	0. 681199769	

Durbin-Watson statistic calculation implies a value d=1. 443504764 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 786098323·GDP_{2014}+65. 42595317·2015-51. 43123204·2014-27600. 05572=2777. 736156 mil. lei-1995, respectively: 154318. 6753 mil. lei currents, representing a variation of 2. 66%.

Analysis of the results reveals that for this macroregion, the variation of 2. 66% is important, but under the national level.

2. 18. The Analysis of GDP for Region NORTH EAST during 1995-2014

Statistics on GDP corresponding to the region Region NORTH EAST are the following:

Table 18

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	1038. 8	1038. 8	2005	32521. 0	1138. 2
1996	1550. 2	1075. 8	2006	38115. 8	1219. 7
1997	3223. 1	950. 8	2007	45483. 4	1273. 5
1998	4650. 7	925. 5	2008	55400. 6	1329. 6
1999	6780. 3	901. 8	2009	55162. 8	1268. 7
2000	9618. 0	894. 5	2010	56081. 2	1233. 8
2001	14241. 5	954. 2	2011	57274. 4	1202. 8
2002	18475. 2	1016. 1	2012	61404. 7	1228. 1
2003	23809. 2	1071. 4	2013	65380. 3	1242. 2
2004	28767. 1	1121. 9	2014	67169. 4	1276. 2

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	19. 92481564	-38821. 10467
Standard Error X Variable/Standard Error Intercept	3. 176733944	6367. 789539
Adjusted R Square/Standard Error	0. 686079334	81. 92032494
F/Residual	39. 33932792	18
SS Regression/SS Residual	264003. 855	120796. 9135
Correlation coefficient R	0. 828299061	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 415442409** which implies that errors undergoes a positive autocorrelation.

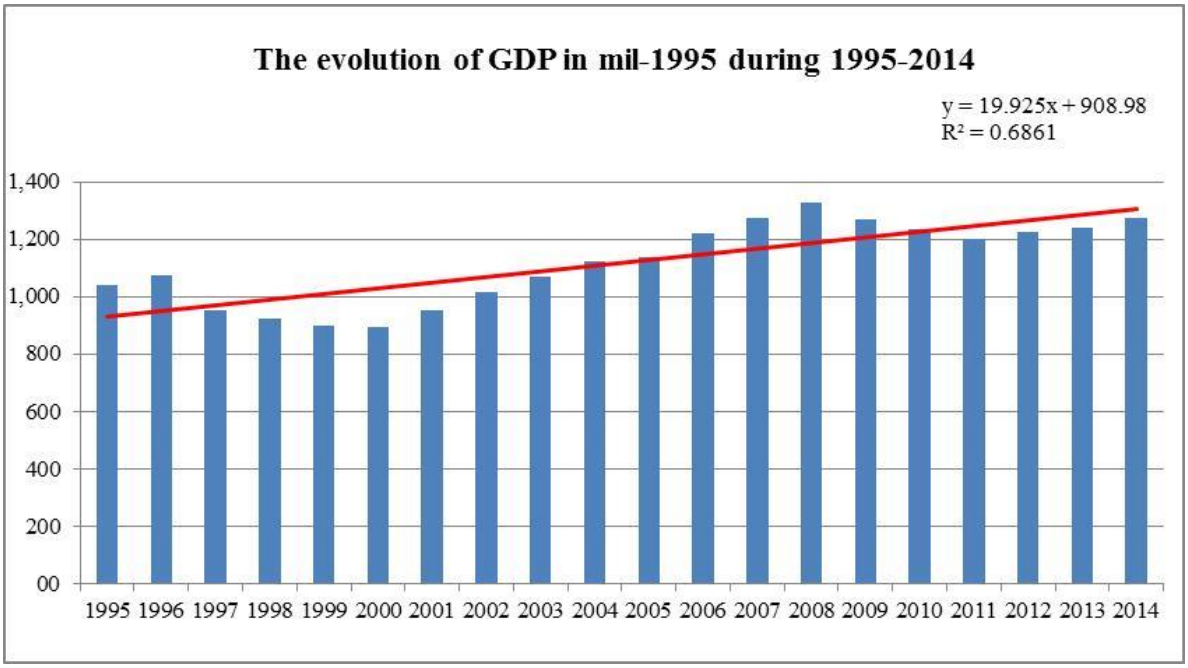

Figure 18

The coefficient of autocorrelation of errors being ρ=0. 785387137 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	26. 9018714	-11346. 28282
Standard Error X Variable/Standard Error Intercept	9. 504919951	4097. 435832
Adjusted R Square/Standard Error	0. 320289707	48. 70142173
F/Residual	8. 010655539	17
SS Regression/SS Residual	18999. 90094	40321. 08414
Correlation coefficient R	0. 565941434	

Durbin-Watson statistic calculation implies a value d=1. 331870565 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4;2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 785387137·GDP_{2014}+26. 9018714·2015-21. 12838376·2014-11346. 28282=1310. 748835 mil. lei-1995, respectively: 72819. 37972 mil. lei currents, representing a variation of 2. 71%.

Analysis of the results shows that, in the region of the macroregion TWO, the variation of 2. 71% across the entire area, but it is lower to the rate of increase in the national level.

2.19. The Analysis of GDP for Bacau during 1995-2014

Statistics on GDP corresponding to the region Bacau are the following:

Table 19

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	232. 3	232. 3	2005	7178. 0	251. 2
1996	351. 2	243. 7	2006	8415. 5	269. 3
1997	759. 3	224. 0	2007	9742. 2	272. 8
1998	1088. 1	216. 5	2008	12097. 3	290. 3
1999	1512. 8	201. 2	2009	11957. 3	275. 0
2000	2113. 4	196. 5	2010	12169. 1	267. 7
2001	3129. 5	209. 7	2011	11724. 4	246. 2
2002	4107. 7	225. 9	2012	12612. 4	252. 2
2003	5260. 3	236. 7	2013	12463. 0	236. 8
2004	6545. 3	255. 3	2014	12836. 5	243. 9

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	2. 438033985	-4644. 668183
Standard Error X Variable/Standard Error Intercept	0. 836277263	1676. 324709
Adjusted R Square/Standard Error	0. 320734654	21. 56557846
F/Residual	8. 499217282	18
SS Regression/SS Residual	3952. 766458	8371. 335135
Correlation coefficient R	0. 566334401	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 421086482** which implies that errors undergoes a positive autocorrelation.

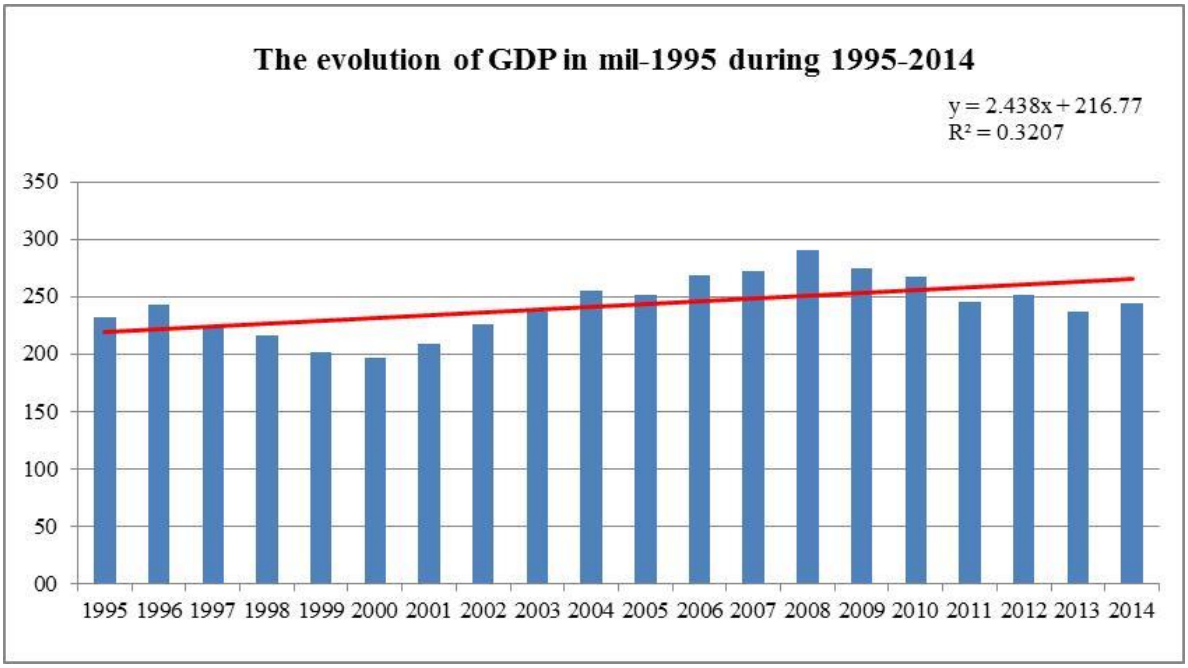

Figure 19

The coefficient of autocorrelation of errors being ρ=0. 784734414 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 120979774	-864. 328126
Standard Error X Variable/Standard Error Intercept	2. 646981294	1144. 538409
Adjusted R Square/Standard Error	0. 036393362	13. 60388353
F/Residual	0. 642053636	17
SS Regression/SS Residual	118. 8220717	3146. 116002
Correlation coefficient R	0. 190770442	

Durbin-Watson statistic calculation implies a value d=1. 593273104 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 784734414·GDP_{2014}+2. 120979774·2015-1. 664405821·2014-864. 328126=248. 7244187 mil. lei-1995, respectively: 13818. 02326 mil. lei currents, representing a variation of 1. 98%.

Analysis of the results obtained show that, for this county in the region NORTH EAST, the variation is very modest 1. 98%, significantly below the regional level and under the national level.

2.20. The analysis of GDP for Botosani during 1995-2014

Statistics on GDP corresponding to the region Botosani are the following:

Table 20

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	104. 3	104. 3	2005	3031. 0	106. 1
1996	153. 1	106. 3	2006	3550. 6	113. 6
1997	328. 9	97. 0	2007	4540. 3	127. 1
1998	458. 2	91. 2	2008	5538. 8	132. 9
1999	684. 9	91. 1	2009	5577. 6	128. 3
2000	955. 2	88. 8	2010	5483. 5	120. 6
2001	1374. 6	92. 1	2011	5804. 5	121. 9
2002	1826. 8	100. 5	2012	5966. 6	119. 3
2003	2332. 9	105. 0	2013	6705. 0	127. 4
2004	2603. 4	101. 5	2014	6629. 9	126. 0

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	1. 980923534	-3860. 708999
Standard Error X Variable/Standard Error Intercept	0. 336372355	674. 2611755
Adjusted R Square/Standard Error	0. 658322504	8. 674233696
F/Residual	34. 68125713	18
SS Regression/SS Residual	2609. 498601	1354. 361944
Correlation coefficient R	0. 811370756	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 501220409** which implies that errors undergoes a positive autocorrelation.

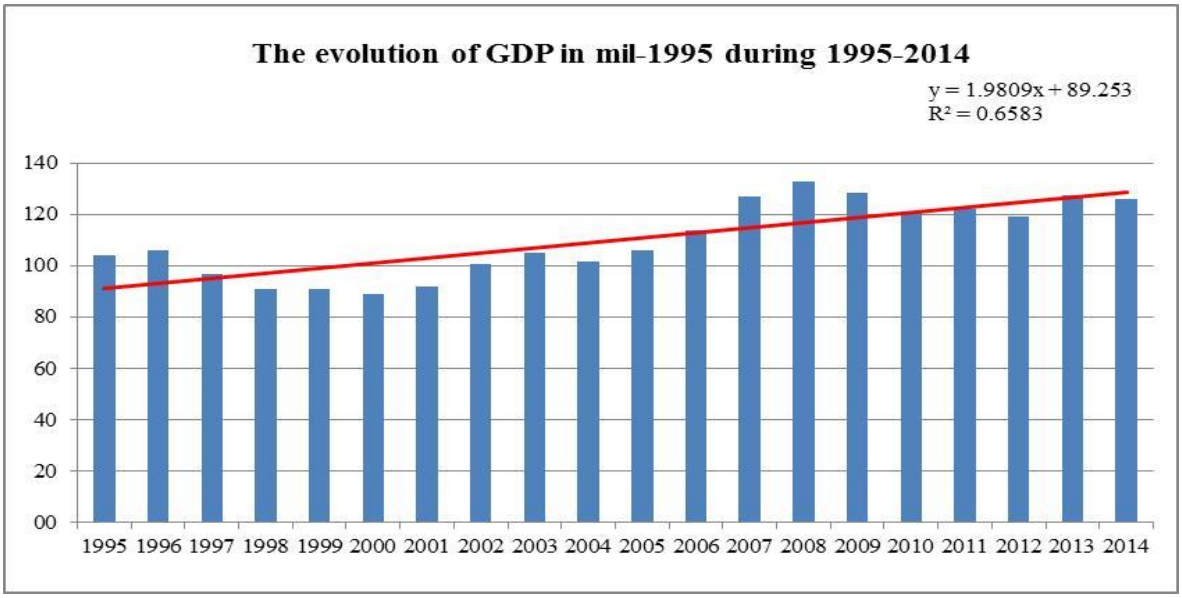

Figure 20

The coefficient of autocorrelation of errors being ρ=0. 737658818 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 711537657	-1398. 461017
Standard Error X Variable/Standard Error Intercept	0. 881058628	464. 0832606
Adjusted R Square/Standard Error	0. 357801432	5. 518343201
F/Residual	9. 471563249	17
SS Regression/SS Residual	288. 4291018	517. 6858986
Correlation coefficient R	0. 598165054	

Durbin-Watson statistic calculation implies a value d=1. 371944639 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4;2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 737658818·GDP_{2014}+2. 711537657·2015-2. 000189664·2014-1398. 461017=129. 8268595 mil. lei-1995, respectively: 7212. 603303 mil. lei currents, representing a variation of 3. 06%.

Surprising, the analysis of the results obtained show that, for this county in the region NORTH EAST, the variation of 3. 06% is above that of the region even under the growth at the national level.

2.21. The Analysis of GDP for Iasi during 1995-2014

Statistics on GDP corresponding to the region Iasi are the following:

Table 21

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	252. 7	252. 7	2005	8702. 9	304. 6
1996	378. 2	262. 5	2006	10052. 7	321. 7
1997	749. 3	221. 0	2007	12276. 9	343. 8
1998	1133. 7	225. 6	2008	15290. 3	367. 0
1999	1698. 9	226. 0	2009	15092. 6	347. 1
2000	2463. 5	229. 1	2010	16281. 8	358. 2
2001	3708. 3	248. 5	2011	16575. 7	348. 1
2002	4757. 4	261. 7	2012	17586. 6	351. 7
2003	6109. 4	274. 9	2013	19668. 3	373. 7
2004	7295. 2	284. 5	2014	20604. 2	391. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	9. 020786767	-17782. 47879
Standard Error X Variable/Standard Error Intercept	0. 82212232	1647. 951008
Adjusted R Square/Standard Error	0. 869939453	21. 20055653
F/Residual	120. 3970807	18
SS Regression/SS Residual	54114. 10494	8090. 344746
Correlation coefficient R	0. 932705448	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 599857347** which implies that errors undergoes a positive autocorrelation.

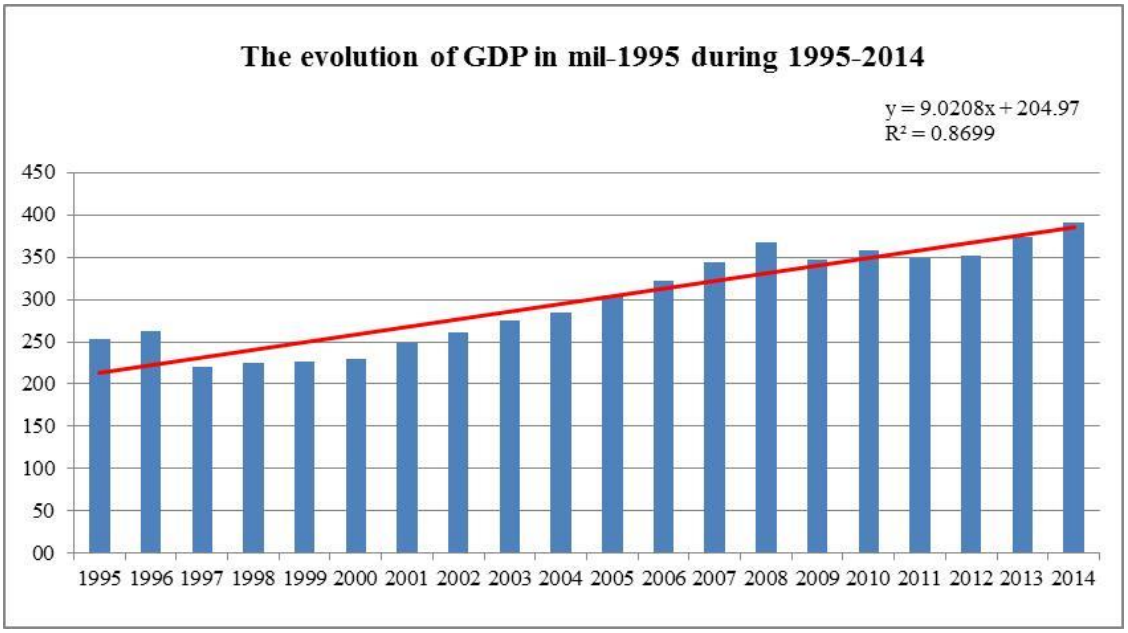

Figure 21

The coefficient of autocorrelation of errors being ρ=0. 674400857 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.
With the new data we obtain:

Regression real/computed		
X Variable/Intercept	11. 32795177	-7299. 51477
Standard Error X Variable/Standard Error Intercept	1. 783104533	1165. 264367
Adjusted R Square/Standard Error	0. 703625268	13. 86109323
F/Residual	40. 35981568	17
SS Regression/SS Residual	7754. 327573	3266. 208394
Correlation coefficient R	0. 838823741	

Durbin-Watson statistic calculation implies a value d=2. 030829761 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 674400857·GDP_{2014}+11. 32795177·2015-7. 639580385·2014-7299. 51477=404. 207461 mil. lei-1995, respectively: 22455. 97005 mil. lei currents, representing a variation of 3. 25%.

Analysis of the results obtained show that, for this county in the region NORTH EAST, the variation of 3. 25% is above that of the region, compared to the national growth rate being very close.

2.22. The Analysis of GDP for Neamt during 1995-2014

Statistics on GDP corresponding to the region Neamt are the following:

Table 22

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	170. 1	170. 1	2005	4880. 2	170. 8
1996	253. 5	175. 9	2006	5763. 6	184. 4
1997	475. 2	140. 2	2007	6516. 5	182. 5
1998	670. 5	133. 4	2008	7620. 8	182. 9
1999	1003. 1	133. 4	2009	7477. 7	172. 0
2000	1471. 0	136. 8	2010	7272. 1	160. 0
2001	2171. 4	145. 5	2011	7639. 6	160. 4
2002	2690. 6	148. 0	2012	8310. 6	166. 2
2003	3279. 2	147. 6	2013	8817. 3	167. 5
2004	4236. 1	165. 2	2014	8843. 0	168. 0

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	1. 292143233	-2429. 557986
Standard Error X Variable/Standard Error Intercept	0. 589968911	1182. 597575
Adjusted R Square/Standard Error	0. 210419878	15. 21387869
F/Residual	4. 796926479	18
SS Regression/SS Residual	1110. 3067	4166. 317887
Correlation coefficient R	0. 458715465	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 55656707** which implies that errors undergoes a positive autocorrelation.

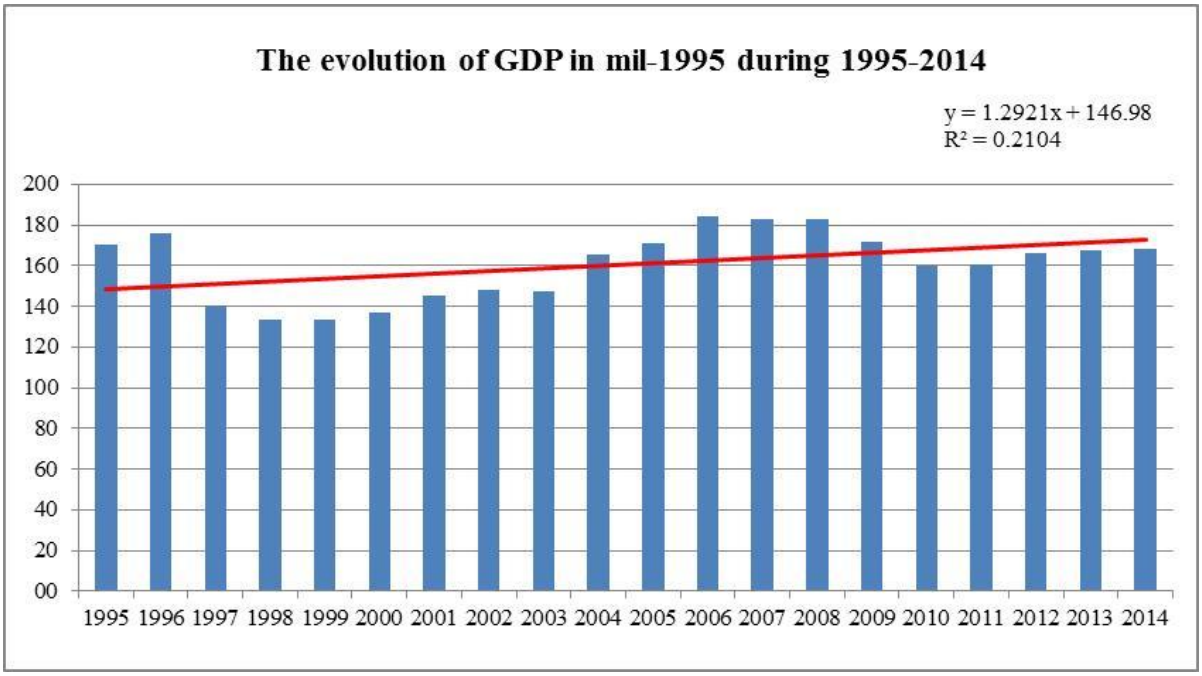

Figure 22

The coefficient of autocorrelation of errors being ρ=0. 709075962 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 403400796	-1357. 132572
Standard Error X Variable/Standard Error Intercept	1. 46901511	857. 92531
Adjusted R Square/Standard Error	0. 136034037	10. 20336205
F/Residual	2. 676701089	17
SS Regression/SS Residual	278. 6675952	1769. 84615
Correlation coefficient R	0. 368827924	

Durbin-Watson statistic calculation implies a value d=1. 643622955 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 709075962·GDP_{2014}+2. 403400796·2015-1. 704193732·2014-1357. 132572=172. 6106708 mil. lei-1995, respectively: 9589. 481708 mil. lei currents, representing a variation of 2. 73%.

Analysis of the results obtained show that, for this county in the region NORTH EAST, the variation of 2. 73% is in the region, reported national growth rate being very low.

2. 23. The Analysis of GDP for Suceava during 1995-2014

Statistics on GDP corresponding to the region Suceava are the following:

Table 23

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	180. 0	180. 0	2005	6116. 1	214. 1
1996	270. 7	187. 9	2006	7027. 2	224. 9
1997	574. 5	169. 5	2007	8708. 5	243. 8
1998	857. 6	170. 7	2008	9808. 9	235. 4
1999	1261. 2	167. 7	2009	10205. 4	234. 7
2000	1842. 7	171. 4	2010	10026. 1	220. 6
2001	2604. 3	174. 5	2011	10538. 0	221. 3
2002	3533. 3	194. 3	2012	11103. 4	222. 1
2003	4571. 5	205. 7	2013	11890. 3	225. 9
2004	5534. 0	215. 8	2014	12249. 3	232. 7

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	3. 742129023	-7295. 448536
Standard Error X Variable/Standard Error Intercept	0. 542330882	1087. 106751
Adjusted R Square/Standard Error	0. 725656465	13. 98540856
F/Residual	47. 61116889	18
SS Regression/SS Residual	9312. 347198	3520. 649744
Correlation coefficient R	0. 851854721	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 495245844** which implies that errors undergoes a positive autocorrelation.

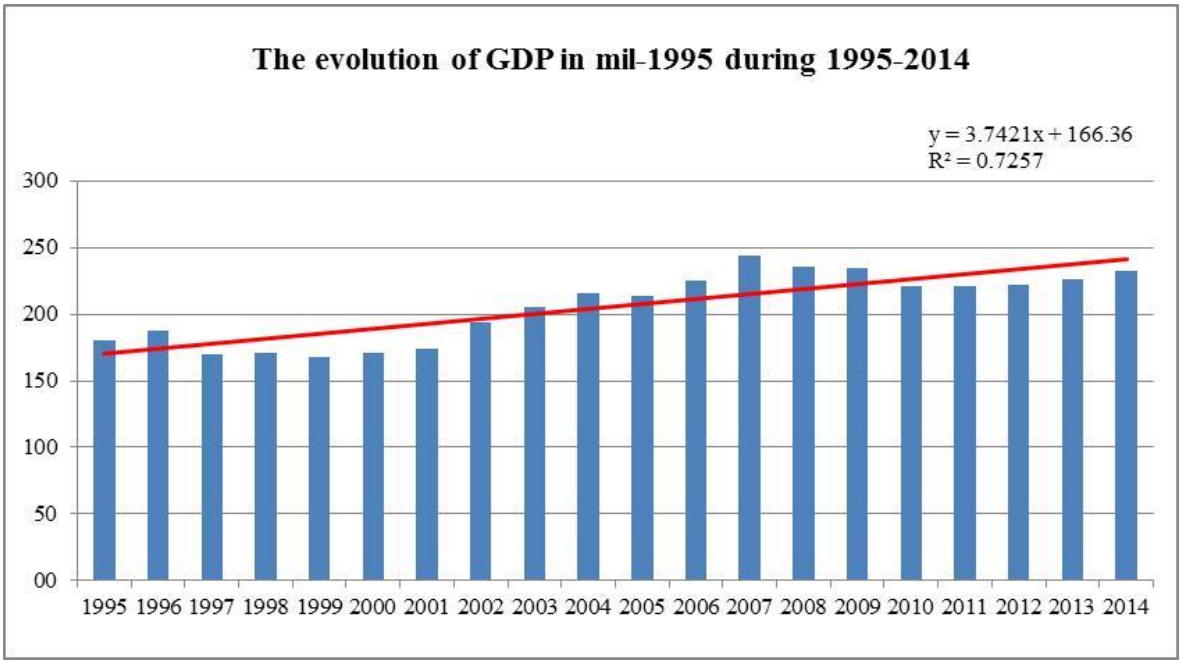

Figure 23

The coefficient of autocorrelation of errors being ρ=0. 748526007 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	3. 990953034	-1961. 114734
Standard Error X Variable/Standard Error Intercept	1. 564807857	790. 1587425
Adjusted R Square/Standard Error	0. 276742206	9. 394886207
F/Residual	6. 50475881	17
SS Regression/SS Residual	574. 1352955	1500. 486076
Correlation coefficient R	0. 52606293	

Durbin-Watson statistic calculation implies a value d=1. 609785772 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 748526007·GDP_{2014}+3. 990953034·2015-2. 987332137·2014-1961. 114734=238. 378178 mil. lei-1995, respectively: 13243. 23211 mil. lei currents, representing a variation of 2. 42%.

Analysis of the results obtained show that, for this county in the region NORTH EAST, the variation of 2. 42% is under the region, the growth of national reported being very low.

2.24. The Analysis of GDP for Vaslui during 1995-2014

Statistics on GDP corresponding to the region Vaslui are the following:

Table 24

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	99. 4	99. 4	2005	2612. 8	91. 4
1996	143. 5	99. 6	2006	3306. 2	105. 8
1997	335. 9	99. 1	2007	3699. 0	103. 6
1998	442. 6	88. 1	2008	5044. 5	121. 1
1999	619. 4	82. 4	2009	4852. 2	111. 6
2000	772. 2	71. 8	2010	4848. 6	106. 7
2001	1253. 4	84. 0	2011	4992. 2	104. 8
2002	1559. 4	85. 8	2012	5825. 1	116. 5
2003	2255. 9	101. 5	2013	5836. 4	110. 9
2004	2553. 1	99. 6	2014	6006. 5	114. 1

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	1. 450799098	-2808. 242171
Standard Error X Variable/Standard Error Intercept	0. 373116387	747. 9148918
Adjusted R Square/Standard Error	0. 456506952	9. 621773864
F/Residual	15. 11909889	18
SS Regression/SS Residual	1399. 703985	1666. 413581
Correlation coefficient R	0. 675652982	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 926648179** which implies that errors undergoes a positive autocorrelation.

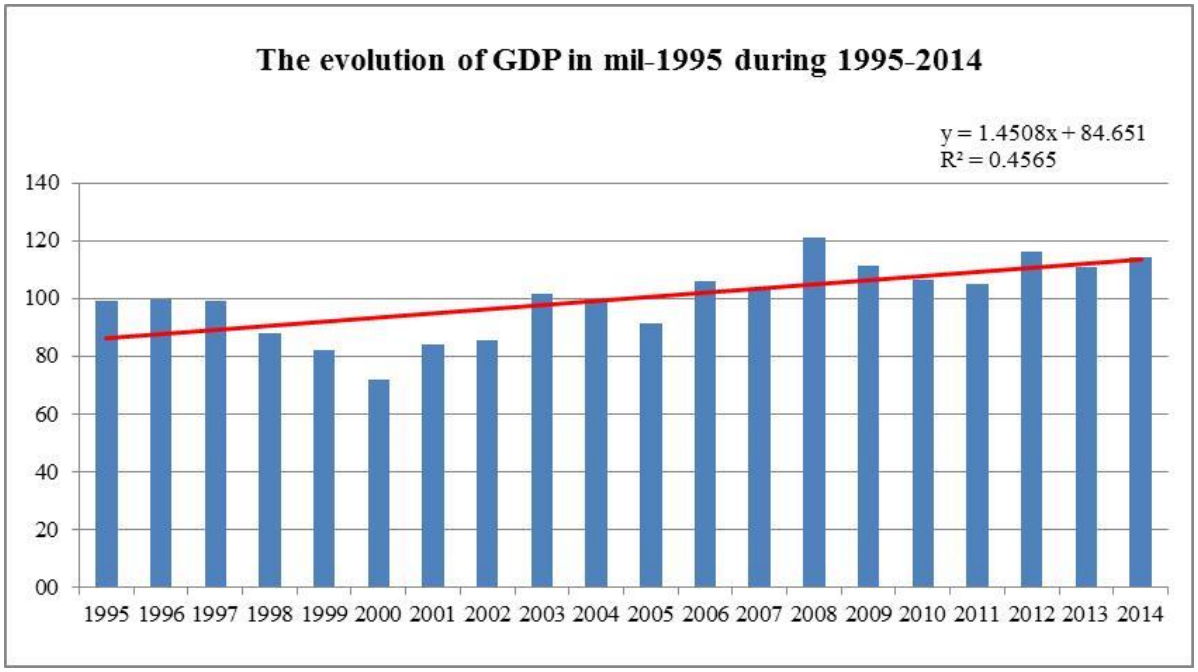

Figure 24

The coefficient of autocorrelation of errors being ρ=0. 512888279 implies that we will perform a data transformation of the form: $GDP^{*}_{n}=GDP_{n}-\rho GDP_{n-1}$ and $Year^{*}_{n}=Year_{n}-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	1. 938168703	-1844. 85913
Standard Error X Variable/Standard Error Intercept	0. 679052491	663. 5534783
Adjusted R Square/Standard Error	0. 323964307	7. 897131216
F/Residual	8. 146601251	17
SS Regression/SS Residual	508. 0601918	1060. 199584
Correlation coefficient R	0. 569178625	

Durbin-Watson statistic calculation implies a value d=2. 195495372 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 512888279·GDP_{2014}+1. 938168703·2015-0. 994064011·2014-1844. 85913=117. 0384939 mil. lei-1995, respectively: 6502. 138552 mil. lei currents, representing a variation of 2. 55%.

Analysis of the results obtained show that, for this county in the region NORTH EAST, the variation of 2. 55% is under the region, the growth of national reported being very low.

2.25. The Analysis of GDP for Region SOUTH-EST during 1995-2014

Statistics on GDP corresponding to the region Region SOUTH-EST are the following:

Table 25

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	1012. 5	1012. 5	2005	32959. 9	1153. 6
1996	1492. 4	1035. 7	2006	39068. 1	1250. 2
1997	3422. 9	1009. 8	2007	44446. 4	1244. 5
1998	4799. 8	955. 2	2008	54042. 6	1297. 0
1999	6667. 1	886. 7	2009	53357. 8	1227. 2
2000	9554. 8	888. 6	2010	56735. 2	1248. 2
2001	13867. 9	929. 1	2011	59515. 8	1249. 8
2002	17928. 4	986. 1	2012	64845. 3	1296. 9
2003	22900. 7	1030. 5	2013	72153. 7	1370. 9
2004	29531. 2	1151. 7	2014	75239. 3	1429. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	25. 04658203	-49073. 1823
Standard Error X Variable/Standard Error Intercept	3. 013450475	6040. 486469
Adjusted R Square/Standard Error	0. 79329975	77. 70963712
F/Residual	69. 08262321	18
SS Regression/SS Residual	417175. 2955	108698. 1786
Correlation coefficient R	0. 890673762	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 460200582** which implies that errors undergoes a positive autocorrelation.

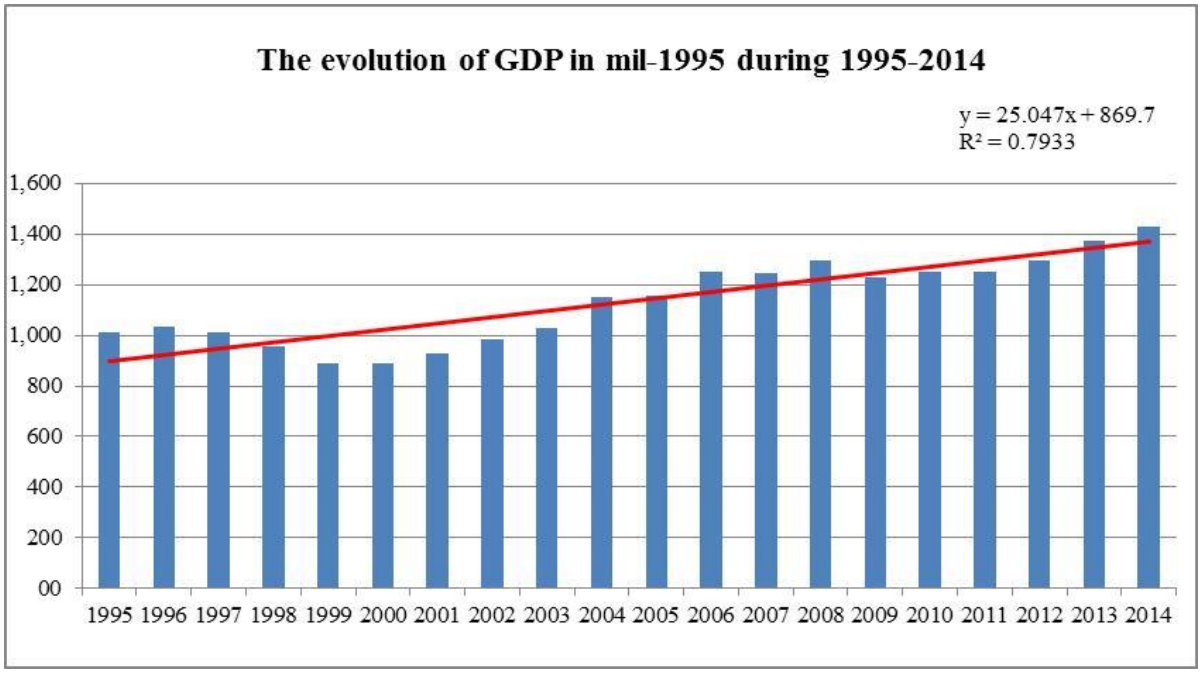

Figure 25

The coefficient of autocorrelation of errors being ρ=0. 750864085 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	36. 45349288	-17936. 27815
Standard Error X Variable/Standard Error Intercept	7. 802370696	3903. 293818
Adjusted R Square/Standard Error	0. 562177971	46. 40880085
F/Residual	21. 82856242	17
SS Regression/SS Residual	47013. 85125	36614. 20554
Correlation coefficient R	0. 749785283	

Durbin-Watson statistic calculation implies a value d=1. 729451704 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 750864085·GDP_{2014}+36. 45349288·2015-27. 37161858·2014-17936. 27815=1464. 465456 mil. lei-1995, respectively: 81359. 19198 mil. lei currents, representing a variation of 2. 44%.

Analysis of the results shows that, in the region within the macroregion TWO, the variation of 2. 44% is in the NORTH EAST region, the counties with a higher tendency to increase being Braila, Buzau and Tulcea.

2. 26. The Analysis of GDP for Braila during 1995-2014

Statistics on GDP corresponding to the region Braila are the following:

Table 26

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	114. 5	114. 5	2005	3633. 1	127. 2
1996	167. 9	116. 5	2006	4451. 3	142. 4
1997	382. 5	112. 8	2007	5621. 3	157. 4
1998	546. 3	108. 7	2008	6675. 7	160. 2
1999	784. 9	104. 4	2009	6783. 0	156. 0
2000	1032. 1	96. 0	2010	6263. 9	137. 8
2001	1588. 3	106. 4	2011	7062. 0	148. 3
2002	2081. 4	114. 5	2012	6951. 9	139. 0
2003	2622. 5	118. 0	2013	7442. 7	141. 4
2004	3367. 4	131. 3	2014	7357. 1	139. 8

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	2. 540799925	-4964. 395984
Standard Error X Variable/Standard Error Intercept	0. 48376397	969. 7088897
Adjusted R Square/Standard Error	0. 605133767	12. 4751088
F/Residual	27. 58505771	18
SS Regression/SS Residual	4293. 016732	2801. 310114
Correlation coefficient R	0. 777903444	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 541777571** which implies that errors undergoes a positive autocorrelation.

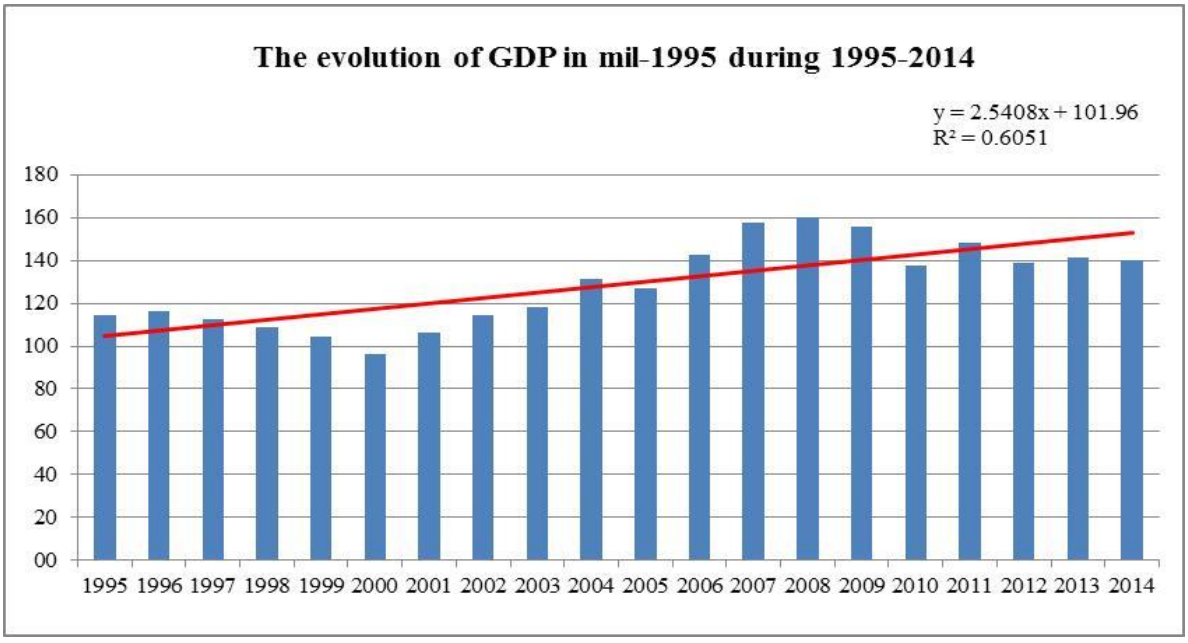

Figure 26

The coefficient of autocorrelation of errors being ρ=0. 720001877 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 58135105	-1413. 834585
Standard Error X Variable/Standard Error Intercept	1. 307431328	734. 9311145
Adjusted R Square/Standard Error	0. 186530103	8. 740000036
F/Residual	3. 898130432	17
SS Regression/SS Residual	297. 7688307	1298. 589211
Correlation coefficient R	0. 43189131	

Durbin-Watson statistic calculation implies a value d=1. 740274802 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 720001877·GDP_{2014}+2. 58135105·2015-1. 858577602·2014-1413. 834585=145. 0578809 mil. lei-1995, respectively: 8058. 771163 mil. lei currents, representing a variation of 3. 77%.

Analysis of the results obtained show that, for this county in the region SOUTH-EST, the variation of 3. 77% is over the region, the growth of reported being higher than the national.

2. 27. The Analysis of GDP for Buzau during 1995-2014

Statistics on GDP corresponding to the region Buzau are the following:

Table 27

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	136. 6	136. 6	2005	4403. 7	154. 1
1996	201. 7	140. 0	2006	5317. 1	170. 1
1997	458. 5	135. 3	2007	6206. 7	173. 8
1998	608. 9	121. 2	2008	7789. 1	186. 9
1999	981. 3	130. 5	2009	7740. 1	178. 0
2000	1294. 2	120. 4	2010	7845. 0	172. 6
2001	1965. 0	131. 7	2011	7967. 7	167. 3
2002	2367. 3	130. 2	2012	8740. 0	174. 8
2003	3378. 9	152. 1	2013	9614. 3	182. 7
2004	4324. 8	168. 7	2014	9431. 1	179. 2

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	3. 274101353	-6407. 633393
Standard Error X Variable/Standard Error Intercept	0. 453361307	908. 7665004
Adjusted R Square/Standard Error	0. 743425003	11. 69109729
F/Residual	52. 15492617	18
SS Regression/SS Residual	7128. 626882	2460. 271604
Correlation coefficient R	0. 862220971	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 874420899** which implies that errors undergoes a positive autocorrelation.

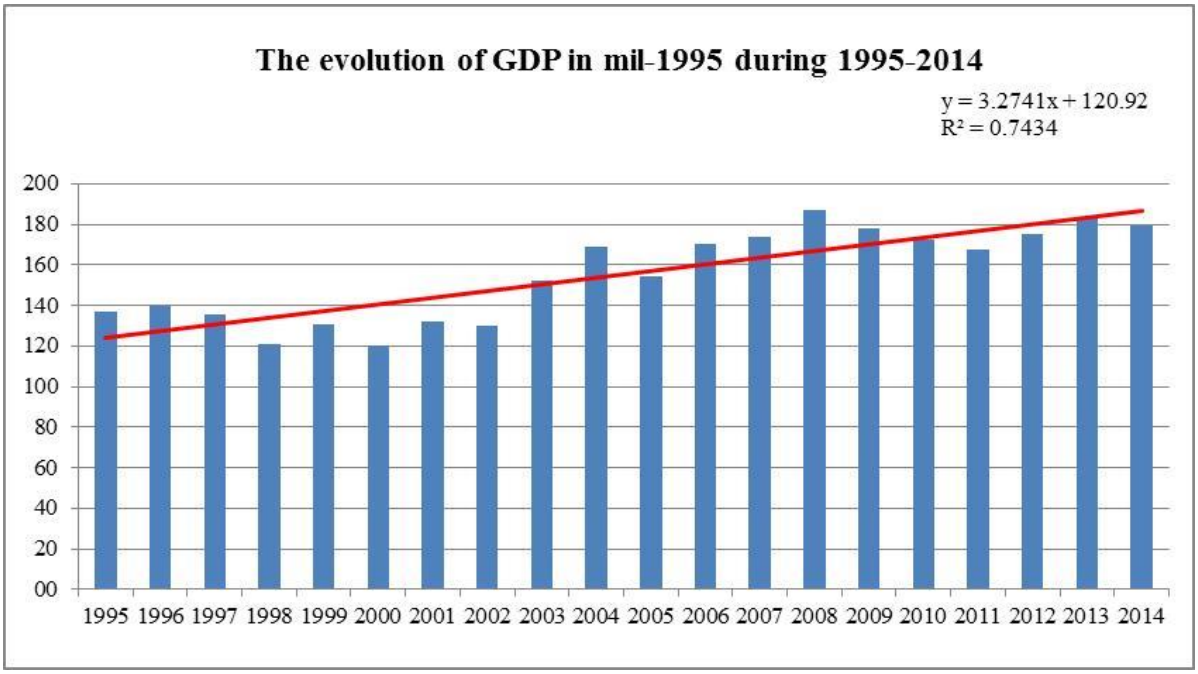

Figure 27

The coefficient of autocorrelation of errors being ρ=0. 547096177 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	3. 601557046	-3200. 434681
Standard Error X Variable/Standard Error Intercept	0. 896722256	814. 782151
Adjusted R Square/Standard Error	0. 486887354	9. 696195503
F/Residual	16. 13112655	17
SS Regression/SS Residual	1516. 587336	1598. 275523
Correlation coefficient R	0. 697773139	

Durbin-Watson statistic calculation implies a value d=2. 070400709 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 547096177·GDP_{2014}+3. 601557046·2015-1. 97039809·2014-3200. 434681=186. 3556681 mil. lei-1995, respectively: 10353. 09267 mil. lei currents, representing a variation of 4. 00%.

Analysis of the results obtained show that, for this county in the region SOUTH-EST, the variation of 4. 00% is above the region, the growth rate of reported being very high than in the case of national.

2.28. The Analysis of GDP for Constanta during 1995-2014

Statistics on GDP corresponding to the region Constanta are the following:

Table 28

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	316. 7	316. 7	2005	12738. 0	445. 8
1996	466. 5	323. 8	2006	15008. 2	480. 3
1997	1193. 7	352. 1	2007	16316. 9	456. 9
1998	1673. 4	333. 0	2008	19307. 6	463. 4
1999	2283. 2	303. 7	2009	19680. 6	452. 7
2000	3491. 1	324. 7	2010	21245. 8	467. 4
2001	4930. 3	330. 3	2011	22203. 6	466. 3
2002	6697. 5	368. 4	2012	26694. 1	533. 9
2003	8306. 1	373. 8	2013	30908. 0	587. 3
2004	10506. 5	409. 8	2014	33901. 5	644. 1

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	14. 91858519	-29482. 59875
Standard Error X Variable/Standard Error Intercept	1. 409643951	2825. 642992
Adjusted R Square/Standard Error	0. 861543513	36. 35132578
F/Residual	112. 0047427	18
SS Regression/SS Residual	148005. 1824	23785. 53995
Correlation coefficient R	0. 928193683	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 582286334** which implies that errors undergoes a positive autocorrelation.

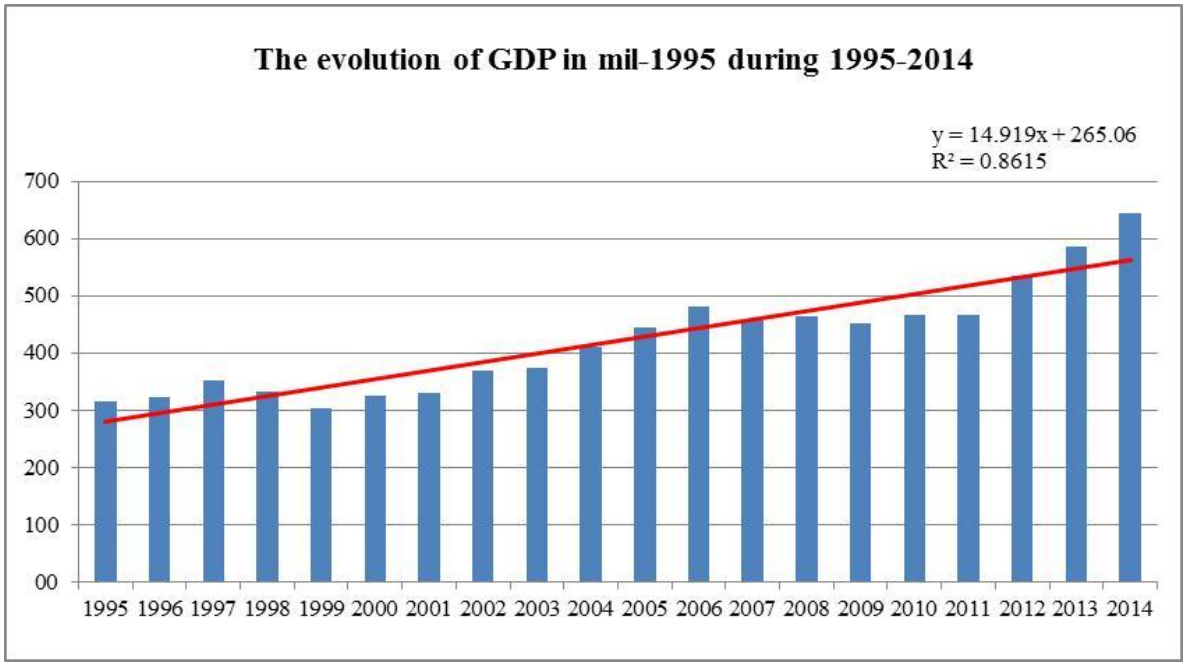

Figure 28

The coefficient of autocorrelation of errors being ρ=0. 656455084 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	19. 49905593	-13285. 81125
Standard Error X Variable/Standard Error Intercept	3. 168175025	2184. 350797
Adjusted R Square/Standard Error	0. 690232679	25. 98544269
F/Residual	37. 87990122	17
SS Regression/SS Residual	25578. 14691	11479. 13494
Correlation coefficient R	0. 830802431	

Durbin-Watson statistic calculation implies a value d=1. 252514648 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4;2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 656455084·GDP_{2014}+19. 49905593·2015-12. 8002544·2014-13285. 81125=647. 9155153 mil. lei-1995, respectively: 35995. 30641 mil. lei currents, representing a variation of 0. 59%.

Analysis of the results reveals that, despite speculation regarding the rate of economic growth (which is true in recent years) for this county in the region southeast, the variation of 0. 59% is well below the region's, the growth rate reported one at national level being very low.

2.29. The Analysis of GDP for Galati during 1995-2014

Statistics on GDP corresponding to the region Galati are the following:

Table 29

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	235. 1	235. 1	2005	6569. 4	229. 9
1996	345. 7	239. 9	2006	7226. 0	231. 2
1997	759. 0	223. 9	2007	8533. 6	238. 9
1998	1081. 9	215. 3	2008	10608. 7	254. 6
1999	1382. 8	183. 9	2009	9745. 2	224. 1
2000	1966. 0	182. 8	2010	11066. 5	243. 5
2001	2917. 6	195. 5	2011	11343. 5	238. 2
2002	3539. 3	194. 7	2012	11316. 9	226. 3
2003	4441. 8	199. 9	2013	12245. 3	232. 7
2004	5992. 6	233. 7	2014	12649. 1	240. 3

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	1. 550999173	-2885. 749807
Standard Error X Variable/Standard Error Intercept	0. 746354562	1496. 073911
Adjusted R Square/Standard Error	0. 193494123	19. 24668837
F/Residual	4. 318498255	18
SS Regression/SS Residual	1599. 722959	6667. 830241
Correlation coefficient R	0. 439879669	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 688622895** which implies that errors undergoes a positive autocorrelation.

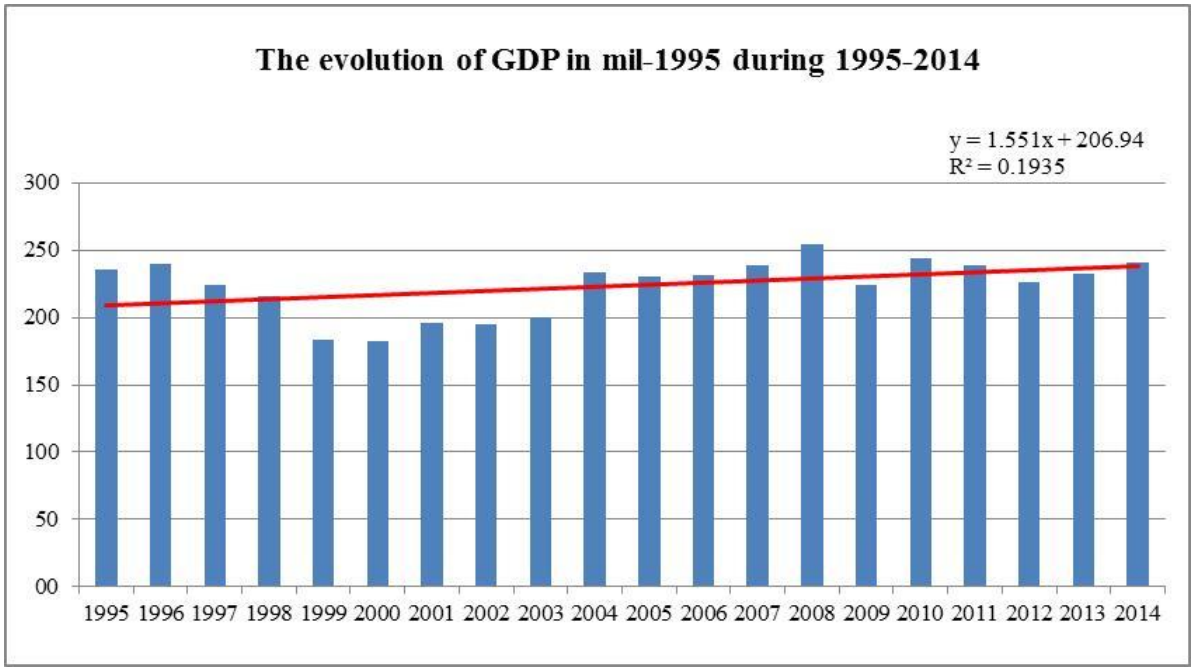

Figure 29

The coefficient of autocorrelation of errors being ρ=0. 638698784 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 91645417	-2033. 965492
Standard Error X Variable/Standard Error Intercept	1. 633868464	1184. 636882
Adjusted R Square/Standard Error	0. 157841453	14. 09366491
F/Residual	3. 18622273	17
SS Regression/SS Residual	632. 8838518	3376. 733641
Correlation coefficient R	0. 397292654	

Durbin-Watson statistic calculation implies a value d=2. 127805737 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 638698784·GDP_{2014}+2. 91645417·2015-1. 862735732·2014-2033. 965492=244. 640228 mil. lei-1995, respectively: 13591. 12378 mil. lei currents, representing a variation of 1. 79%.

Analysis of the results shows that for the county in the South-East region, the variation of 1. 79% is well below the level of the region and also to nearly the half of the adjacent county Braila (3. 77%), the rate of reported growth of national very low.

2.30. The Analysis of GDP for Tulcea during 1995-2014

Statistics on GDP corresponding to the region Tulcea are the following:

Table 30

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	72. 7	72. 7	2005	2467. 1	86. 3
1996	105. 5	73. 2	2006	2967. 7	95. 0
1997	234. 5	69. 2	2007	3225. 5	90. 3
1998	333. 5	66. 4	2008	4128. 8	99. 1
1999	459. 0	61. 0	2009	4011. 9	92. 3
2000	653. 4	60. 8	2010	4525. 8	99. 6
2001	1011. 6	67. 8	2011	5205. 5	109. 3
2002	1365. 5	75. 1	2012	4899. 4	98. 0
2003	1865. 1	83. 9	2013	5287. 8	100. 5
2004	2305. 8	89. 9	2014	5151. 6	97. 9

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	2. 228778271	-4383. 174889
Standard Error X Variable/Standard Error Intercept	0. 276720047	554. 6876292
Adjusted R Square/Standard Error	0. 782795687	7. 1359442
F/Residual	64. 87128258	18
SS Regression/SS Residual	3303. 355966	916. 5905932
Correlation coefficient R	0. 884757417	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 843675384** which implies that errors undergoes a positive autocorrelation.

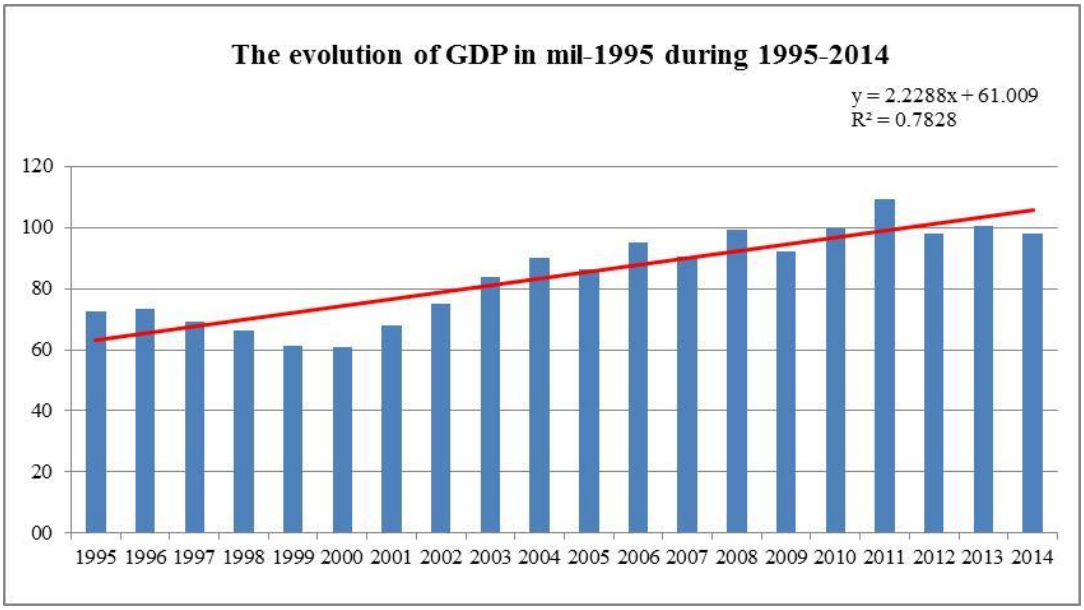

Figure 30

The coefficient of autocorrelation of errors being ρ=0. 548076598 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 432188577	-2166. 002424
Standard Error X Variable/Standard Error Intercept	0. 536954554	486. 8340759
Adjusted R Square/Standard Error	0. 546875263	5. 793483695
F/Residual	20. 51726315	17
SS Regression/SS Residual	688. 6507213	570. 5957066
Correlation coefficient R	0. 739510151	

Durbin-Watson statistic calculation implies a value d=2. 03885338 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 548076598·GDP_{2014}+2. 432188577·2015-1. 333025641·2014-2166. 002424=103. 7898746 mil. lei-1995, respectively: 5766. 104144 mil. lei currents, representing a variation of 6. 04%.

Analysis results show that for this county in the region southeast, the variation of 6. 04% is far above the region reported growth of national being extraordinarily high.

2.31. The Analysis of GDP for Vrancea during 1995-2014

Statistics on GDP corresponding to the region Vrancea are the following:

Table 31

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	136. 9	136. 9	2005	3148. 6	110. 2
1996	205. 1	142. 3	2006	4097. 8	131. 1
1997	394. 7	116. 4	2007	4542. 4	127. 2

1998	555. 8	110. 6	2008	5532. 7	132. 8
1999	775. 9	103. 2	2009	5397. 0	124. 1
2000	1118. 0	104. 0	2010	5788. 2	127. 3
2001	1455. 1	97. 5	2011	5733. 5	120. 4
2002	1877. 4	103. 3	2012	6243. 0	124. 9
2003	2286. 3	102. 9	2013	6655. 6	126. 5
2004	3034. 1	118. 3	2014	6748. 9	128. 2

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	0. 53331812	-949. 6294771
Standard Error X Variable/Standard Error Intercept	0. 4964828	995. 2038906
Adjusted R Square/Standard Error	0. 060243096	12. 80309684
F/Residual	1. 153889614	18
SS Regression/SS Residual	189. 1447646	2950. 547195
Correlation coefficient R	0. 245444691	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 619727392** which implies that errors undergoes a positive autocorrelation.

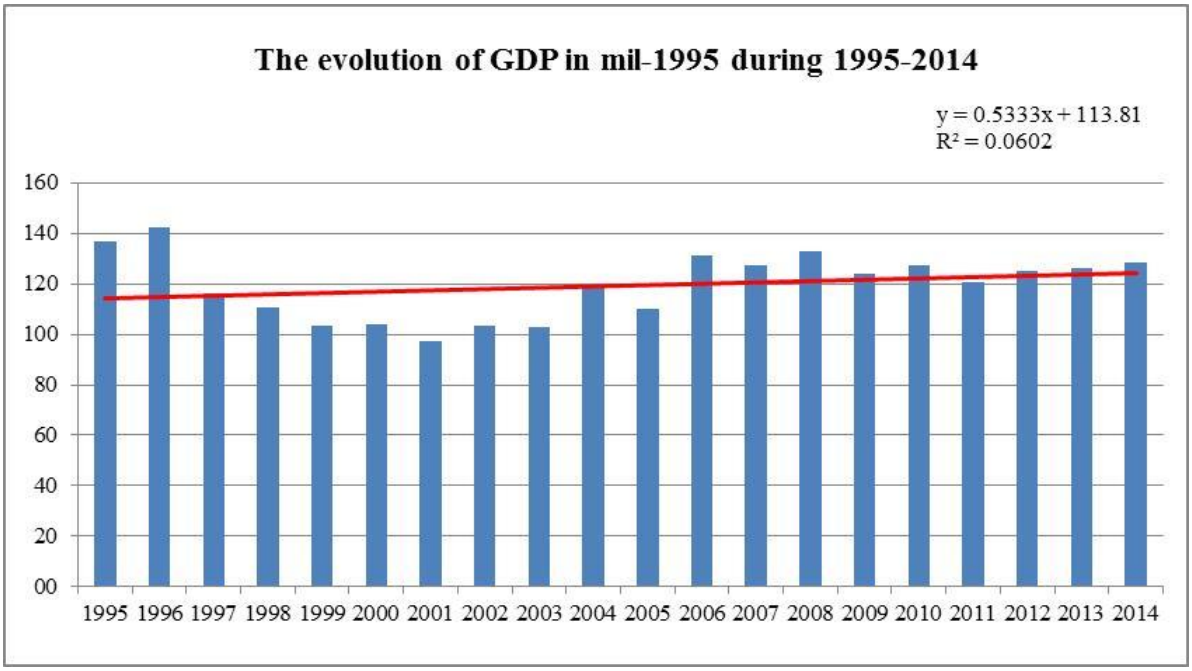

Figure 31

The coefficient of autocorrelation of errors being ρ=0. 664886894 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

the new data we obtain:

Regression real/computed		
X Variable/Intercept	1. 845106926	-1201. 554632
Standard Error X Variable/Standard Error Intercept	1. 071071913	720. 3699471
Adjusted R Square/Standard Error	0. 148620898	8. 569341929
F/Residual	2. 967603104	17
SS Regression/SS Residual	217. 9218419	1248. 371559
Correlation coefficient R	0. 38551381	

Durbin-Watson statistic calculation implies a value d=2. 639639517 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4;2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 664886894·GDP_{2014}+1. 845106926·2015-1. 226787413·2014-1201. 554632=130. 843823 mil. lei-1995, respectively: 7269. 101277 mil. lei currents, representing a variation of 2. 04%.

Analysis of the results shows that for the county in the South-East region, the variation is about 2. 04% in the region, the growth of national reported being much lower.

2.32. The Analysis of GDP for MACROREGION THREE during 1995-2014

Statistics on GDP corresponding to the region MACROREGION THREE are the following:

Table 32

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	2318. 8	2318. 8	2005	106098. 3	3713. 4
1996	3413. 0	2368. 6	2006	125174. 6	4005. 6
1997	7536. 2	2223. 2	2007	153176. 2	4288. 9
1998	11503. 1	2289. 1	2008	204318. 9	4903. 7
1999	17400. 5	2314. 3	2009	193476. 3	4450. 0
2000	28264. 1	2628. 6	2010	204169. 5	4491. 7
2001	40264. 6	2697. 7	2011	223660. 8	4696. 9
2002	52016. 9	2860. 9	2012	228828. 7	4576. 6
2003	67259. 1	3026. 7	2013	248648. 3	4724. 3
2004	85481. 6	3333. 8	2014	265736. 6	5049. 0

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	168. 9961749	-335204. 7472
Standard Error X Variable/Standard Error Intercept	11. 08956433	22229. 12367
Adjusted R Square/Standard Error	0. 928067172	285. 9731815
F/Residual	232. 2334536	18
SS Regression/SS Residual	18992205. 24	1472051. 89
Correlation coefficient R	0. 96336243	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 665399061** which implies that errors undergoes a positive autocorrelation.

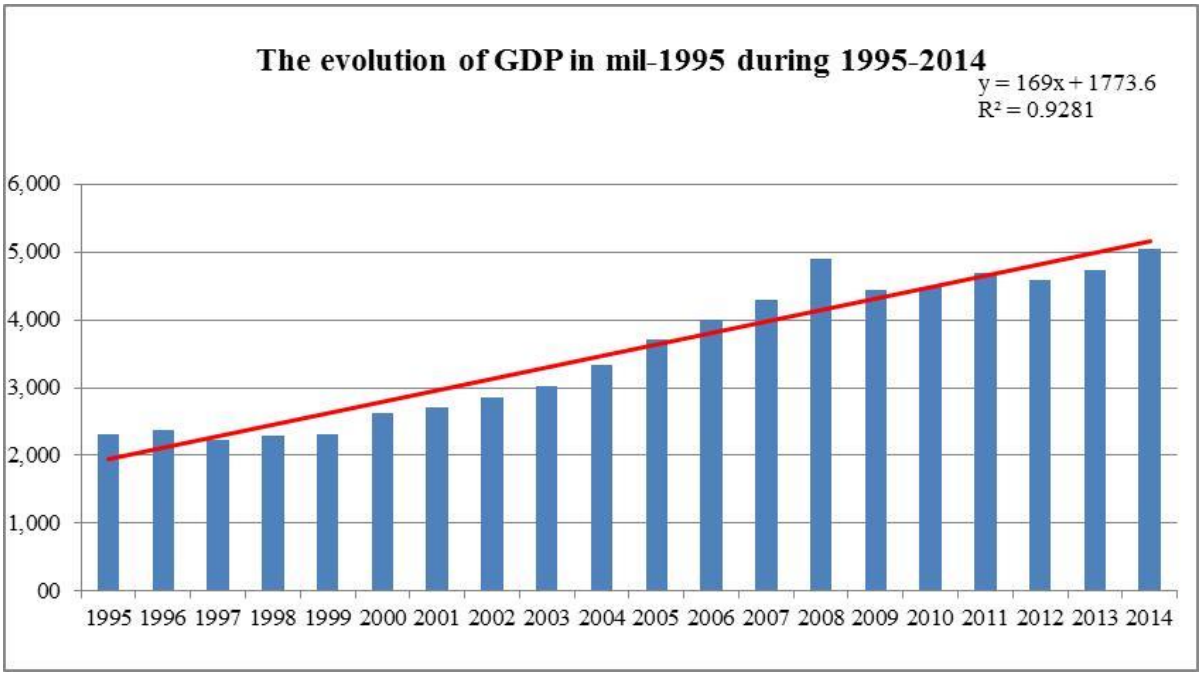

Figure 32

The coefficient of autocorrelation of errors being ρ=0. 653288266 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	184. 574847	-127082. 6139
Standard Error X Variable/Standard Error Intercept	25. 25998452	17576. 22327
Adjusted R Square/Standard Error	0. 758496416	209. 0927856
F/Residual	53. 39233009	17
SS Regression/SS Residual	2334301. 619	743236. 481
Correlation coefficient R	0. 870916997	

Durbin-Watson statistic calculation implies a value d=1. 919332027 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 653288266·GDP_{2014}+184. 574847·2015-120. 5805817·2014-127082. 6139=5284. 860854 mil. lei-1995, respectively: 293603. 3808 mil. lei currents, representing a variation of 4. 67%.

Analysis of the results reveals that for this macroregion, the variation of 4. 67% is very high, above the growth rate of national, but many due to the areas Bucharest and Ilfov.

2.33. The Analysis of GDP for Region SOUTH-MUNTENIA during 1995-2014

Statistics on GDP corresponding to the region Region SOUTH-MUNTENIA are the following:

Table 33

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	1162. 7	1162. 7	2005	36663. 5	1283. 2
1996	1693. 8	1175. 5	2006	44050. 7	1409. 6
1997	3615. 6	1066. 6	2007	51348. 3	1437. 8
1998	4979. 0	990. 8	2008	64740. 0	1553. 8
1999	7105. 9	945. 1	2009	65901. 4	1515. 7
2000	9973. 1	927. 5	2010	66784. 2	1469. 3
2001	15229. 8	1020. 4	2011	70037. 1	1470. 8
2002	19318. 0	1062. 5	2012	71130. 8	1422. 6
2003	24866. 1	1119. 0	2013	77804. 3	1478. 3
2004	32191. 3	1255. 5	2014	86814. 7	1649. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	32. 7408418	-64358. 21625
Standard Error X Variable/Standard Error Intercept	4. 638590652	9298. 093434
Adjusted R Square/Standard Error	0. 7345933	119. 6180921
F/Residual	49. 82044312	18
SS Regression/SS Residual	712855. 2102	257552. 7832
Correlation coefficient R	0. 857084185	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 427917637** which implies that errors undergoes a positive autocorrelation.

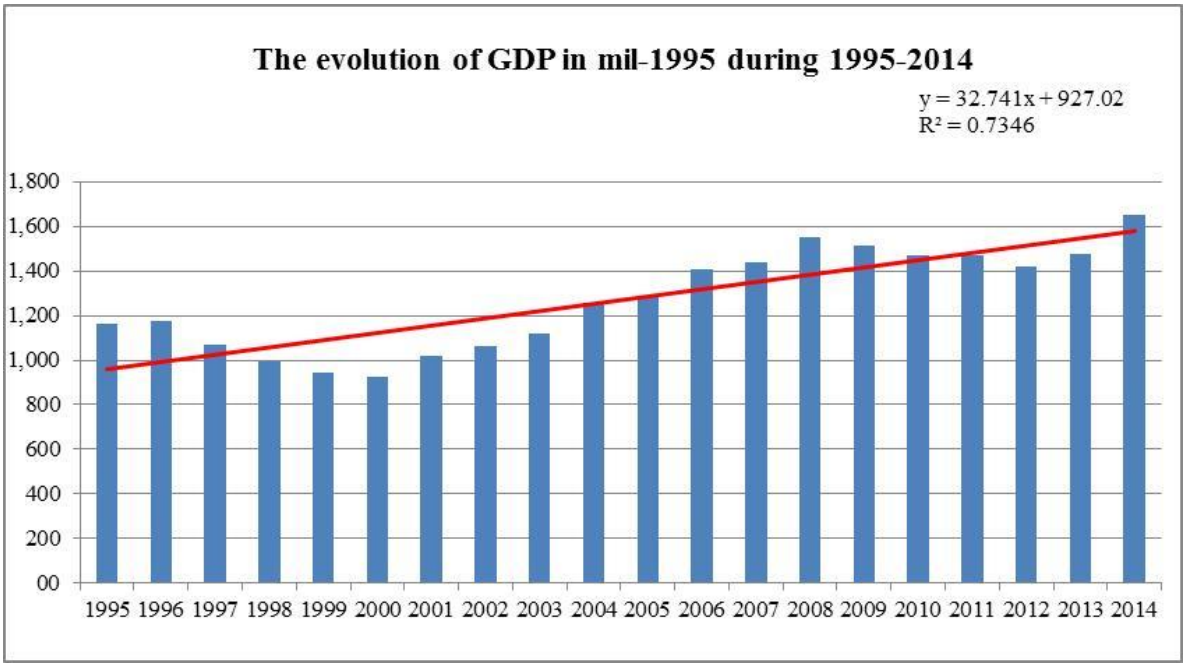

Figure 33

The coefficient of autocorrelation of errors being ρ=0. 768655624 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	52. 07321422	-23878. 94922
Standard Error X Variable/Standard Error Intercept	12. 19953859	5668. 099081
Adjusted R Square/Standard Error	0. 517316018	67. 38136105
F/Residual	18. 21973099	17
SS Regression/SS Residual	82722. 09385	77184. 21289
Correlation coefficient R	0. 719246841	

Durbin-Watson statistic calculation implies a value d=1. 413910761 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 768655624·GDP_{2014}+52. 07321422·2015-40. 02636897·2014-23878. 94922=1703. 351863 mil. lei-1995, respectively: 94630. 65904 mil. lei currents, representing a variation of 3. 27%.

Analysis of the results reveals that for this region, the variation of 3. 27% growth rate is close to the national level, but under the Region Bucharest - Ilfov that records a rate of 6. 61%.

2.34. The Analysis of GDP for Arges during 1995-2014

Statistics on GDP corresponding to the region Arges are the following:

Table 34

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	246. 7	246. 7	2005	9793. 1	342. 8
1996	372. 9	258. 8	2006	11938. 4	382. 0
1997	834. 3	246. 1	2007	13828. 5	387. 2
1998	1180. 0	234. 8	2008	16911. 9	405. 9
1999	1574. 6	209. 4	2009	17851. 9	410. 6
2000	2334. 9	217. 1	2010	16706. 0	367. 5
2001	3525. 1	236. 2	2011	16765. 3	352. 1
2002	4687. 7	257. 8	2012	15818. 3	316. 4
2003	6170. 3	277. 7	2013	16906. 0	321. 2
2004	7979. 8	311. 2	2014	17878. 3	339. 7

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	8. 319996767	-16371. 37276
Standard Error X Variable/Standard Error Intercept	1. 725449574	3458. 677981
Adjusted R Square/Standard Error	0. 563647019	44. 49519293
F/Residual	23. 25100727	18
SS Regression/SS Residual	46032. 86022	35636. 7995
Correlation coefficient R	0. 75076429	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 278517316** which implies that errors undergoes a positive autocorrelation.

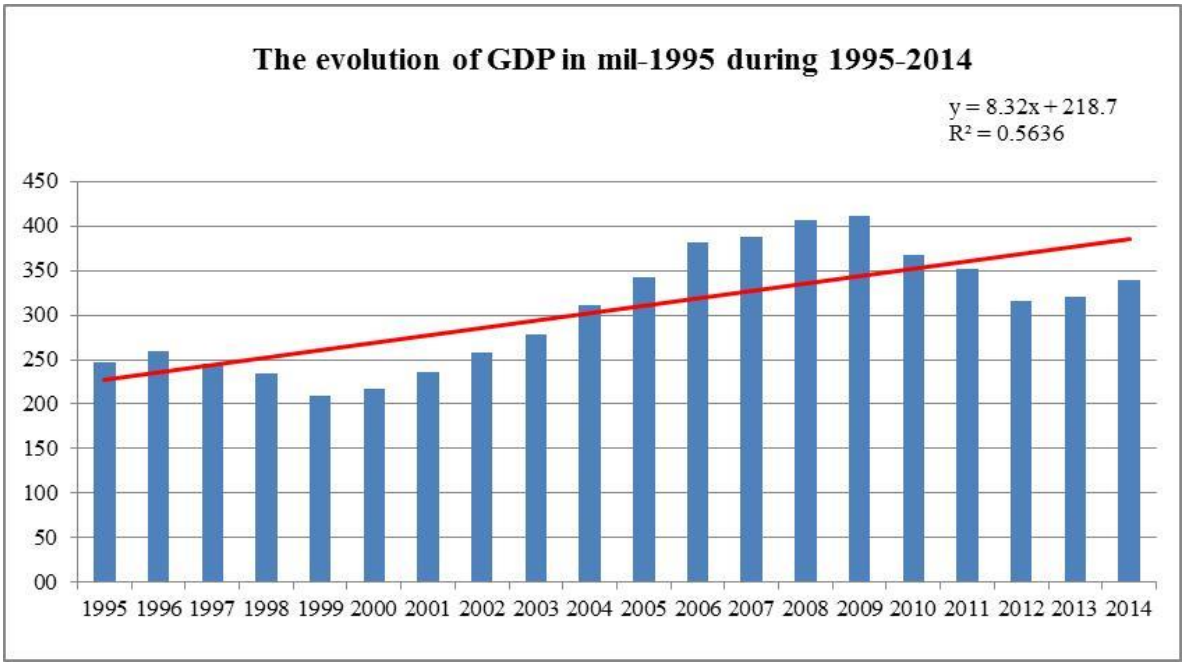

Figure 34

The coefficient of autocorrelation of errors being ρ=0. 859043377 implies that we will perform a data transformation of the form: $GDP^{*}_{n}=GDP_{n}-\rho GDP_{n-1}$ and $Year^{*}_{n}=Year_{n}-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	5. 913813769	-1628. 644703
Standard Error X Variable/Standard Error Intercept	6. 906192099	1957. 754376
Adjusted R Square/Standard Error	0. 041349418	23. 24136162
F/Residual	0. 733259975	17
SS Regression/SS Residual	396. 0783604	9182. 735126
Correlation coefficient R	0. 203345562	

Durbin-Watson statistic calculation implies a value d=0. 876233892 which implies that errors undergoes a positive autocorrelation.

The coefficient of autocorrelation of errors being ρ'=**0. 558980692** implies that we will perform a data transformation of the form: $GDP^{**}_{n}=GDP^{*}_{n}-\rho' GDP^{*}_{n-1}$ and $Year^{**}_{n}=Year^{*}_{n}-\rho' Year^{*}_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	9. 482298142	-1164. 886619
Standard Error X Variable/Standard Error Intercept	14. 45357792	1808. 563951
Adjusted R Square/Standard Error	0. 026195593	19. 77722472
F/Residual	0. 430404176	16
SS Regression/SS Residual	168. 3476945	6258. 217885
Correlation coefficient R	0. 161850526	

Durbin-Watson statistic calculation implies a value d=1. 960313945 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=1. 418024069·GDP_{2014}-0. 480188661·GDP_{2013}+9. 482298142·2015-13. 446127·2014+ 4. 553292051·2013-1164. 886619=319. 596269 mil. lei-1995, respectively: 17755. 34828 mil. lei currents, representing a variation of -5. 91%.

Analysis results show that for this county in the region SOUTH-MUNTENIA, the variation of -5. 91% is one of concern both locally and nationally as.

It is noted that the regression equation of the GDP is dependent to a large extent by GDP in the previous year, which results in the economic strategy errors lead to long-lasting effect, with negative repercussions on the medium.

2.35. The Analysis of GDP for Calarasi during 1995-2014

Statistics on GDP corresponding to the region Calarasi are the following:

Table 35

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	98. 2	98. 2	2005	2299. 8	80. 5
1996	142. 4	98. 8	2006	2744. 6	87. 8
1997	315. 2	93. 0	2007	3161. 0	88. 5
1998	403. 0	80. 2	2008	4604. 3	110. 5
1999	530. 8	70. 6	2009	4200. 6	96. 6
2000	705. 7	65. 6	2010	5448. 2	119. 9
2001	1184. 2	79. 3	2011	5476. 4	115. 0
2002	1269. 7	69. 8	2012	5522. 8	110. 5
2003	1715. 8	77. 2	2013	5776. 8	109. 8
2004	2509. 4	97. 9	2014	5845. 4	111. 1

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	1. 72298812	-3360. 691017
Standard Error X Variable/Standard Error Intercept	0. 512030522	1026. 369427
Adjusted R Square/Standard Error	0. 386153593	13. 20403516
F/Residual	11. 32329617	18
SS Regression/SS Residual	1974. 177562	3138. 237803
Correlation coefficient R	0. 621412579	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 862292353** which implies that errors undergoes a positive autocorrelation.

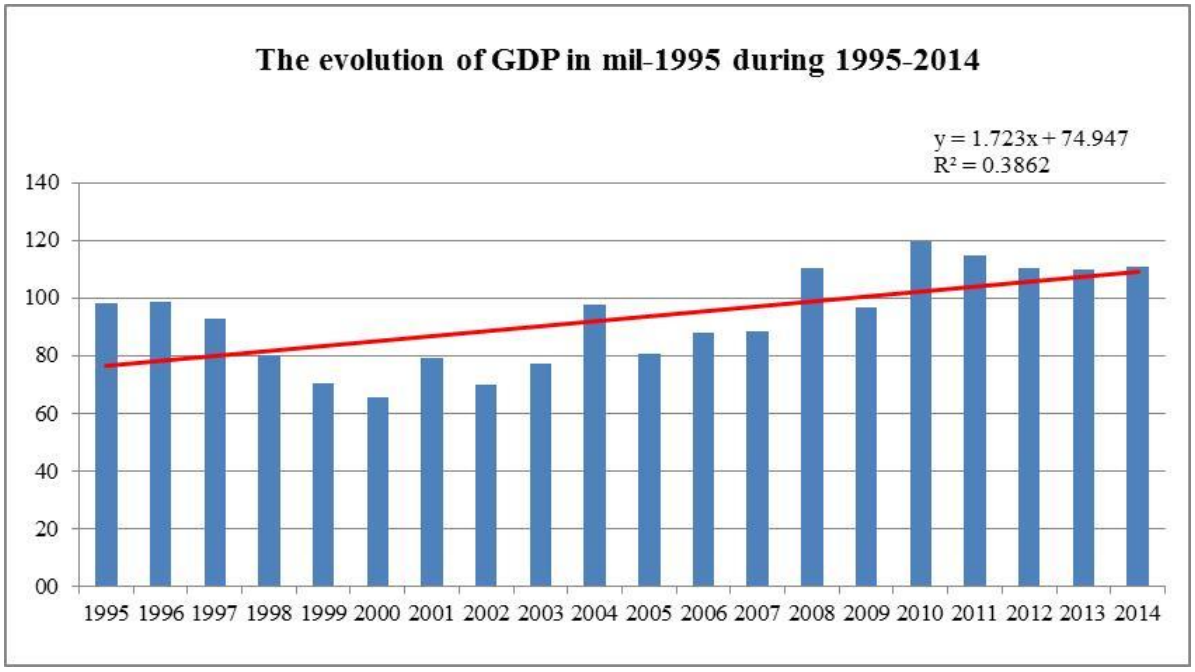

Figure 35

The coefficient of autocorrelation of errors being ρ=0. 537765023 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 573926564	-2343. 606517
Standard Error X Variable/Standard Error Intercept	0. 932826583	865. 0309397
Adjusted R Square/Standard Error	0. 309325133	10. 29440256
F/Residual	7. 613607358	17
SS Regression/SS Residual	806. 8499383	1801. 570308
Correlation coefficient R	0. 556170057	

Durbin-Watson statistic calculation implies a value d=2. 565109448 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 537765023·GDP_{2014}+2. 573926564·2015-1. 384167678·2014-2343. 606517=114. 8673879 mil. lei-1995, respectively: 6381. 521553 mil. lei currents, representing a variation of 3. 43%.

Analysis results show that for this county in the region SOUTH-MUNTENIA, the variation of 3. 43% is one close to the national.

2.36. The Analysis of GDP for Dambovita during 1995-2014

Statistics on GDP corresponding to the region Dambovita are the following:

Table 36

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	166. 5	166. 5	2005	5081. 8	177. 9
1996	240. 5	166. 9	2006	6338. 9	202. 8
1997	506. 8	149. 5	2007	7944. 3	222. 4
1998	711. 7	141. 6	2008	9334. 8	224. 0
1999	1014. 5	134. 9	2009	9247. 9	212. 7
2000	1452. 9	135. 1	2010	10361. 6	228. 0
2001	2068. 9	138. 6	2011	10348. 6	217. 3
2002	2766. 1	152. 1	2012	11448. 0	229. 0
2003	3690. 7	166. 1	2013	11787. 6	224. 0
2004	4646. 4	181. 2	2014	11594. 5	220. 3

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	5. 222430075	-10283. 81043
Standard Error X Variable/Standard Error Intercept	0. 703076671	1409. 323018
Adjusted R Square/Standard Error	0. 754013303	18. 13065568
F/Residual	55. 17468877	18
SS Regression/SS Residual	18137. 06097	5916. 97216
Correlation coefficient R	0. 868339394	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 448629579** which implies that errors undergoes a positive autocorrelation.

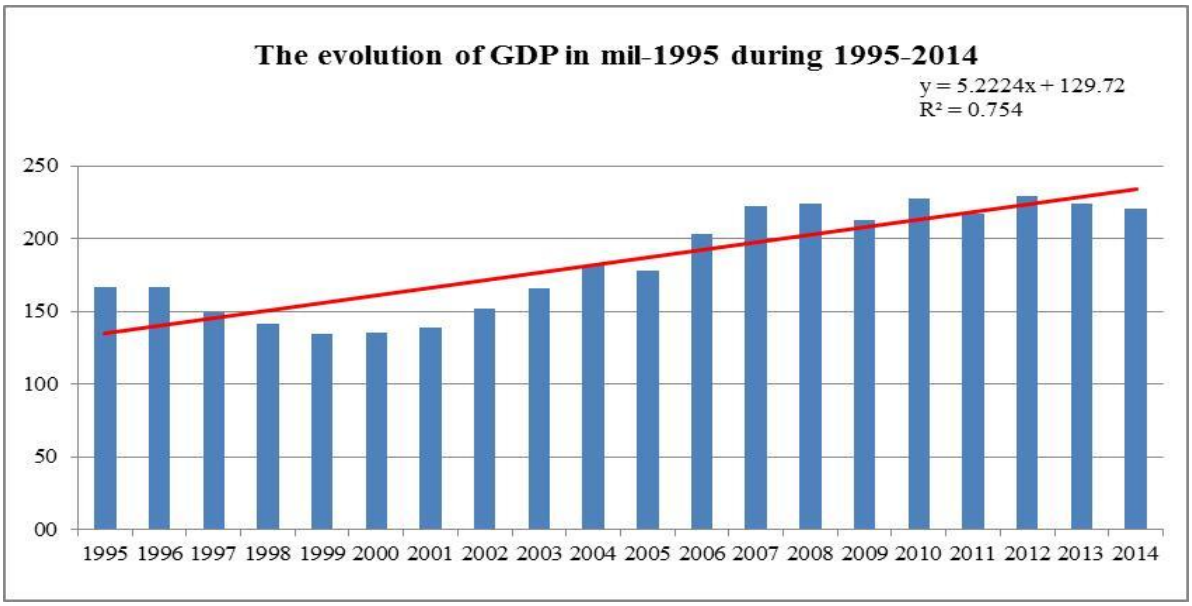

Figure 36

The coefficient of autocorrelation of errors being ρ=0. 761871349 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	6. 769331376	-3190. 830567
Standard Error X Variable/Standard Error Intercept	1. 900598965	908. 888463
Adjusted R Square/Standard Error	0. 427331522	10. 80536814
F/Residual	12. 68558712	17
SS Regression/SS Residual	1481. 118164	1984. 851671
Correlation coefficient R	0. 65370599	

Durbin-Watson statistic calculation implies a value d=1. 769528346 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 761871349·GDP_{2014}+6. 769331376·2015-5. 157359628·2014-3190. 830567=230. 2866959 mil. lei-1995, respectively: 12793. 70533 mil. lei currents, representing a variation of 4. 54%.

Analysis results show that for this county in the region SOUTH-MUNTENIA, the variation of 4. 54% is upper to the region so as for the national.

2. 37. The Analysis of GDP for Giurgiu during 1995-2014

Statistics on GDP corresponding to the region Giurgiu are the following:

Table 37

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	68. 6	68. 6	2005	2106. 7	73. 7
1996	96. 5	67. 0	2006	2445. 6	78. 3
1997	229. 6	67. 7	2007	2710. 6	75. 9
1998	338. 8	67. 4	2008	3627. 0	87. 0
1999	460. 6	61. 3	2009	3928. 7	90. 4
2000	573. 5	53. 3	2010	5303. 2	116. 7
2001	1005. 6	67. 4	2011	5361. 2	112. 6
2002	1153. 6	63. 4	2012	5004. 3	100. 1
2003	1418. 5	63. 8	2013	4617. 2	87. 7
2004	1938. 4	75. 6	2014	6027. 8	114. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	2. 618071429	-5168. 300779
Standard Error X Variable/Standard Error Intercept	0. 419033807	839. 9567407
Adjusted R Square/Standard Error	0. 684409622	10. 80587364
F/Residual	39. 03595943	18
SS Regression/SS Residual	4558. 108173	2101. 804293
Correlation coefficient R	0. 827290531	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**1. 068602416** which implies that errors undergoes a positive autocorrelation.

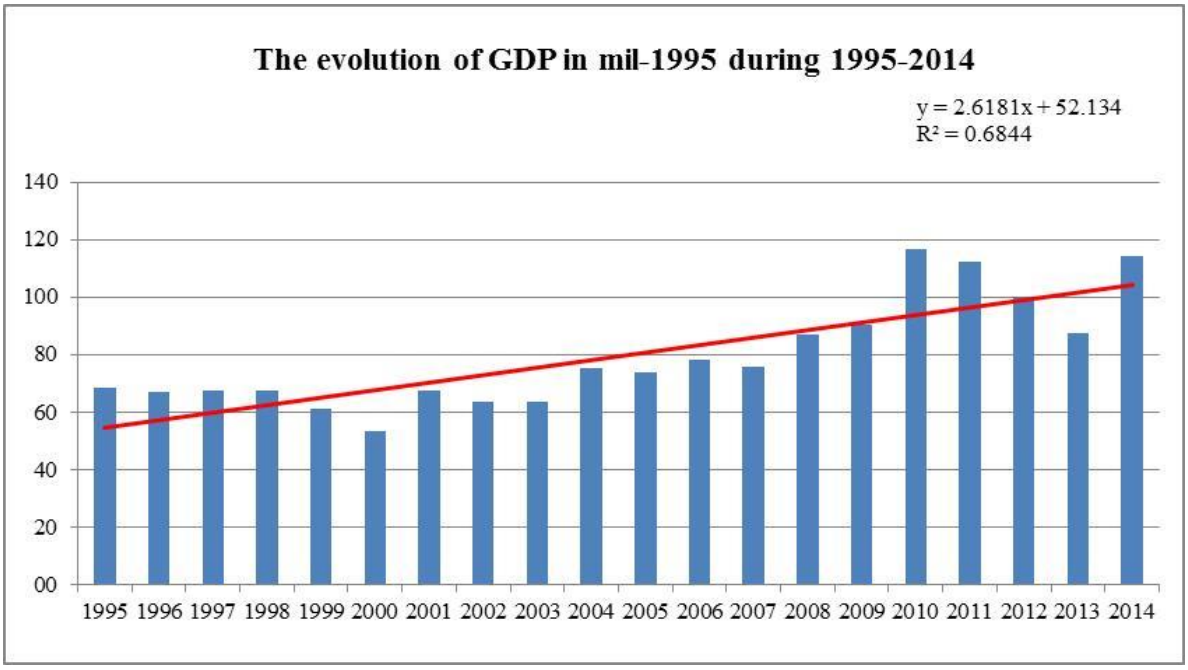

Figure 37

The coefficient of autocorrelation of errors being ρ=0. 423805399 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	3. 169187914	-3615. 374075
Standard Error X Variable/Standard Error Intercept	0. 683156421	789. 5227076
Adjusted R Square/Standard Error	0. 558678431	9. 397812312
F/Residual	21. 5206643	17
SS Regression/SS Residual	1900. 680887	1501. 420896
Correlation coefficient R	0. 747447945	

Durbin-Watson statistic calculation implies a value d=1. 871590965 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 423805399·GDP_{2014}+3. 169187914·2015-1. 343118947·2014-3615. 374075=114. 035682 mil. lei-1995, respectively: 6335. 315665 mil. lei currents, representing a variation of -0/43%.

Analysis results show that for this county in the region SOUTH-MUNTENIA, the variation of 0. 43% is one of downright disturbing, the county being one of the emblematic cases disastrous economic strategies.

2.38. The Analysis of GDP for Ialomita during 1995-2014

Statistics on GDP corresponding to the region Ialomita are the following:

Table 38

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	125. 4	125. 4	2005	2869. 3	100. 4
1996	184. 8	128. 3	2006	3264. 0	104. 4
1997	368. 8	108. 8	2007	3297. 4	92. 3
1998	465. 0	92. 5	2008	4615. 5	110. 8
1999	680. 1	90. 5	2009	4531. 5	104. 2
2000	811. 3	75. 5	2010	4894. 0	107. 7
2001	1268. 2	85. 0	2011	5377. 2	112. 9
2002	1512. 6	83. 2	2012	5538. 6	110. 8
2003	2058. 7	92. 6	2013	5887. 3	111. 9
2004	2778. 9	108. 4	2014	6161. 4	117. 1

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	0. 420853158	-740. 4726
Standard Error X Variable/Standard Error Intercept	0. 546569433	1095. 602962
Adjusted R Square/Standard Error	0. 031887738	14. 09471059
F/Residual	0. 592885051	18
SS Regression/SS Residual	117. 783058	3575. 8956
Correlation coefficient R	0. 178571381	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 560211714** which implies that errors undergoes a positive autocorrelation.

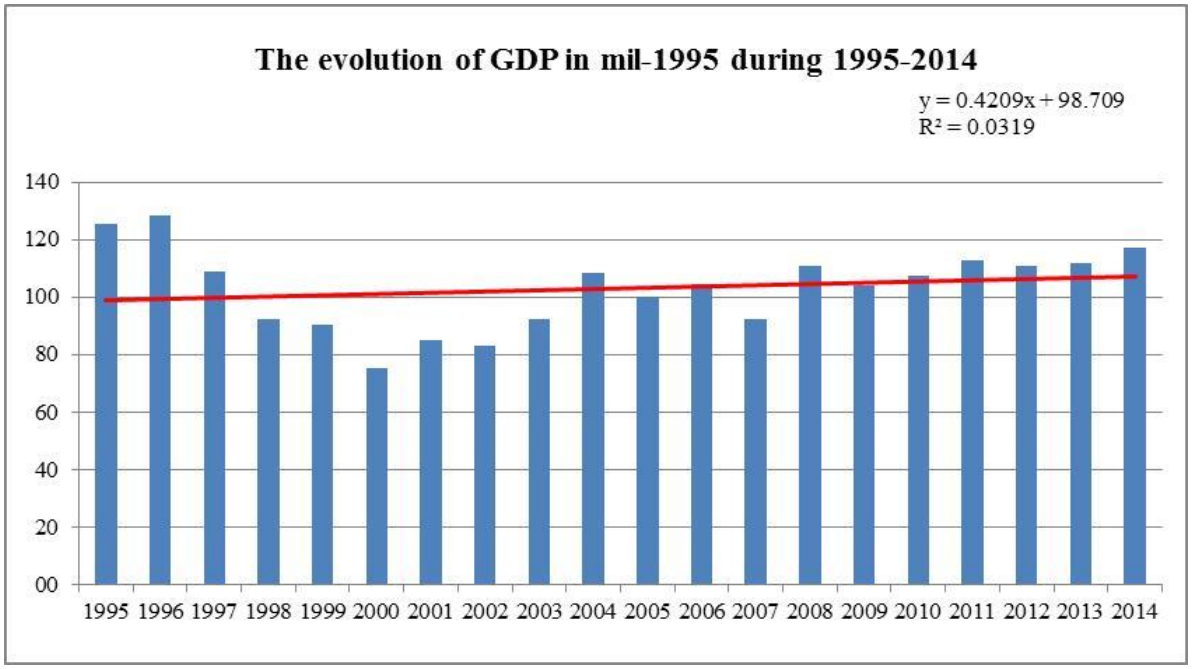

Figure 38

The coefficient of autocorrelation of errors being ρ=0. 688660914 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 286956784	-1397. 732472
Standard Error X Variable/Standard Error Intercept	1. 185581138	740. 9003059
Adjusted R Square/Standard Error	0. 179574132	8. 81256544
F/Residual	3. 720945879	17
SS Regression/SS Residual	288. 9735301	1320. 242264
Correlation coefficient R	0. 423761882	

Durbin-Watson statistic calculation implies a value d=2. 494272394 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 688660914·GDP_{2014}+2. 286956784·2015-1. 57493775·2014-1397. 732472=119. 1800119 mil. lei-1995, respectively: 6621. 111772 mil. lei currents, representing a variation of 1. 81%.

Analysis results show that for this county in the region SOUTH-MUNTENIA, the variation of 1. 81% is a very low level below the region being also under the national level.

2. 39. The Analysis of GDP for Prahova during 1995-2014

Statistics on GDP corresponding to the region Prahova are the following:

Table 39.

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	326. 6	326. 6	2005	11269. 9	394. 4
1996	467. 3	324. 3	2006	13553. 7	433. 7
1997	915. 9	270. 2	2007	15689. 0	439. 3
1998	1322. 6	263. 2	2008	19831. 7	476. 0
1999	1936. 7	257. 6	2009	20319. 4	467. 3
2000	3010. 4	280. 0	2010	18452. 0	405. 9
2001	4401. 6	294. 9	2011	20864. 7	438. 2
2002	5935. 3	326. 4	2012	21468. 0	429. 4
2003	7410. 1	333. 5	2013	26159. 7	497. 0
2004	9082. 1	354. 2	2014	32602. 7	619. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	14. 02530729	-27732. 15048
Standard Error X Variable/Standard Error Intercept	1. 82117835	3650. 567108
Adjusted R Square/Standard Error	0. 767167793	46. 96380775
F/Residual	59. 30889232	18
SS Regression/SS Residual	130811. 6477	39700. 78628
Correlation coefficient R	0. 875881152	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 75057399** which implies that errors undergoes a positive autocorrelation.

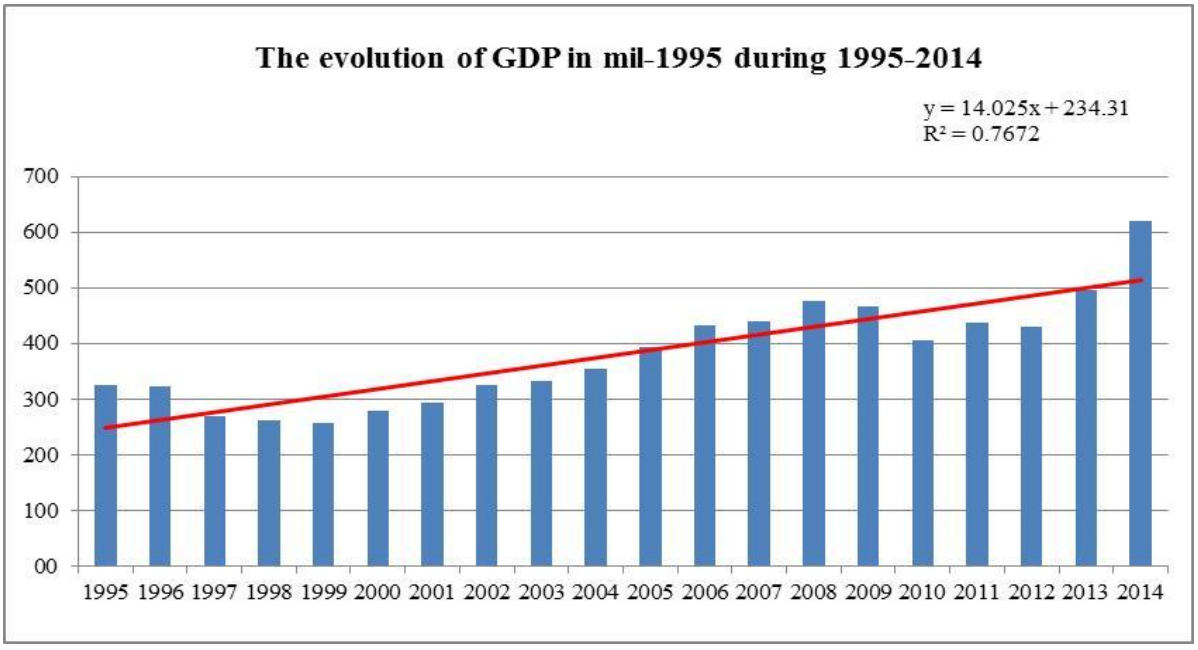

Figure 39

The coefficient of autocorrelation of errors being ρ=0. 517286348 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	18. 83683378	-18047. 23895
Standard Error X Variable/Standard Error Intercept	3. 074058837	2976. 80105
Adjusted R Square/Standard Error	0. 688350174	35. 42739218
F/Residual	37. 54840208	17
SS Regression/SS Residual	47127. 00384	21336. 70199
Correlation coefficient R	0. 829668714	

Durbin-Watson statistic calculation implies a value d=1. 253255049 which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 4;2. 6) we appreciate that regression is reasonable.

The forecast for the Year 2015 is:

GDP_{2015}=0. 517286348·GDP_{2014}+18. 83683378·2015-9. 744036957·2014-18047. 23895=604. 9243929 mil. lei-1995, respectively: 33606. 91072 mil. lei currents, representing a variation of -2. 35%.

Analysis results show that for this county in the region SOUTH-MUNTENIA, the variation of -2. 35% is one of downright disturbing, the county being one of the emblematic cases disastrous economic strategies.

2. 40. The analysis of GDP for Teleorman during 1995-2014

Statistics on GDP corresponding to the region Teleorman are the following:

Table 40

	data (mil. lei currents)	data (mil. lei 1995)		data (mil. lei currents)	data (mil. lei 1995)
year	gdp		year	gdp	
1995	130. 7	130. 7	2005	3242. 9	113. 5
1996	189. 4	131. 4	2006	3765. 5	120. 5
1997	445. 0	131. 3	2007	4717. 5	132. 1
1998	557. 9	111. 0	2008	5814. 8	139. 6
1999	908. 6	120. 8	2009	5821. 4	133. 9
2000	1084. 4	100. 8	2010	5619. 2	123. 6
2001	1776. 2	119. 0	2011	5843. 7	122. 7
2002	1993. 0	109. 6	2012	6330. 8	126. 6
2003	2402. 0	108. 1	2013	6669. 7	126. 7
2004	3256. 3	127. 0	2014	6704. 6	127. 4

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	0. 411194962	-701. 4181771
Standard Error X Variable/Standard Error Intercept	0. 385260022	772. 2569102
Adjusted R Square/Standard Error	0. 059520234	9. 93492901
F/Residual	1. 139167745	18
SS Regression/SS Residual	112. 4390626	1776. 65066
Correlation coefficient R	0. 243967691	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**1. 275263531** which implies that the test is inconclusive.

Because the limits of variability of Durbin-Watson statistic for mismatch are (1. 41;2. 59) we appreciate that regression is reasonable.

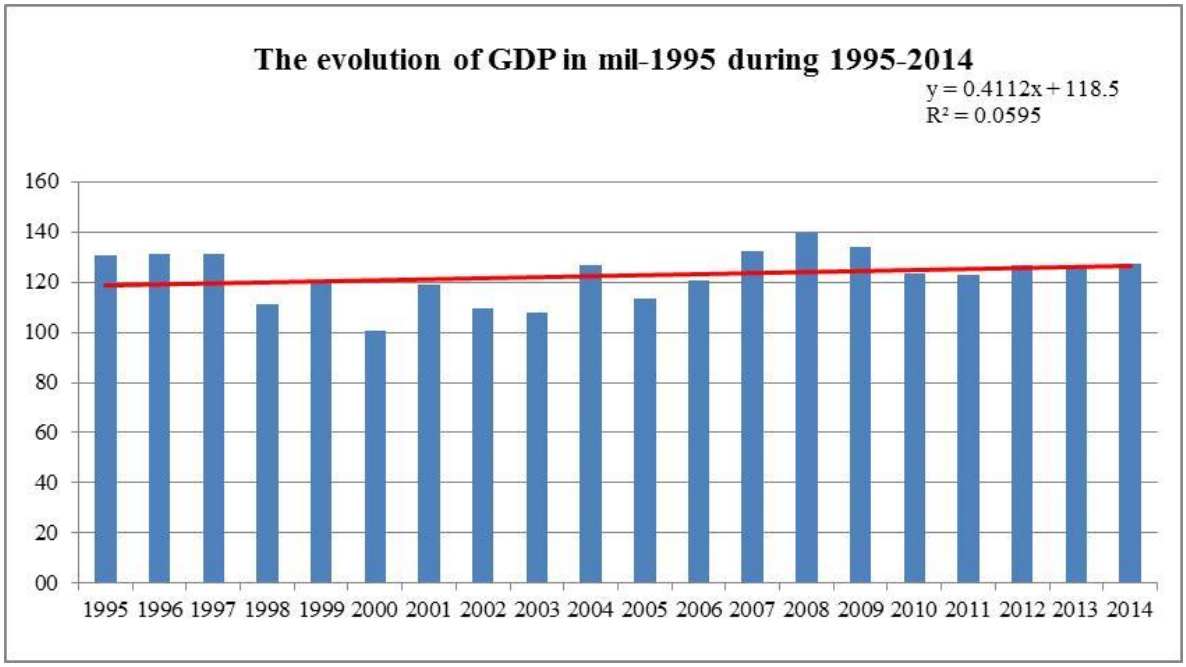

Figure 40

The forecast for the Year 2015 is:

GDP_{2015}=0. 411194962·2015-701. 4181771=127. 1396721 mil. lei-1995, respectively: 7063. 315117 mil. lei currents, representing a variation of -0. 19%.

Analysis results show that for this county in the region SOUTH-MUNTENIA, the variation of -0. 19% is one concern, the county showing undue economic stagnation in the national context.

2.41. The Analysis of GDP for Region BUCHAREST - ILFOV during 1995-2014

Statistics on GDP corresponding to the region Region BUCHAREST - ILFOV are the following:

Table 41

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	1156. 1	1156. 1	2005	69434. 8	2430. 2
1996	1719. 2	1193. 1	2006	81123. 9	2596. 0
1997	3920. 6	1156. 6	2007	101827. 9	2851. 2
1998	6524. 1	1298. 3	2008	139578. 9	3349. 9
1999	10294. 6	1369. 2	2009	127574. 9	2934. 2
2000	18291. 0	1701. 1	2010	137385. 3	3022. 5
2001	25034. 8	1677. 3	2011	153623. 7	3226. 1
2002	32698. 9	1798. 4	2012	157697. 9	3154. 0
2003	42393. 0	1907. 7	2013	170844. 0	3246. 0
2004	53290. 3	2078. 3	2014	178921. 9	3399. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	136. 2553331	-270846. 5309
Standard Error X Variable/Standard Error Intercept	7. 544129999	15122. 27115
Adjusted R Square/Standard Error	0. 947705363	194. 5449609
F/Residual	326. 2035571	18
SS Regression/SS Residual	12346068	681259. 3523
Correlation coefficient R	0. 973501599	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 968876575** which implies that errors undergoes a positive autocorrelation.

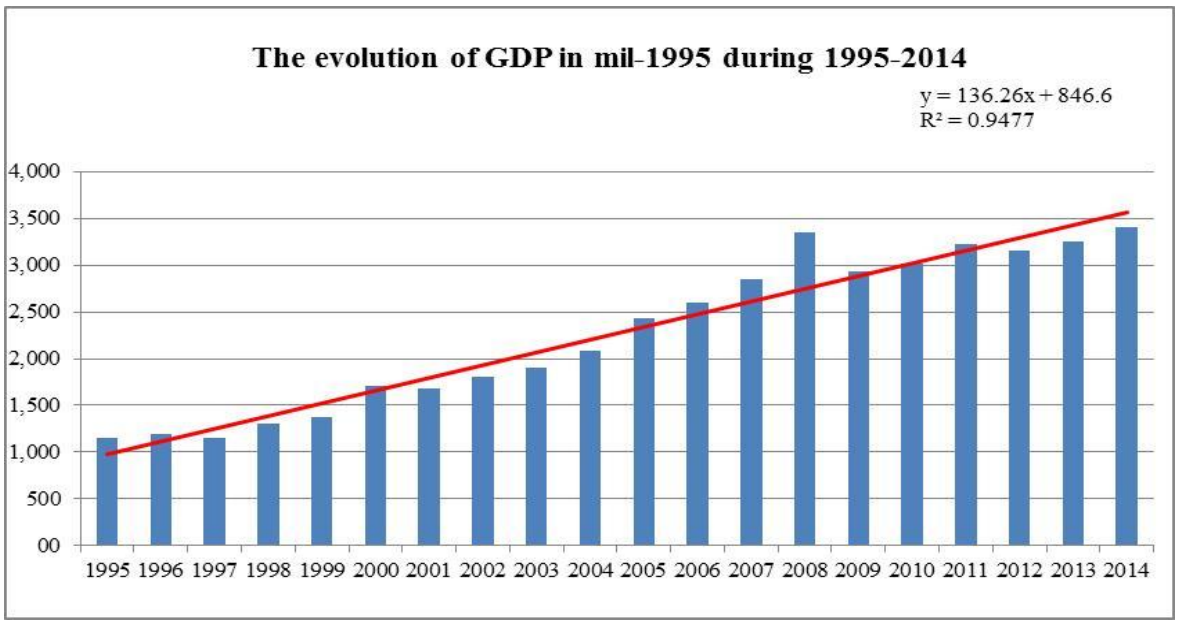

Figure 41

The coefficient of autocorrelation of errors being ρ=0. 496985268 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	139. 3128148	-139338. 5434
Standard Error X Variable/Standard Error Intercept	14. 10596187	14233. 55432
Adjusted R Square/Standard Error	0. 85157848	169. 4028991
F/Residual	97. 53864611	17
SS Regression/SS Residual	2799099. 908	487854. 818
Correlation coefficient R	0. 922810099	

Durbin-Watson statistic calculation implies a value d=1. 969512585 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 496985268·GDP_{2014}+139. 3128148·2015-69. 23641652·2014-139338. 5434=3624. 144979 mil. lei-1995, respectively: 201341. 3877 mil. lei currents, representing a variation of 6. 61%.

Analysis results show that this region within the macroregion THREE, the variation of 6. 61% is the highest intake at national level, being by far the most important.

2. 42. The analysis of GDP for Ilfov during 1995-2014

Statistics on GDP corresponding to the region Ilfov are the following:

Table 42

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	115. 9	115. 9	2005	6767. 0	236. 8
1996	174. 0	120. 8	2006	8825. 0	282. 4
1997	322. 5	95. 1	2007	9930. 8	278. 1
1998	565. 1	112. 5	2008	13351. 0	320. 4
1999	836. 0	111. 2	2009	13008. 4	299. 2
2000	1362. 0	126. 7	2010	13098. 9	288. 2
2001	2071. 8	138. 8	2011	14675. 9	308. 2
2002	2702. 0	148. 6	2012	17595. 7	351. 9
2003	3794. 2	170. 7	2013	17119. 3	325. 3
2004	5276. 1	205. 8	2014	17149. 5	325. 8

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	14. 77145293	-29391. 26013
Standard Error X Variable/Standard Error Intercept	1. 064204208	2133. 206161
Adjusted R Square/Standard Error	0. 914555145	27. 44326595
F/Residual	192. 6621873	18
SS Regression/SS Residual	145100. 2215	13556. 39123
Correlation coefficient R	0. 956323766	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 706215362** which implies that errors undergoes a positive autocorrelation.

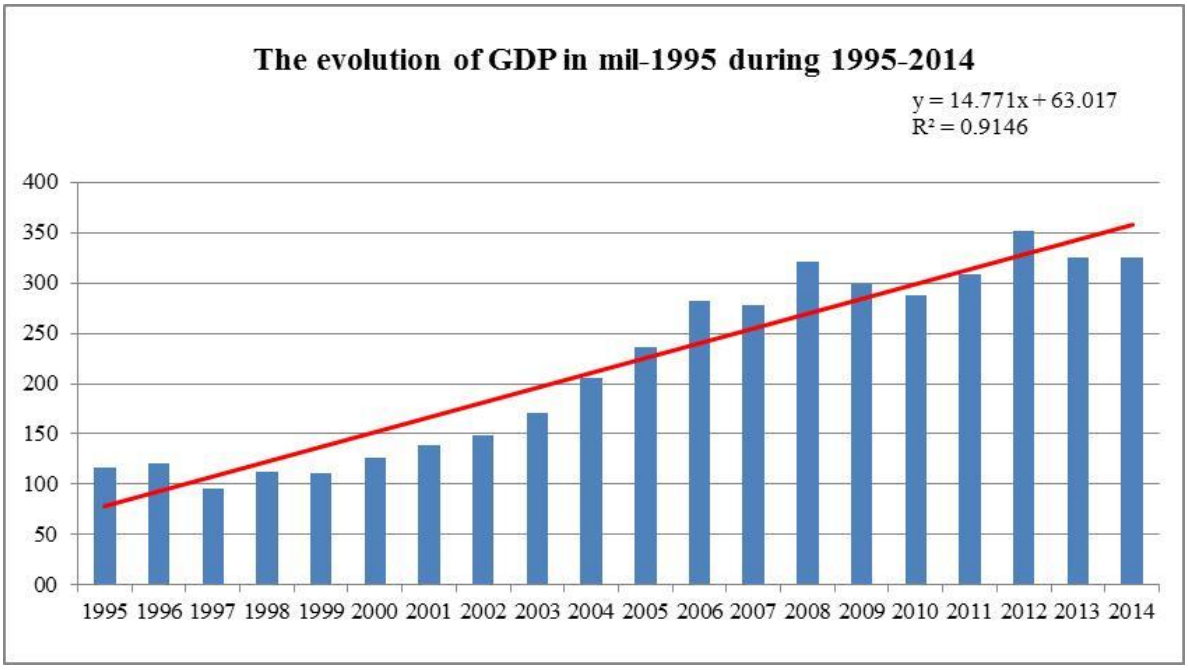

Figure 42

The coefficient of autocorrelation of errors being ρ=0. 619518225 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	15. 5973581	-11816. 47445
Standard Error X Variable/Standard Error Intercept	2. 289994423	1748. 383999
Adjusted R Square/Standard Error	0. 731822905	20. 80202968
F/Residual	46. 39094688	17
SS Regression/SS Residual	20074. 49646	7356. 315463
Correlation coefficient R	0. 855466484	

Durbin-Watson statistic calculation implies a value d=1. 876046622 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 619518225·GDP_{2014}+15. 5973581·2015-9. 662847601·2014-11816. 47445=353. 0911831 mil. lei-1995, respectively: 19616. 17684 mil. lei currents, representing a variation of 8. 36%.

Analysis results show that for this county in the Bucharest-Ilfov region, the variation of 8. 36% is one of downright remarkable, being the most powerful in the region.

2.43. The Analysis of GDP for Bucharest during 1995-2014

Statistics on GDP corresponding to the region Bucharest are the following:

Table 43

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	1040. 2	1040. 2	2005	62667. 8	2193. 4
1996	1545. 2	1072. 4	2006	72298. 9	2313. 6
1997	3598. 1	1061. 4	2007	91897. 1	2573. 1
1998	5959. 0	1185. 8	2008	126227. 9	3029. 5
1999	9458. 6	1258. 0	2009	114566. 5	2635. 0
2000	16929. 0	1574. 4	2010	124286. 4	2734. 3
2001	22963. 0	1538. 5	2011	138947. 8	2917. 9
2002	29996. 9	1649. 8	2012	140102. 2	2802. 0
2003	38598. 8	1736. 9	2013	153724. 7	2920. 8
2004	48014. 2	1872. 6	2014	161772. 4	3073. 7

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	121. 4838802	-241455. 2708
Standard Error X Variable/Standard Error Intercept	6. 758514034	13547. 49744
Adjusted R Square/Standard Error	0. 947229311	174. 2858154
F/Residual	323. 0984462	18
SS Regression/SS Residual	9814291. 536	546759. 818
Correlation coefficient R	0. 973257063	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**1. 080885033** which implies that errors undergoes a positive autocorrelation.

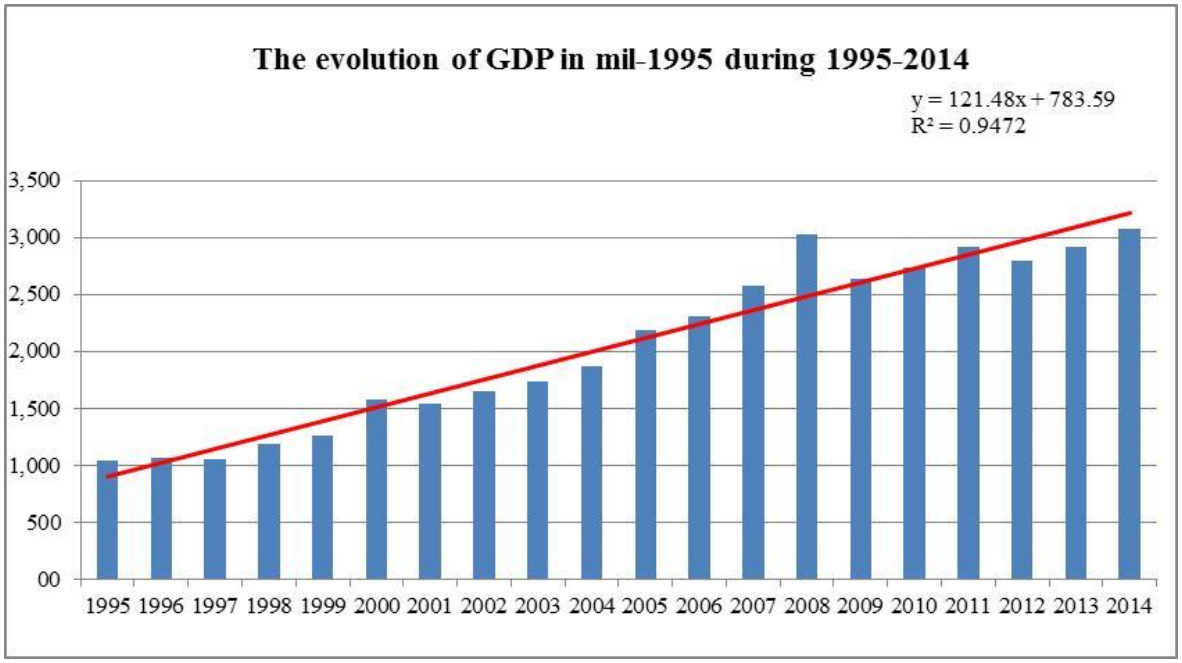

Figure 43

The coefficient of autocorrelation of errors being ρ=0. 442950581 implies that we will perform a data transformation of the form: $GDP^{*}_{n}=GDP_{n}-\rho GDP_{n-1}$ and $Year^{*}_{n}=Year_{n}-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	123. 7923839	-137092. 2383
Standard Error X Variable/Standard Error Intercept	11. 86208334	13253. 87583
Adjusted R Square/Standard Error	0. 864982428	157. 7582661
F/Residual	108. 9095368	17
SS Regression/SS Residual	2710504. 668	423090. 3988
Correlation coefficient R	0. 930044315	

Durbin-Watson statistic calculation implies a value d=1. 978123742 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 442950581·GDP_{2014}+123. 7923839·2015-54. 83390839·2014-137092. 2383=3275. 41019 mil. lei-1995, respectively: 181967. 2328 mil. lei currents, representing a variation of 6. 56%.

Analysis results show that for this county in the Bucharest-Ilfov region, the variation of 6. 56% is one remarkable, the area being one of the strongest in Romania.

2. 44. The Analysis of GDP for MACROREGION FOUR during 1995-2014

Statistics on GDP corresponding to the region MACROREGION FOUR are the following:

Table 44

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	1410. 3	1410. 3	2005	51865. 6	1815. 3
1996	2133. 5	1480. 6	2006	63290. 3	2025. 3
1997	5156. 9	1521. 3	2007	75584. 8	2116. 4
1998	7159. 4	1424. 7	2008	92798. 1	2227. 2
1999	10930. 1	1453. 7	2009	91013. 8	2093. 3
2000	14705. 0	1367. 6	2010	96091. 3	2114. 0
2001	21919. 3	1468. 6	2011	100500. 7	2110. 5
2002	27310. 8	1502. 1	2012	104471. 6	2089. 4
2003	37136. 4	1671. 1	2013	108543. 0	2062. 3
2004	46188. 4	1801. 3	2014	109679. 4	2083. 9

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	47. 65210857	-93726. 70119
Standard Error X Variable/Standard Error Intercept	5. 258019347	10539. 74339
Adjusted R Square/Standard Error	0. 820239829	135. 5916677
F/Residual	82. 13341598	18
SS Regression/SS Residual	1510031. 095	330931. 8064
Correlation coefficient R	0. 905670927	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 437701634** which implies that errors undergoes a positive autocorrelation.

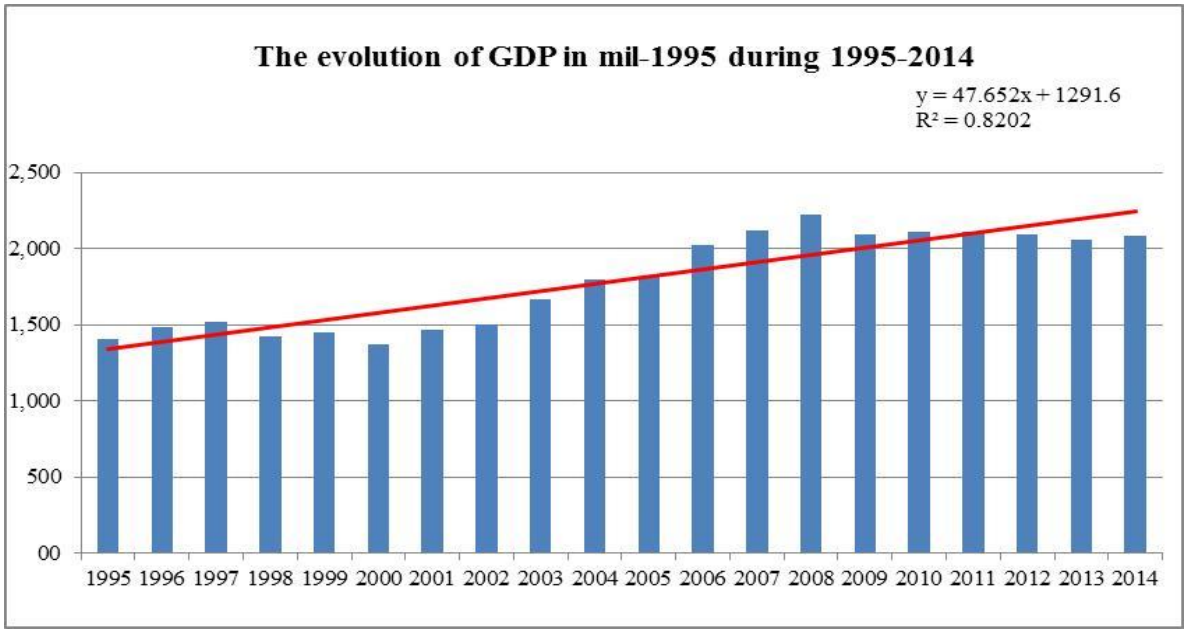

Figure 44

The coefficient of autocorrelation of errors being ρ=0. 774805731 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	43. 48453675	-19232. 06171
Standard Error X Variable/Standard Error Intercept	16. 25670836	7352. 762846
Adjusted R Square/Standard Error	0. 296209482	87. 40320886
F/Residual	7. 154914789	17
SS Regression/SS Residual	54658. 69023	129868. 4556
Correlation coefficient R	0. 544251304	

Durbin-Watson statistic calculation implies a value d=1. 616595288 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 774805731·GDP_{2014}+43. 48453675·2015-33. 69206826·2014-19232. 06171=2148. 07868 mil. lei-1995, respectively: 119337. 7044 mil. lei currents, representing a variation of 3. 08%.

Analysis of the results reveals that for this macroregion, the variation of 3. 08% is close to that of the national level, even if the inside is manifested massive discrepancies in the level of economic growth.

2. 45. The Analysis of GDP for Region SOUTH-WEST OLTENIA during 1995-2014

Statistics on GDP corresponding to the region SOUTH-WEST OLTENIA are the following:

Table 45

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	699. 8	699. 8	2005	23499. 4	822. 5
1996	1061. 5	736. 7	2006	28292. 0	905. 3
1997	2525. 7	745. 1	2007	33682. 6	943. 1
1998	3507. 5	698. 0	2008	40742. 1	977. 8
1999	5150. 3	685. 0	2009	40401. 5	929. 2
2000	7058. 2	656. 4	2010	42368. 6	932. 1
2001	10646. 5	713. 3	2011	44583. 5	936. 3
2002	12649. 8	695. 7	2012	46275. 2	925. 5
2003	17572. 4	790. 8	2013	48013. 1	912. 2
2004	21584. 2	841. 8	2014	48340. 0	918. 5

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	16. 18753436	-31624. 65712
Standard Error X Variable/Standard Error Intercept	2. 148704648	4307. 096288
Adjusted R Square/Standard Error	0. 759215044	55. 40992291
F/Residual	56. 75550077	18
SS Regression/SS Residual	174254. 1187	55264. 67203
Correlation coefficient R	0. 871329469	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 548218694** which implies that errors undergoes a positive autocorrelation.

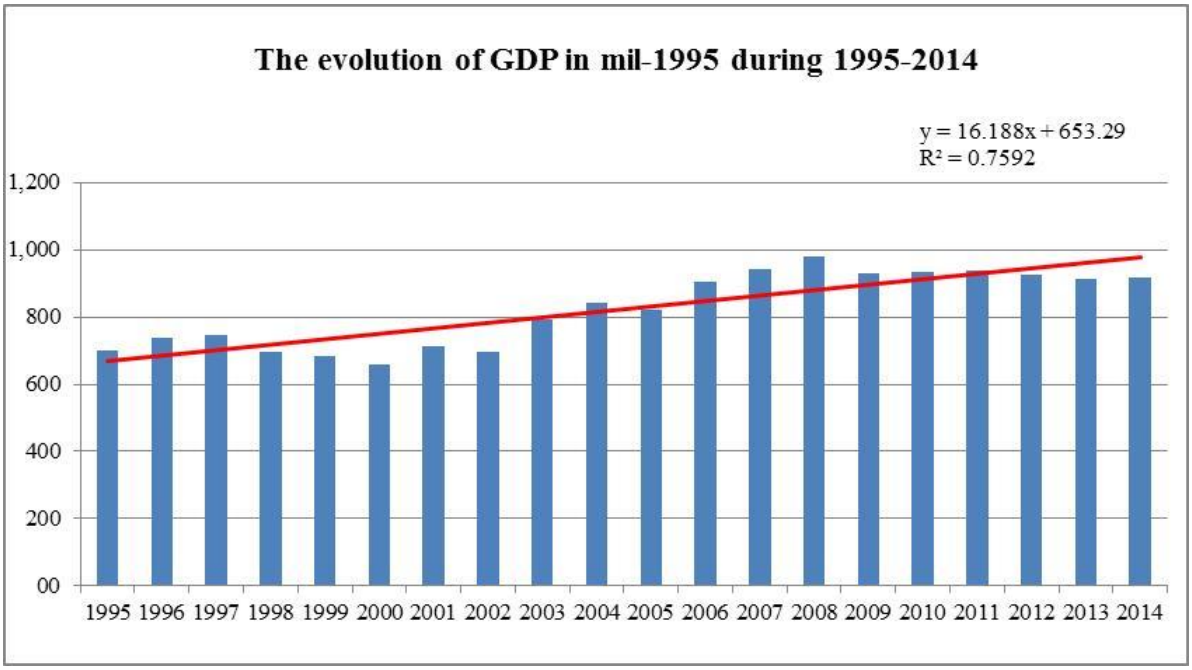

Figure 45

The coefficient of autocorrelation of errors being ρ=0. 718191475 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	15. 45644887	-8502. 300826
Standard Error X Variable/Standard Error Intercept	5. 844183473	3306. 325698
Adjusted R Square/Standard Error	0. 291511477	39. 32017084
F/Residual	6. 994742953	17
SS Regression/SS Residual	10814. 40305	26283. 28919
Correlation coefficient R	0. 539918028	

Durbin-Watson statistic calculation implies a value d=1. 736812257 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 718191475·GDP_{2014}+15. 45644887·2015-11. 10068981·2014-8502. 300826=945. 2844976 mil. lei-1995, respectively: 52515. 80542 mil. lei currents, representing a variation of 2. 92%.

Analysis results show that this region within the macroregion FOUR, the variation of 2. 92% is slightly below the global hovering but below the national growth

2.46. The analysis of GDP for Dolj during 1995-2014

Statistics on GDP corresponding to the region Dolj are the following:

Table 46

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	201. 6	201. 6	2005	7332. 1	256. 6
1996	297. 1	206. 2	2006	8769. 2	280. 6
1997	718. 4	211. 9	2007	10554. 2	295. 5
1998	960. 8	191. 2	2008	13555. 8	325. 3
1999	1554. 2	206. 7	2009	13520. 2	311. 0
2000	2041. 6	189. 9	2010	13609. 3	299. 4
2001	3064. 6	205. 3	2011	14307. 3	300. 5
2002	3614. 2	198. 8	2012	14850. 1	297. 0
2003	5154. 0	231. 9	2013	15636. 4	297. 1
2004	6607. 6	257. 7	2014	16563. 3	314. 7

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	7. 495484586	-14770. 7518
Standard Error X Variable/Standard Error Intercept	0. 819365012	1642. 423963
Adjusted R Square/Standard Error	0. 822981728	21. 12945221
F/Residual	83. 68441806	18
SS Regression/SS Residual	37361. 22231	8036. 167511
Correlation coefficient R	0. 907183404	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 594306864** which implies that errors undergoes a positive autocorrelation.

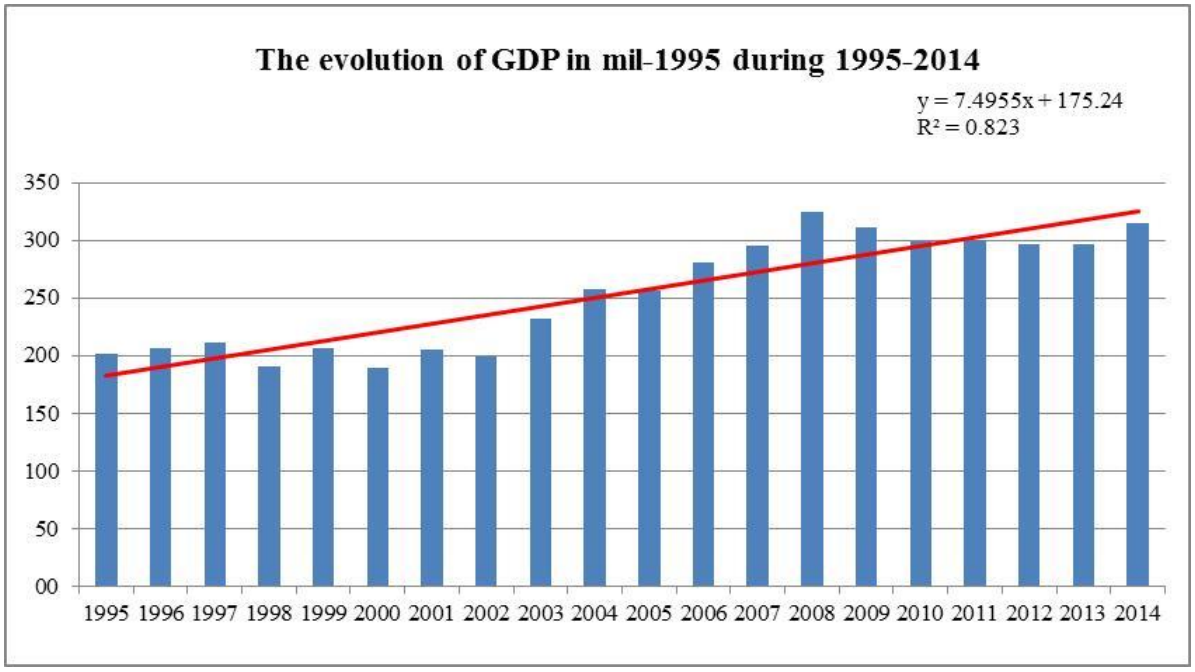

Figure 46

The coefficient of autocorrelation of errors being ρ=0. 696512411 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	8. 164923099	-4891. 930277
Standard Error X Variable/Standard Error Intercept	2. 096375323	1277. 093808
Adjusted R Square/Standard Error	0. 471546185	15. 18963722
F/Residual	15. 16932024	17
SS Regression/SS Residual	3499. 942607	3922. 32634
Correlation coefficient R	0. 686692206	

Durbin-Watson statistic calculation implies a value d=1. 952011001 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 696512411·GDP_{2014}+8. 164923099·2015-5. 686970277·2014-4891. 930277=326. 0259659 mil. lei-1995, respectively: 18112. 55366 mil. lei currents, representing a variation of 3. 6%.

Analysis results show that for this county in the region SOUTH WEST OLTENIA, the variation of 3. 6% is one remarkable, the area generally hovering above the region and about the national level.

2.47. The Analysis of GDP for Gorj during 1995-2014

Statistics on GDP corresponding to the region Gorj are the following:

Table 47

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	134. 5	134. 5	2005	5014. 1	175. 5
1996	227. 6	158. 0	2006	5939. 6	190. 1
1997	522. 9	154. 3	2007	7340. 0	205. 5
1998	718. 4	143. 0	2008	8150. 5	195. 6
1999	1031. 9	137. 2	2009	8876. 9	204. 2
2000	1494. 8	139. 0	2010	9758. 2	214. 7
2001	2273. 6	152. 3	2011	10242. 1	215. 1
2002	3116. 1	171. 4	2012	10491. 9	209. 8
2003	3988. 1	179. 5	2013	10846. 3	206. 1
2004	4608. 2	179. 7	2014	9980. 6	189. 6

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	4. 192753383	-8226. 623827
Standard Error X Variable/Standard Error Intercept	0. 487531924	977. 2617848
Adjusted R Square/Standard Error	0. 804261134	12. 57227527
F/Residual	73. 95925343	18
SS Regression/SS Residual	11690. 15532	2845. 1179
Correlation coefficient R	0. 896806074	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 797106103** which implies that errors undergoes a positive autocorrelation.

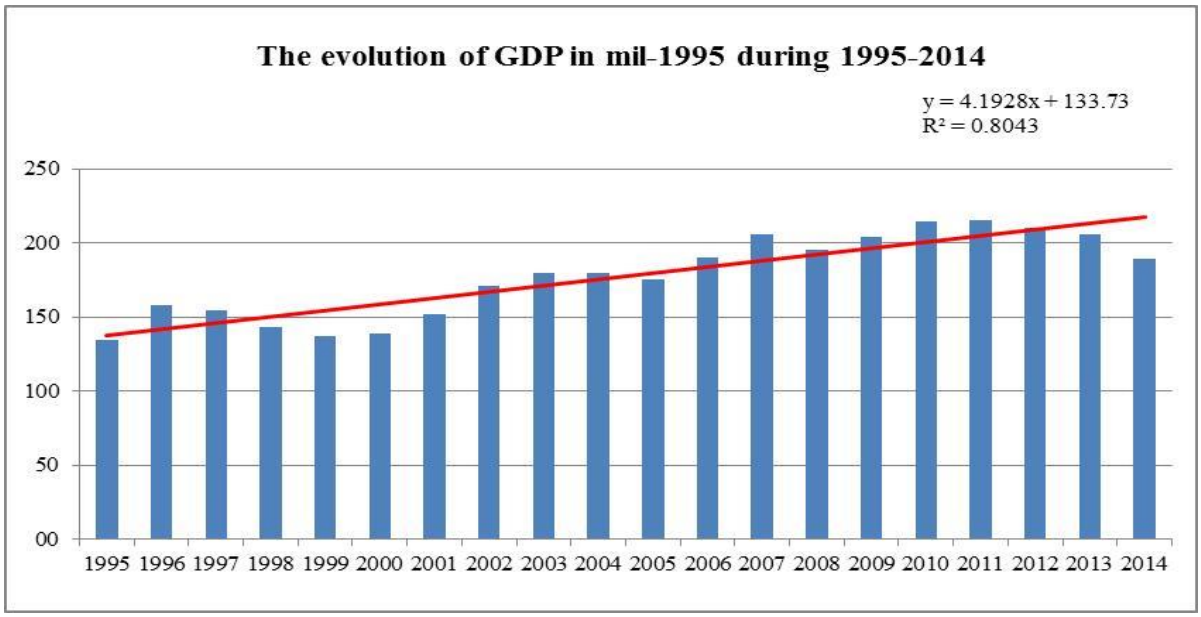

Figure 47

The coefficient of autocorrelation of errors being ρ=0. 547129278 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	3. 467885048	-3067. 640727
Standard Error X Variable/Standard Error Intercept	0. 988972648	898. 5373429
Adjusted R Square/Standard Error	0. 419714303	10. 69291102
F/Residual	12. 29591424	17
SS Regression/SS Residual	1405. 894498	1943. 751884
Correlation coefficient R	0. 647853613	

Durbin-Watson statistic calculation implies a value d=1. 007448736 which implies that errors undergoes a positive autocorrelation.

The coefficient of autocorrelation of errors being ρ'=**0. 410892845** implies that we will perform a data transformation of the form: $GDP^{**}_n=GDP^*_n-\rho' GDP^*_{n-1}$ and $Year^{**}_n=Year^*_n-\rho' Year^*_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	3. 983313487	-2084. 528805
Standard Error X Variable/Standard Error Intercept	1. 592745288	853. 0047649
Adjusted R Square/Standard Error	0. 281046013	9. 353233183
F/Residual	6. 254553553	16
SS Regression/SS Residual	547. 1669269	1399. 727536
Correlation coefficient R	0. 53013773	

Durbin-Watson statistic calculation implies a value d=1. 296136619 which implies that the test is inconclusive.

The forecast for the Year 2015 is:

GDP_{2015}=0. 958022123·GDP_{2014}-0. 224811506·GDP_{2013}+3. 983313487·2015-3. 816102443·2014+0. 895494702·2013-2084. 528805=213. 6459768 mil. lei-1995,

respectively: 11869. 22094 mil. lei currents, representing a variation of 12. 66%.

Analysis results show that for this county in the region SOUTH WEST OLTENIA, the variation of 12. 66% is one of downright remarkable, ranging among the national economic growth.

2.48. The Analysis of GDP for Mehedinti during 1995-2014

Statistics on GDP corresponding to the region Mehedinti are the following:

Table 48

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	83. 8	83. 8	2005	2597. 4	90. 9
1996	122. 8	85. 2	2006	3222. 8	103. 1
1997	315. 1	93. 0	2007	3741. 2	104. 8
1998	468. 9	93. 3	2008	4435. 5	106. 5
1999	595. 2	79. 2	2009	4422. 7	101. 7
2000	780. 6	72. 6	2010	4324. 1	95. 1

2001	1299. 6	87. 1	2011	4479. 6	94. 1
2002	1462. 4	80. 4	2012	4621. 2	92. 4
2003	2184. 2	98. 3	2013	4653. 6	88. 4
2004	2596. 0	101. 2	2014	4748. 3	90. 2

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	0. 659715338	-1230. 333766
Standard Error X Variable/Standard Error Intercept	0. 325996103	653. 4618927
Adjusted R Square/Standard Error	0. 185348022	8. 406655129
F/Residual	4. 095324744	18
SS Regression/SS Residual	289. 4241779	1272. 093308
Correlation coefficient R	0. 430520641	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 972389578** which implies that errors undergoes a positive autocorrelation.

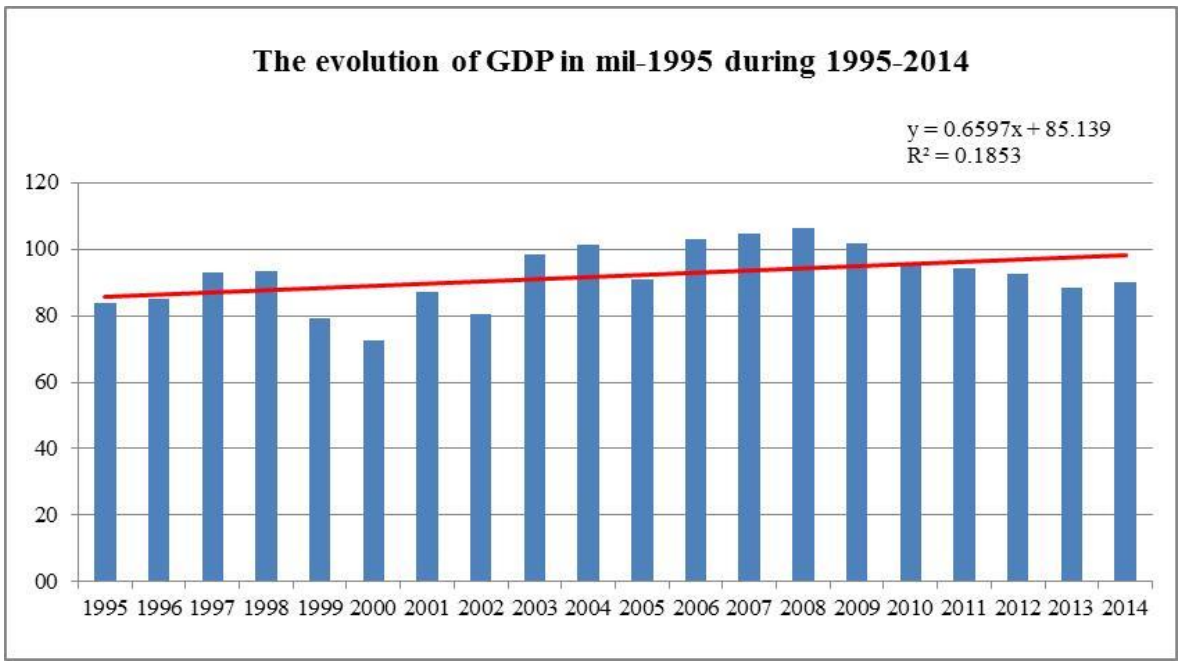

Figure 48

The coefficient of autocorrelation of errors being ρ=0. 50030699 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	0. 447007953	-401. 6830494
Standard Error X Variable/Standard Error Intercept	0. 624727494	626. 2196738
Adjusted R Square/Standard Error	0. 029235742	7. 453003443
F/Residual	0. 511975598	17
SS Regression/SS Residual	28. 43884183	944. 3034255
Correlation coefficient R	0. 170984625	

Durbin-Watson statistic calculation implies a value d=1. 908547411 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	134. 4	134. 4	2005	3867. 8	135. 4
1996	195. 3	135. 5	2006	4571. 2	146. 3
1997	444. 9	131. 2	2007	5452. 9	152. 7
1998	648. 0	129. 0	2008	6669. 7	160. 1
1999	954. 0	126. 9	2009	6113. 6	140. 6
2000	1387. 3	129. 0	2010	7166. 4	157. 7
2001	2000. 9	134. 1	2011	7262. 0	152. 5
2002	2109. 8	116. 0	2012	7773. 1	155. 5
2003	2813. 9	126. 6	2013	8064. 0	153. 2
2004	3671. 8	143. 2	2014	8459. 5	160. 7

Source: http://databank. worldbank. org/data

GDP_{2015}=0. 50030699·GDP_{2014}+0. 447007953·2015-0. 223641203·2014-401. 6830494=93. 76113877 mil. lei-1995, respectively: 5208. 952154 mil. lei currents, representing a variation of 3. 93%.

Analysis results show that for this county in the region SOUTH WEST OLTENIA, the variation of 3. 93% is important, hovering above the general level of the region and also above the national level.

2.49. The Analysis of GDP for Olt during 1995-2014

Statistics on GDP corresponding to the region Olt are the following:

Regression analysis on the data in the table above shows the following indicators:

Table 49

Regression real/computed		
X Variable/Intercept	1. 751534962	-3369. 924277
Standard Error X Variable/Standard Error Intercept	0. 318797659	639. 032551
Adjusted R Square/Standard Error	0. 62644849	8. 221024565
F/Residual	30. 18612561	18
SS Regression/SS Residual	2040. 136692	1216. 534408
Correlation coefficient R	0. 79148499	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**1. 462269515** which implies that errors are uncorrelated.

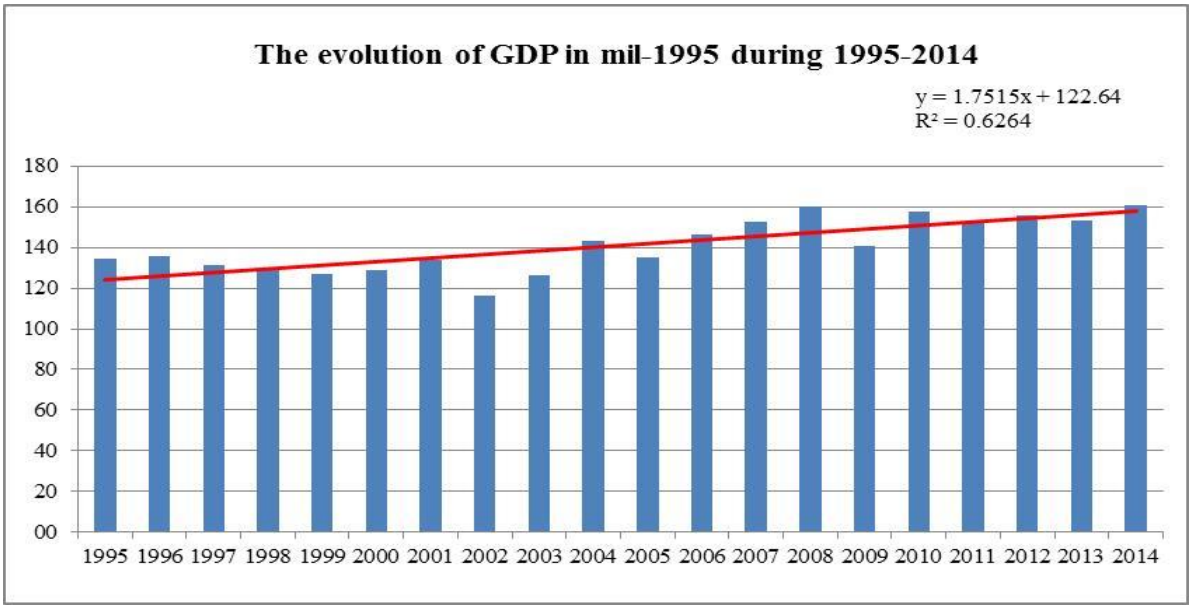

Figure 49

The forecast for the Year 2015 is:

GDP_{2015}=1. 751534962·2015-3369. 924277=159. 4186721 mil. lei-1995,

respectively: 8856. 592895 mil. lei currents, representing a variation of -0. 82%.

Analysis results show that for this county in the region SOUTH WEST OLTENIA, the variation of -0. 82% is disastrous one, the area hovering near limit down at national level.

2. 50. The Analysis of GDP for Valcea during 1995-2014

Statistics on GDP corresponding to the region Valcea are the following:

Table 50

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	145. 5	145. 5	2005	4688. 0	164. 1
1996	218. 7	151. 8	2006	5789. 2	185. 3
1997	524. 4	154. 7	2007	6594. 3	184. 6
1998	711. 4	141. 6	2008	7930. 6	190. 3
1999	1015. 0	135. 0	2009	7468. 1	171. 8
2000	1353. 9	125. 9	2010	7510. 6	165. 2
2001	2007. 8	134. 5	2011	8292. 5	174. 1
2002	2347. 3	129. 1	2012	8538. 9	170. 8
2003	3432. 2	154. 4	2013	8812. 8	167. 4
2004	4100. 6	159. 9	2014	8588. 3	163. 2

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	2. 08804609	-4027. 023453
Standard Error X Variable/Standard Error Intercept	0. 567152071	1136. 861029
Adjusted R Square/Standard Error	0. 429557038	14. 62548729
F/Residual	13. 55442558	18
SS Regression/SS Residual	2899. 357756	3850. 28781
Correlation coefficient R	0. 65540601	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 555001692** which implies that errors undergoes a positive autocorrelation.

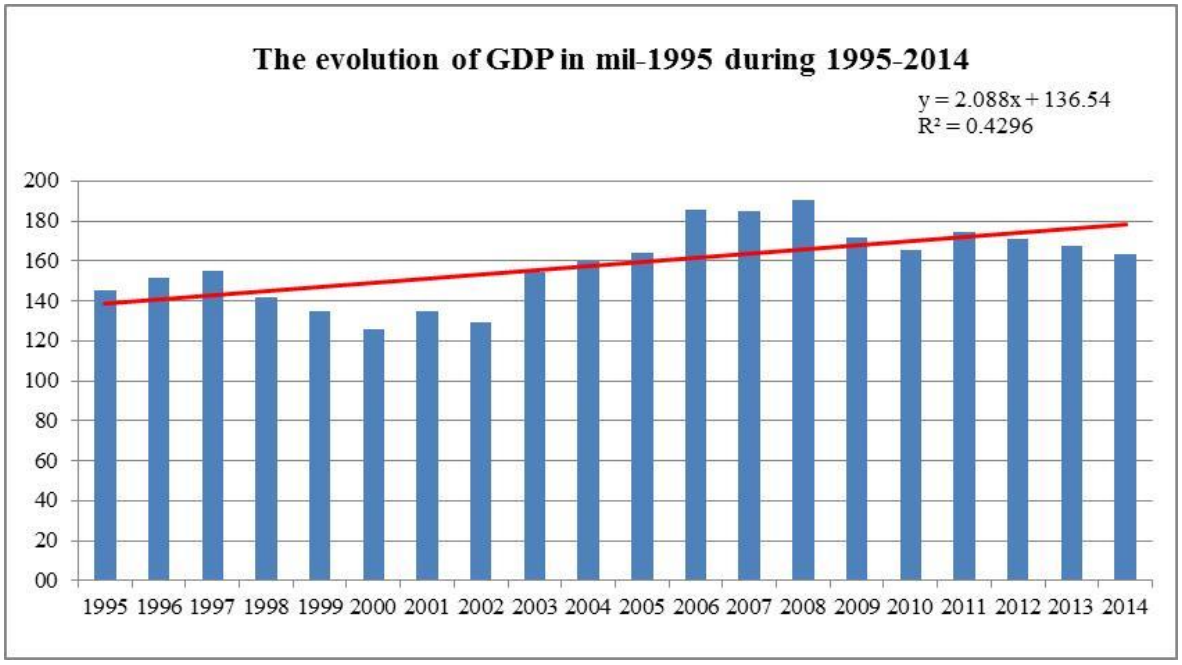

Figure 50

The coefficient of autocorrelation of errors being ρ=0. 715295484 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	1. 84486432	-1008. 452764
Standard Error X Variable/Standard Error Intercept	1. 536609004	878. 2488403
Adjusted R Square/Standard Error	0. 078164014	10. 44468044
F/Residual	1. 441458407	17
SS Regression/SS Residual	157. 2506428	1854. 55294
Correlation coefficient R	0. 279578278	

Durbin-Watson statistic calculation implies a value d=1. 675036101 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 715295484·GDP_{2014}+1. 84486432·2015-1. 319623117·2014-1008. 452764=167. 9481536 mil. lei-1995, respectively: 9330. 452979 mil. lei currents, representing a variation of 2. 92%.

Analysis of the results shows that for this county, in the region SOUTH-WEST OLTENIA, the variation of 2. 92% is identical to that of the region, but hovering in the overall national level.

2.51. The Analysis of GDP for Region WEST during 1995-2014

Statistics on GDP corresponding to the region Region WEST are the following:

Table 51

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	710. 5	710. 5	2005	28366. 2	992. 8
1996	1072. 0	744. 0	2006	34998. 3	1119. 9
1997	2631. 2	776. 2	2007	41902. 2	1173. 3
1998	3651. 9	726. 7	2008	52056. 0	1249. 3
1999	5779. 8	768. 7	2009	50612. 3	1164. 1
2000	7646. 8	711. 2	2010	53722. 7	1181. 9
2001	11272. 8	755. 3	2011	55917. 2	1174. 3
2002	14661. 0	806. 4	2012	58196. 4	1163. 9
2003	19564. 0	880. 4	2013	60529. 9	1150. 1
2004	24604. 2	959. 6	2014	61339. 4	1165. 4

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	31. 46457421	-62102. 04407
Standard Error X Variable/Standard Error Intercept	3. 168793951	6351. 873756
Adjusted R Square/Standard Error	0. 8456197	81. 71557161
F/Residual	98. 59518756	18
SS Regression/SS Residual	658362. 9211	120193. 8236
Correlation coefficient R	0. 919575826	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i-e_{i-1})^2}{\sum_{i=1}^{n}e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 41806604** which implies that errors undergoes a positive autocorrelation.

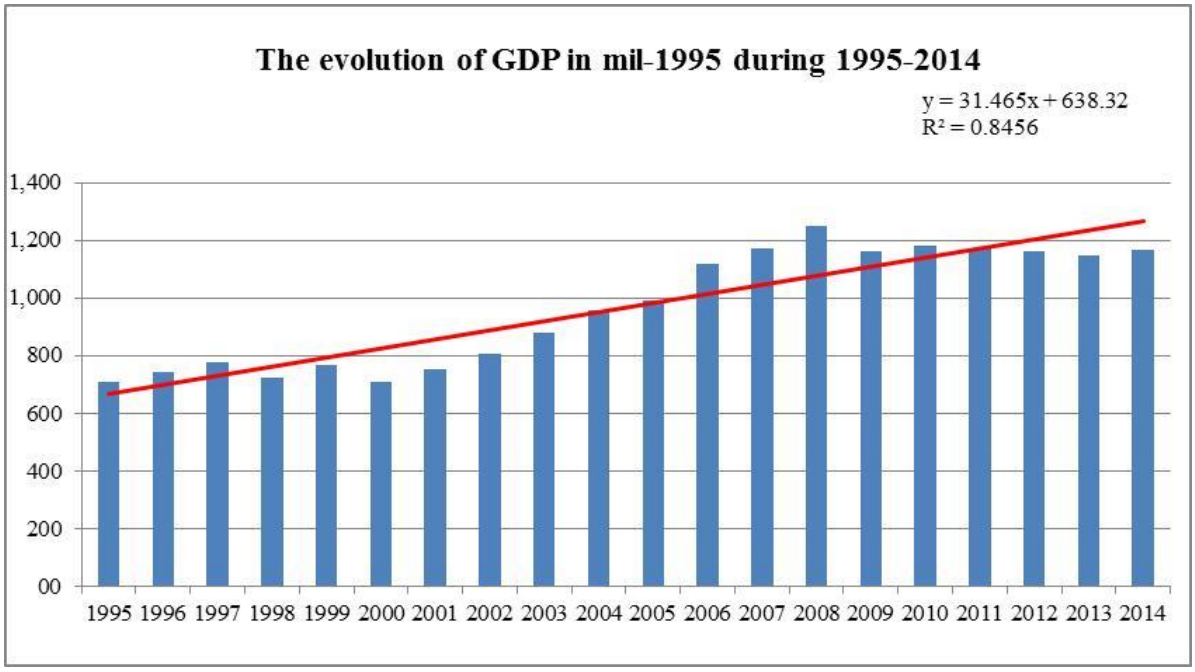

Figure 51

The coefficient of autocorrelation of errors being ρ=0. 784643455 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	28. 25158419	-11990. 58603
Standard Error X Variable/Standard Error Intercept	10. 04725995	4346. 204776
Adjusted R Square/Standard Error	0. 317450275	51. 65866069
F/Residual	7. 906610292	17
SS Regression/SS Residual	21099. 71641	45366. 49281
Correlation coefficient R	0. 563427258	

Durbin-Watson statistic calculation implies a value d=1. 624380802 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 784643455·GDP_{2014}+28. 25158419·2015-22. 16742062·2014-11990. 58603=1205. 632594 mil. lei-1995, respectively: 66979. 58856 mil. lei currents, representing a variation of 3. 45%.

Analysis of the results reveals that in this region, in the macroregion FOUR, the variation of 3. 45% is the upper area, the growth rate being identical to that country.

2.52. The Analysis of GDP for Arad during 1995-2014

Statistics on GDP corresponding to the region Arad are the following:

Table 52

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	168. 4	168. 4	2005	6632. 4	232. 1
1996	254. 4	176. 6	2006	8273. 6	264. 8
1997	664. 9	196. 1	2007	9295. 5	260. 3
1998	923. 8	183. 8	2008	11188. 1	268. 5
1999	1732. 4	230. 4	2009	10990. 7	252. 8
2000	1879. 9	174. 8	2010	11674. 3	256. 8
2001	2750. 6	184. 3	2011	12462. 8	261. 7
2002	3494. 3	192. 2	2012	13040. 4	260. 8
2003	4525. 6	203. 7	2013	13716. 5	260. 6
2004	5957. 8	232. 4	2014	13820. 0	262. 6

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	5. 493401429	-10785. 33933
Standard Error X Variable/Standard Error Intercept	0. 686263698	1375. 621275
Adjusted R Square/Standard Error	0. 780693127	17. 69708957
F/Residual	64. 07677118	18
SS Regression/SS Residual	20068. 0104	5637. 365626
Correlation coefficient R	0. 883568406	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**1. 410257138** which implies that errors are uncorrelated.

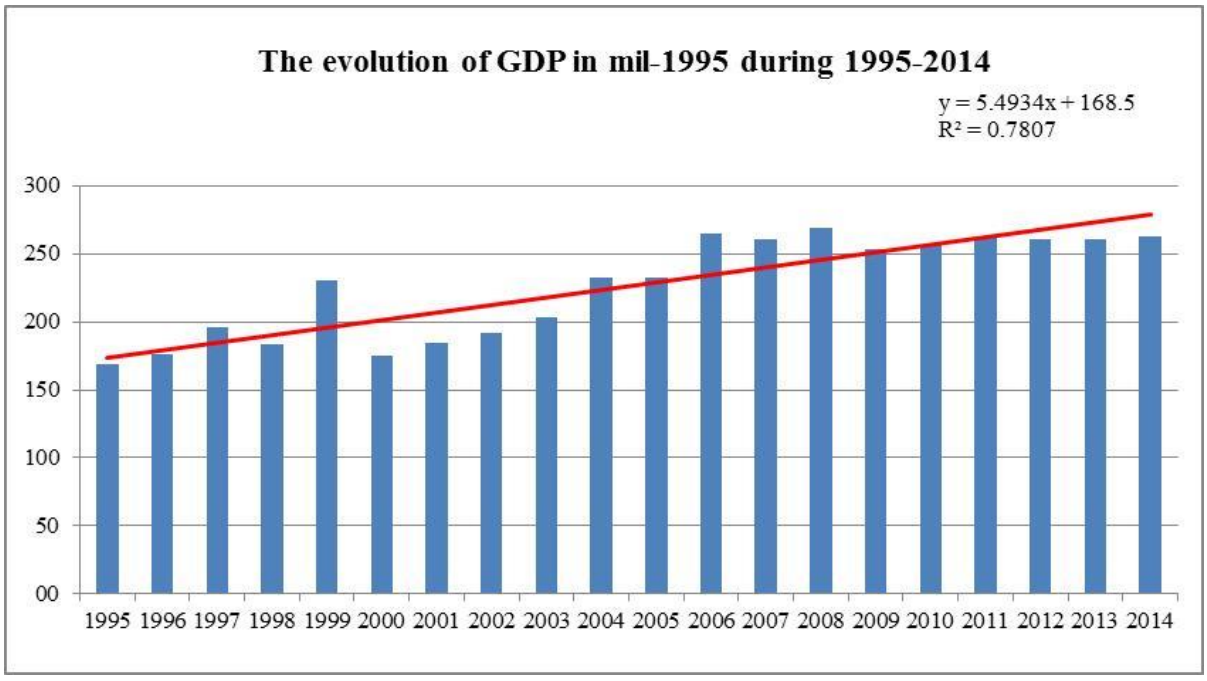

Figure 52

The forecast for the Year 2015 is:

GDP_{2015}=5. 493401429·2015-10785. 33933=283. 86455 mil. lei-1995, respectively: 15770. 25278 mil. lei currents, representing a variation of 8. 11%.

Analysis results show that for this county in the region WEST, the variation of 8. 11% is very high, county hovering well above the general level of the region and also across the country.

2.53. The Analysis of GDP for Caras-Severin during 1995-2014

Statistics on GDP corresponding to the region Caras-Severin are the following:

Table 53

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	96. 8	96. 8	2005	3654. 4	127. 9
1996	146. 2	101. 5	2006	4373. 8	140. 0
1997	366. 2	108. 0	2007	5232. 7	146. 5
1998	525. 0	104. 5	2008	6148. 9	147. 6
1999	761. 1	101. 2	2009	6462. 1	148. 6
2000	1048. 8	97. 5	2010	6679. 1	146. 9
2001	1558. 4	104. 4	2011	6472. 1	135. 9
2002	1964. 8	108. 1	2012	6961. 7	139. 2
2003	2706. 5	121. 8	2013	6754. 9	128. 3
2004	3340. 1	130. 3	2014	6831. 8	129. 8

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	2. 609038496	-5106. 573496
Standard Error X Variable/Standard Error Intercept	0. 422682782	847. 2711418
Adjusted R Square/Standard Error	0. 679147839	10. 89997193
F/Residual	38. 10060398	18
SS Regression/SS Residual	4526. 709447	2138. 568987
Correlation coefficient R	0. 824104265	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 389006698** which implies that errors undergoes a positive autocorrelation.

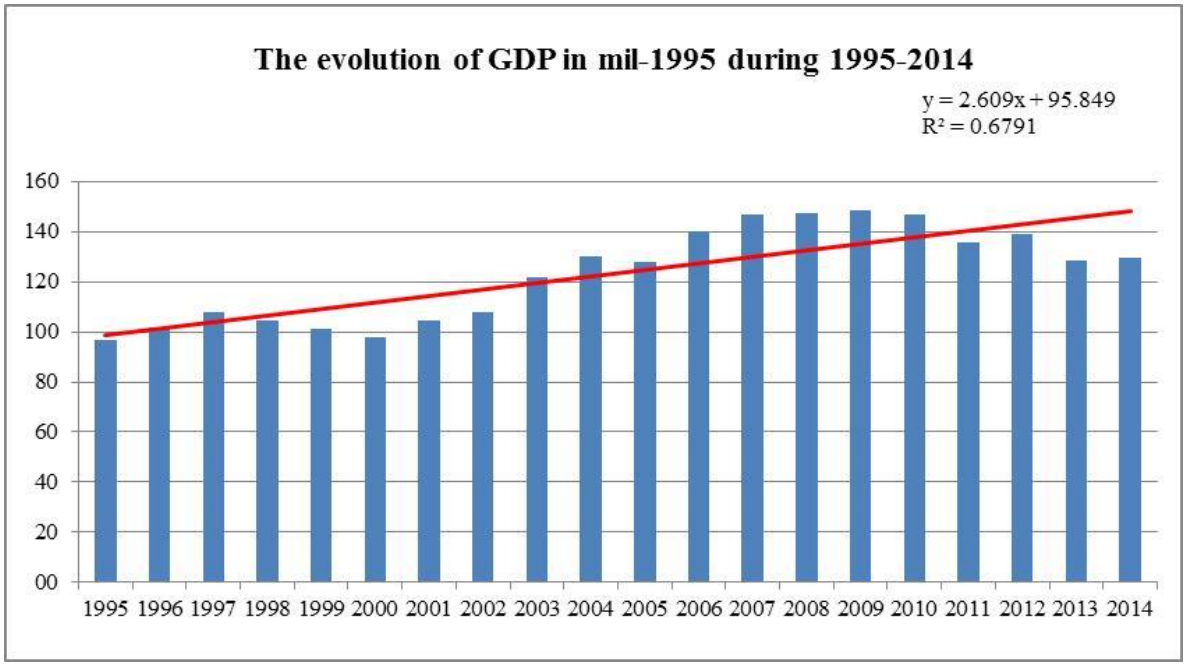

Figure 53

The coefficient of autocorrelation of errors being ρ=0. 794813461 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	1. 228656241	-479. 4902498
Standard Error X Variable/Standard Error Intercept	1. 356307972	559. 0638469
Adjusted R Square/Standard Error	0. 046049111	6. 644229233
F/Residual	0. 820623885	17
SS Regression/SS Residual	36. 22708322	750. 4782957
Correlation coefficient R	0. 214590566	

Durbin-Watson statistic calculation implies a value d=1. 523714513 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 794813461·GDP_{2014}+1. 228656241·2015-0. 97655252·2014-479. 4902498=132. 6454268 mil. lei-1995, respectively: 7369. 19038 mil. lei currents, representing a variation of 2. 19%.

Analysis results show that for this county in the region WEST, the variation of 2. 19% is rather small county hovering well below the general level of the region and also in the country.

2.54. The Analysis of GDP for Hunedoara during 1995-2014

Statistics on GDP corresponding to the region Hunedoara are the following:

Table 54

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	174. 9	174. 9	2005	5913. 0	207. 0
1996	267. 7	185. 8	2006	7012. 0	224. 4
1997	562. 2	165. 8	2007	8885. 1	248. 8
1998	789. 4	157. 1	2008	9862. 7	236. 7
1999	1167. 9	155. 3	2009	9539. 2	219. 4
2000	1720. 6	160. 0	2010	9446. 4	207. 8
2001	2481. 3	166. 2	2011	9593. 4	201. 5
2002	3317. 2	182. 4	2012	11138. 2	222. 8
2003	4241. 7	190. 9	2013	10428. 5	198. 1
2004	5288. 6	206. 3	2014	10917. 1	207. 4

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	3. 230505789	-6279. 61707
Standard Error X Variable/Standard Error Intercept	0. 771184889	1545. 846505
Adjusted R Square/Standard Error	0. 493640327	19. 88700274
F/Residual	17. 54785453	18
SS Regression/SS Residual	6940. 051491	7118. 871806
Correlation coefficient R	0. 702595422	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 545060741** which implies that errors undergoes a positive autocorrelation.

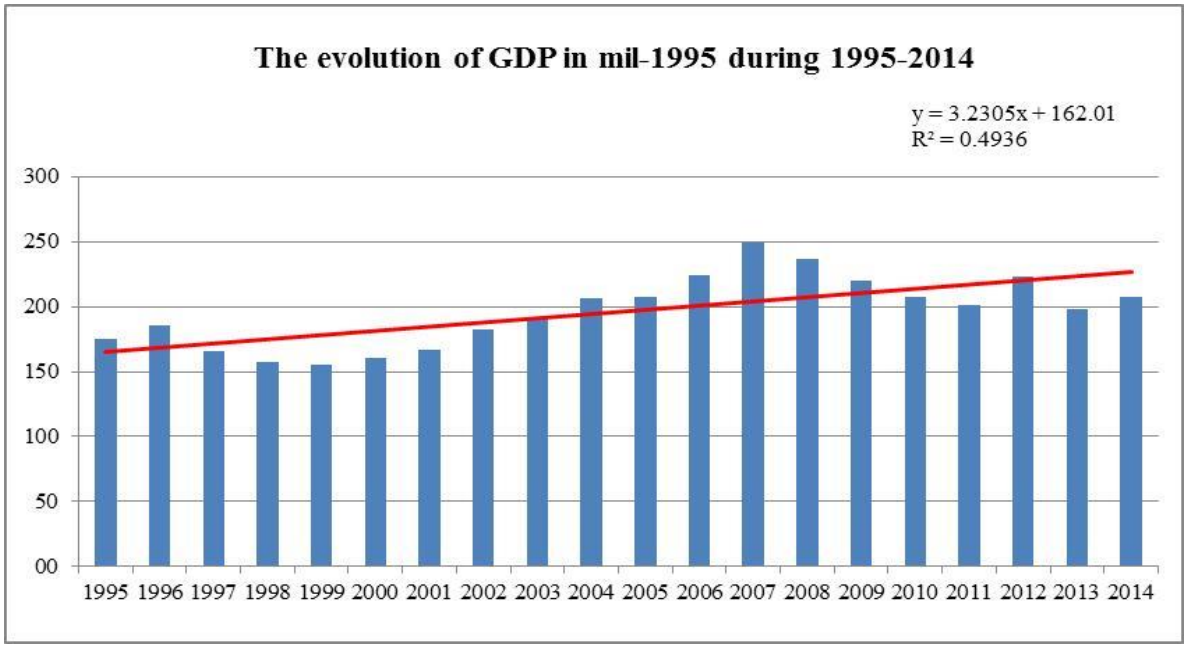

Figure 54

The coefficient of autocorrelation of errors being ρ=0. 721182845 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	2. 967093298	-1604. 656898
Standard Error X Variable/Standard Error Intercept	2. 114393202	1183. 535107
Adjusted R Square/Standard Error	0. 103810617	14. 07481426
F/Residual	1. 969204854	17
SS Regression/SS Residual	390. 1002622	3367. 70674
Correlation coefficient R	0. 32219655	

Durbin-Watson statistic calculation implies a value d=1. 662839404 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 721182845·GDP_{2014}+2. 967093298·2015-2. 139816787·2014-1604. 656898=214. 0363676 mil. lei-1995, respectively: 11890. 90931 mil. lei currents, representing a variation of 3. 19%.

Analysis of the results shows that for the county in the region of West, the variation of 3. 19% is good, the county hovering around in the general region of, but below the national level.

2.55. The Analysis of GDP for Timis during 1995-2014

Statistics on GDP corresponding to the region Timis are the following:

Table 55

	Data (mil. Lei currents)	Data (mil. Lei 1995)		Data (mil. Lei currents)	Data (mil. Lei 1995)
Year	GDP		Year	GDP	
1995	270. 4	270. 4	2005	12166. 4	425. 8
1996	403. 7	280. 2	2006	15338. 9	490. 8
1997	1037. 9	306. 2	2007	18488. 9	517. 7
1998	1413. 7	281. 3	2008	24856. 3	596. 6
1999	2118. 4	281. 7	2009	23620. 3	543. 3
2000	2997. 5	278. 8	2010	25922. 9	570. 3
2001	4482. 5	300. 3	2011	27388. 9	575. 2
2002	5884. 7	323. 7	2012	27056. 1	541. 1
2003	8090. 2	364. 1	2013	29630. 0	563. 0
2004	10017. 7	390. 7	2014	29770. 5	565. 6

Source: http://databank. worldbank. org/data

Regression analysis on the data in the table above shows the following indicators:

Regression real/computed		
X Variable/Intercept	20. 1316285	-39930. 51418
Standard Error X Variable/Standard Error Intercept	1. 709627708	3426. 96292
Adjusted R Square/Standard Error	0. 885102319	44. 08718508
F/Residual	138. 661125	18
SS Regression/SS Residual	269512. 8398	34986. 23798
Correlation coefficient R	0. 940798766	

Durbin-Watson statistic calculation: $d=\frac{\sum_{i=2}^{n}(e_i - e_{i-1})^2}{\sum_{i=1}^{n} e_i^2}$ where e_i represents residues derived from regression implies a value d=**0. 520256315** which implies that errors undergoes a positive autocorrelation.

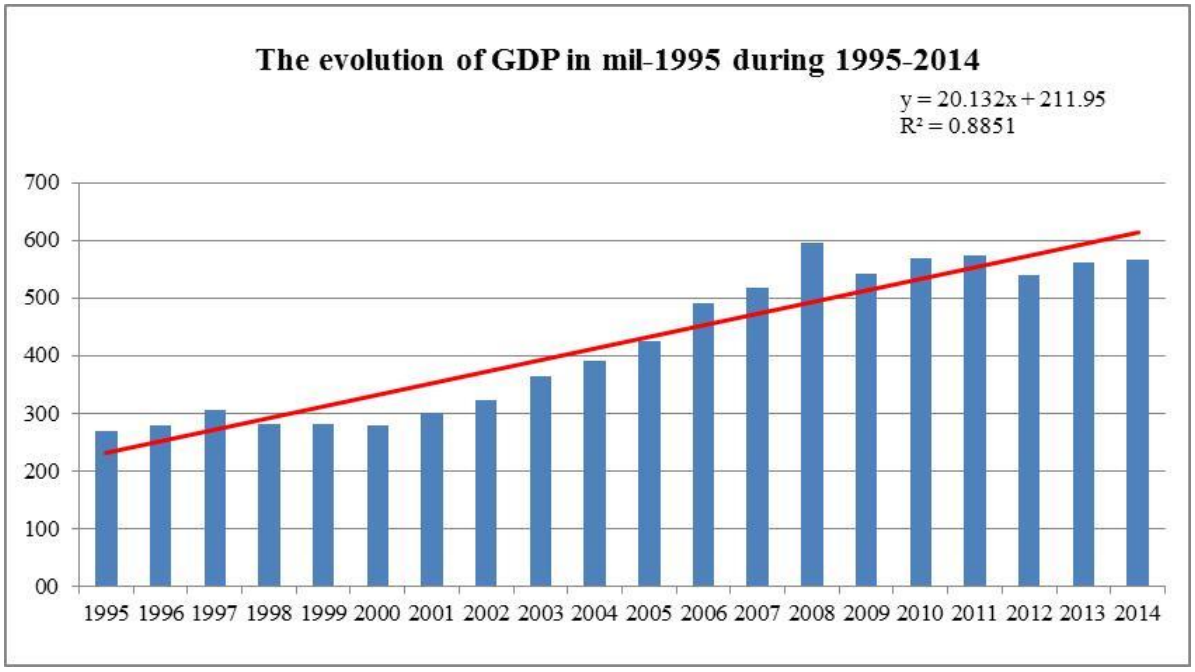

Figure 55

The coefficient of autocorrelation of errors being ρ=0. 729979906 implies that we will perform a data transformation of the form: $GDP^*_n=GDP_n-\rho GDP_{n-1}$ and $Year^*_n=Year_n-\rho Year_{n-1}$.

With the new data we obtain:

Regression real/computed		
X Variable/Intercept	20. 2996241	-10877. 0121
Standard Error X Variable/Standard Error Intercept	4. 702587714	2549. 377596
Adjusted R Square/Standard Error	0. 522925296	30. 31589653
F/Residual	18. 63383227	17
SS Regression/SS Residual	17125. 4903	15623. 9109
Correlation coefficient R	0. 723135738	

Durbin-Watson statistic calculation implies a value d=1. 915236027 which implies that errors are uncorrelated.

The forecast for the Year 2015 is:

GDP_{2015}=0. 729979906·GDP_{2014}+20. 2996241·2015-14. 8183177·2014-10877. 0121=595. 5440795 mil. lei-1995, respectively: 33085. 78219 mil. lei currents, representing a variation of 5. 29%.

Analysis results show that for this county in the region WEST, the variation of 5. 29% is very high, county hovering well above the general level of the region and also across the country.

3. Conclusions

Analysis carried out on macro-regions and counties reveals a disproportionate development of areas of Romania, with growth rates of GDP high in Bucharest-Ilfov, but and Gorj, Arad and Timis and very low, even negative in the nearby counties of Arges, Giurgiu Prahova and Teleorman indicating many weaknesses of the Romanian economy.

Counties with a high agricultural potential such as Giurgiu Teleorman fail to transform this geographical advantage into an economic one, and some with great tourism potential: Prahova and Arges contribute not expected to raise living standards.

The preferential allocation of budgetary funds for infrastructure development led to counties Transylvanian record, mostly, growth rates healthy, while the counties of Moldavia, Muntenia and Oltenia by SOUTH struggle somewhere to limit growth or worse, recorded negative rates.

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***http://databank. worldbank. org/data.