EFICIENCY ANALYSIS OF THE ISTRIAN COUNTY REGIONAL POLICY

ABSTRACT

Every macroeconomic analysis considering the level and structure of development is based on specific theoretical background and associated methodological framework. The importance of land and space in today’s economic policy demands new regional research. Regional issues are nowadays regarded as the questions of vital importance with many different approaches that cannot be generalised. Regional approaches usually reflect current problems and constraints within economy but also different contributions of particular theoreticians. The author used the OLS model in the paper to investigate the multidimensional nature of regional policy on the example of the Istrian county. Using the OLS model, the correlation between gross domestic product and influential variables for the Istrian county has been investigated. The model is limited because of the available data, so the variable selection is needed. The model presented in the paper can serve as an analytic framework for the regional policy optimisation and structural changes measurement.

JEL: R00, R1, R5, 02

Key words: theories of economic development, regional policy, theories of regional development, economic growth.

1. Introduction

A variety of regions and the dynamics of developmental processes emphasise different research approaches and the development of scientific fields. The theoretical approach to regional development, which is largely dependant on historical processes, natural characteristics and socio-political systems, has significantly influenced the development of regional economy. It has not been possible to generalise the theoretical approach to regional development, so the general concept of regional economy has been impossible. The complexity of regional facilities has represented a starting point for
modelling scientific disciplines, whose interest is motivated by the need to ensure efficient development. This is also supported by different definitions of regional economies, in which some theoreticians include specific features and problems in their own environments and regions, which is evident in works by W. Isard1, L. Lefeber2, J.R. Meyer3, V. Dubey4, N. Nekrasov5, B. Kubović6, J. Osmanković7, etc.

Regional development is thus understood as a dynamic process dependant on the combination and application of available factors, which is the main issue in this paper. The hypothesis has been tested with the aid of OLS model using E-view package. Despite all the constraints related to the availability, time and objectivity of determinants, we can draw certain conclusions. The regression analysis has confirmed the significance of relevant parameters concerning the above-mentioned model and pointed out the necessity of change in the structure of activities and the educational level of citizens. Therefore, the Istrian county possesses objective pre-requisites needed for a turning point in the direction of GDP development and acceleration, followed by quality changes in the economy structure. The approach to the national strategy of long-term regional development must be based on scientific analysis considering the influences of various factors on the tendencies of development and the changes in society’s economic structure, from which the evaluations of development possibilities stem, as well.

2. Previous Theoretical Research and Results

The regional development of economy is a complex and current issue. The interest in studying regional development has been resulted from regional differences, manifested in a wide range of territorial deformations (depressive areas, conflicts between centres and outskirts, domination, etc.), whose free and complete action of economic laws has not been automatically solved.8 Dealing with undeveloped areas has been gradually extended into a wider range of regional development issues as well as into considerations about the regional harmony of economy as a whole because it became clear that the problem of undeveloped areas cannot be successfully considered and solved without respecting the context of the entire national economy. Consequently, successful regionalisation implies that region should be simultaneously viewed as a centre of its own potentials and as a system open to experiences of others, able to learn from practical experiences of others and thus find answers to numerous questions and constraints.9 According to the theories known so far, it is not possible to conclude what regional development to apply although many theories are concerned with this.

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5 N.N. Nekrasov: Regionalna ekonomika, Ekonomika, Moskva, 1978., p. 19
8 Ibid 9, p.11
9 Ibid 9, p. 5
The importance of economic area and the process of delocalisation in the contemporary development has been identified and theoretically analysed for the first time by F. Perroux (1950). The main idea of the theory implies that economic development does not occur everywhere at the same time and in the same way. It appears at the poles of development and has an unequal impact on economy as a whole. The theory is centred on the concentration of production in the areas where the best competitive advantages are possible and the comprehensive valorisation of agglomerated economies can be achieved. The theory emphasises that the complex problems of regional development cannot be solved by making individual decisions in a short period of time. Its advantages are indicated by taking into account the dynamic character and structural changes. Insisting on ex-ante choice of development sequences leading to deeper structural changes in region has a special value. Although the theory has provided us with important theoretical elements of regional development, it does not sufficiently correspond to particular stages of development and suggests certain caution because of some problems which occurred during its implementation of theory into practice.

In order to present the complex issues of regional development and a range of theories focused on this, it is also needed to present the basic theories of locations, neoclassical model and export-based theories.

The theory of location has a special importance in explaining the phenomenon of regional development. It was founded by the German economist J. Thuenen who formulated and presented the territorial distribution of production in the first half of 19th century. Thuenen studied the distribution of agriculture in an environment while his followers studied the distribution of industrial plants. The research resulted in formulating the concentric circles of agricultural production distribution. Thuenen’s conclusions were theoretical in their character and the model was static. A comprehensive theoretical conception of the optimal distribution of industrial plants, having profit as a basic business motive, was suggested by Weber. Elaborating motives and factors crucial for the geographical distribution of companies, he started from minimising costs, i.e. maximising individual profit. He pointed out transportation costs, labour costs and agglomeration costs as the decisive factors considering the location of industry. Although Weber is considered to be the author of the first general location theory, he was significantly influenced by Thuenen as well as by Launhardt and Rosher, seen as the first location theory idea-makers. The neoclassical models of economic growth were elaborated by R.Solow, N. Kaldor, J.E. Meade. In relation to the assumptions about the complete mobility of production powers, perfect competitiveness, as well as the assumption that regional differences tend to disappear from the economies based on a free game of economic powers, which cannot be associated with the real market, neoclassical doctrine could not contribute to the understanding of regional development problem. The export-based theory says that export is a factor which creates and moves the development of regions. The economic theories rooted in this theory are concentrated on the movement of national final consumption, whose influence on the increase in regional export is predictable. The advocates of this theory, such as North and

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10 Ibid 8, p. 125  
11 Ibid 9 p. 27  
12 Ibid 9, p. 31  
13 Ibid 9, p 32
Tieboux, think that the economic efficiency of regions is measured by a successful specialisation in those production branches which enable region to have an active interregional exchange, i.e. surplus of export over import. The theoretical approach to regional economic development is not a sufficient basis for studying regional development problem in its complexity.

The ‘big push’\textsuperscript{14} theory represents an alternative to the balanced growth theory. Abandoning the balance of economy in accordance with the chosen strategy of achieving development pushes is the foundation of this method, which implies leaving the vicious circle of undeveloped state. The investment ability implies building up an adequate theory and practice in every country with the aim of developing modern economy sectors. Investment activity, accompanied by limited capital, does not give a chance to fast transformations and exit from the undeveloped state. Big push referring to development is determined by investments, investments are determined by savings, and savings are determined by the level of income which represents the aggregate of economic development.

The territorial level is therefore a basic starting point for determining the contents of regional economy, which is increasingly changed and upgraded under the influence of globalisation. Having insights into particular theories, we can summarise that regional diversity itself is not a problem, but it can be a factor of faster and better development as much as the specific features and experiences of regional diversities can be creatively used. Although an advantage should be given to the revitalisation of regions whose development is lagging behind, we must not reject the creation of structures which will help us modernise development and ensure efficiency more easily.

Being a pre-requisite of achieving successful regional development policy, analysis is needed and efficiency criteria should be respected due to limited funds. It is clear that regional policy has an exquisitely important role requiring a clear and scientifically based systematic approach. According to the theories presented so far, it is not possible to conclude what regional development should be implemented although many theories mention this concept. The above-presented approaches to regional development are not the only ones but they are characteristic, which can help us expand our understanding of regional economy.

3. Data Sources and Methodological Framework

As the regional development theories point out the fact that there is no general concept of regional economy, so theory cannot help us conclude what regional development should be applied, the author has tried - testing the hypothesis about regional policy efficiency in the stated period (2003) in the Istrian county - to find out a solution to this. In order to improve the efficiency of regional policy, the author (using the multiple regression analysis) pointed out the correlation between particular variables which influence the regional development of the Istrian county in the analysed period (2003) and stated what variable is the most significant for the county development. The aim of the current study is thus to determine influential factors, selection of hypotheses and conditions which are to enable the achievement of more competitive regional development and the entire development, as well.

\textsuperscript{14} Ibid 8, p. 125
The main disadvantage of this model lies in subjectivity, present in choosing certain variables, and the lack of some statistical data in the particular period. Data relevant for this year (2003) have been obtained from various sources: Statistical Yearbook, Government Statistical Office, Financial Agency, R.O.P. (Regional Operation Programme 2006-2010), Croatian Chamber of Commerce – Istrian Chamber of Pula. These have been processed by the author.

The author applied the OLS model using e-views packets. The suggested methodology opens up a possibility for better development understanding, reveals the seriousness of regional disarrangements, and gives arguments for further regional development. The generalisation of system and the method of solving regional problems are not adequate because of the present imbalance and a whole series of factors which generate development.

4. Istrian County Development Policy

The regional development and institutions meeting the requirements of managing regional development in the era of globalisation are of great importance in the period when Croatia is getting ready for becoming the full member of the European Union and, generally, for achieving its competitiveness. In order to find out a creative solution to new challenges, the regional policy is rehabilitated in terms of creating entrepreneurship, encouraging innovations, new education system, factor mobility and autarchy elimination. We can actually say that the new regional policy changes the position of region in the management process, emphasising the dynamics of local system. Counties, being the units of local (regional) government have become crucial in planning and implementing the regional development.

Viewing the Istrian county economic structure (see Table 1), measured by the total achieved revenues in 2006, the processing industry was first ranked with significant 34,0%, immediately followed by trade (27,5%). The biggest profit was made in the processing industry (33,9%) and the real estates business and services (31,1%), while the smallest profit was made in transportation, storage and telecommunications (2,5%). Taking into account the total employment structure in economy, the processing industry participates here with the highest degree (31,3%), while just 4,3% refers to transportation, storage and telecommunications. Although the processing industry prevails according to the number of employees as well as revenues, the low level of investments in technology, low education and professional level of labour force, and poor networking with other industries and services greatly slow down its competitiveness at the foreign market and contribute to a slower and inadequate GDP growth.
Some inadequate competitiveness has been also observed in agriculture and food production, mainly because of the fact that local people are not educated enough and because of the observation that small areas remained small and thus not very competitive at the market. The traditional agricultural sector with its traditional and poorly educated labour force, along with its low productivity and efficiency is increasingly becoming a matter of the past. However, it is important to emphasise that the situation significantly changed after 2003, so developmental movements are obvious in the sectors of vine and olive growing, which can be see in Table 2. The specialisation of agricultural farms can contribute to an increase in economic efficiency, which is needed for the international competitiveness.
Table 2

Number of Purchased Vine Slips and Olive Tree Seedlings in the Istrian County from 2001 to 2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Vine Slips</th>
<th>Olive Tree Seedlings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number ha</td>
<td>Number ha</td>
</tr>
<tr>
<td>2001</td>
<td>202.650</td>
<td>29.494</td>
</tr>
<tr>
<td></td>
<td>67.5</td>
<td>105.3</td>
</tr>
<tr>
<td>2002</td>
<td>182.827</td>
<td>32.620</td>
</tr>
<tr>
<td></td>
<td>60.9</td>
<td>108.7</td>
</tr>
<tr>
<td>2003</td>
<td>118.247</td>
<td>41.567</td>
</tr>
<tr>
<td></td>
<td>39.4</td>
<td>138.5</td>
</tr>
<tr>
<td>2004</td>
<td>336.900</td>
<td>47.679</td>
</tr>
<tr>
<td></td>
<td>84.2</td>
<td>170.3</td>
</tr>
<tr>
<td>2005</td>
<td>662.951</td>
<td>96.187</td>
</tr>
<tr>
<td></td>
<td>165.7</td>
<td>343.5</td>
</tr>
<tr>
<td>Total</td>
<td>1,503.575</td>
<td>417.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>247.547</td>
</tr>
</tbody>
</table>

Source: Designed by author, according to data taken from HGK (Croatian Chamber of Commerce) - Gospodarski profil Istarske županije u 2006. godini / Economic Profile of the Istrian County in 2006, p. 54

Establishing regional agencies after 2003, the Istrian county has recorded a positive trend in achieving financial results, which can be seen in Table 3 (number of employees, number of entrepreneurs, total revenues). The new entrepreneurial climate, led by the participation of regional development agencies and the preparation of strategic documents on development, has largely affected the Istrian economic revitalisation, but still not enough in relation with the resources of development.

Table 3

Basic Financial Results Concerning Business Performances of Entrepreneurs from the Istrian County

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Entrepreneurs</td>
<td>5.351</td>
<td>5.776</td>
<td>6.284</td>
<td>7.063</td>
</tr>
<tr>
<td>Number of Employees</td>
<td>41.705</td>
<td>42.270</td>
<td>42.434</td>
<td>43.341</td>
</tr>
</tbody>
</table>

Source: Designed by author according to data taken from FINA (Financial Agency) and publication - Gospodarski profil istarske županije u 2006. god / Economic Profile of the Istrian County in 2006; HGK Županijska komora Pula (Croatian Chamber of Commerce – Istrian County Chamber of Pula)

Starting only from certain number of indicators, we can observe that the Istrian county invests lots of efforts to raise the level of competitiveness and largely succeeds in this but it simultaneously encounters developmental weaknesses, such as inadequate investments in sophisticated technology, the low level of using knowledge and innovations in the key economic sectors, inadequate educational structure, inadequate legislature and, what is the most important, the incorrect perception of developmental
needs. All this leads to low-leveled GDP per capita compared to potential resources. This is the reason why we wanted to slightly contribute to the regional policy, in other words the regional development management, through carrying out this research.

5. Study Hypothesis and Results

The relevant and reliable evaluation considering the efficiency of the county regional policy is a crucial foundation of every economy. This paper confirms the hypothesis about the relation between regional development measured by GDP per capita in the county and the adequate structural variables affecting the efficiency of the Istrian county regional policy.

The obtained results coincide with the empirical study taken from the county strategic document.

Due to the study, we have realised that the structural changes are highly needed in order to improve the regional policy efficiency, what is presented in the following text by applying the regression equation (1.1.) and table (4):

\[ Y = f (x_1, x_2, x_3, x_4, x_5, x_6D) \]  \hspace{1cm} (1.1)

\[ Y = 16,560 - 0,089X_1 + 0,145X_2 + 0,361X_3 + 0,001X_4 + 2,963X_5 + 1300,03 \text{ PRA} \]

Symbols mean the following:

\( Y \) = gross domestic product
\( X_1 \) = employees in primary industry (agriculture, hunting, forestry and fishing)
\( X_2 \) = employees in secondary industry (mining, processing industry, electric power supply, construction industry)
\( X_3 \) = employees in tertiary industry (wholesaling and retailing, hotels and restaurants, transportation, storage and telecommunication services, financial agencies, real estate business, rental and business services)
\( X_4 \) = number of agricultural household (in thousands of kunas)
\( X_5 \) = university qualifications and two-year post-secondary school qualifications concerning agricultural household
\( D \) = dummy variable referring to existence of regional development agencies
\( D = 1 \); existence of regional development agencies
\( D = 0 \); lack of existence referring to regional development agencies

(Dummy variable in regression is marked PRA; existence of development agencies)

Estimation Equation:

\[ Y = C(1) + C(2)*X_1 + C(3)*X_2 + C(4)*X_3 + C(5)*X_4 + C(6)*X_5 + C(7)*PRA \]

Substituted Coefficients:

\[ Y = 16.56032186 - 0.0888380066*X_1 + 0.1454522606*X_2 + 0.3616479615*X_3 + 0.001793405783*X_4 + 2.963123724*X_5 + 1300.034021*PRA \]
### Table 4

Results of Linear Regression

Dependant Variable: Y  
Method: Least Squares  
Date: 02/06/08   Time: 10:50  
Sample: 1 22  
Included Observations: 22

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>16.56032</td>
<td>304.7589</td>
<td>0.054339</td>
<td>0.9574</td>
</tr>
<tr>
<td>X1</td>
<td>-0.088838</td>
<td>0.589478</td>
<td>-0.150706</td>
<td>0.8822</td>
</tr>
<tr>
<td>X2</td>
<td>0.145452</td>
<td>0.089987</td>
<td>1.616377</td>
<td>0.1268</td>
</tr>
<tr>
<td>X3</td>
<td>0.361648</td>
<td>0.058394</td>
<td>6.193198</td>
<td>0.0000</td>
</tr>
<tr>
<td>X4</td>
<td>0.001793</td>
<td>0.039036</td>
<td>0.045942</td>
<td>0.9640</td>
</tr>
<tr>
<td>X5</td>
<td>2.963124</td>
<td>4.676922</td>
<td>0.633563</td>
<td>0.5359</td>
</tr>
<tr>
<td>PRA</td>
<td>1300.034</td>
<td>1308.910</td>
<td>0.993219</td>
<td>0.3364</td>
</tr>
</tbody>
</table>

| R-squared | 0.999364    | Mean Dependent Var | 18038.36 |
| Adjusted R-squared | 0.999110 | S.D. Dependent Var | 42184.55 |
| S.E. of Regression | 1258.780 | Akaike Info Criterion | 17.36705 |
| Sum Squared Resid. | 23767922 | Schwarz Criterion | 17.71420 |
| Log Likelihood | -184.0375 | F-statistic | 3928.246 |
| Durbin-Watson Stat | 2.184005 | Prob(F-statistic) | 0.000000 |

Source: Designed by Author

Having in mind that GDP is a basic indicator of regional competitiveness, the author (through applying the regression analysis) has analysed the impact of certain independent structural variables on its change. The chosen independent variables are grouped into those explaining the economic structure of certain sectors and education aimed at creating new values, so the model also includes one dummy variable as an unavoidable factor of development; the existence of development agency.

If we analyse the variance, we can see that the determination coefficient (R2) is 0.999, which means that 99% of all the deviations is explained by this regression model. The modified determination coefficient remains the same and also indicates the fact that more than 99% of all the deviations is explained by this regression model. The results themselves reflect structural states and developmental processes indicating the necessity of change. The study shows that there are much more people employed in the secondary and tertiary industries than they contribute to GDP, also that the Istrian county is at a very low level of educational structure which significantly influences the number (share) of agricultural people and, consequently, a small percentage of people included in the primary sector.
It is finally important to point out the specific feature of model associated with the year of 2003 in relation to the lack of data as the conditions referring to agriculture have changed since 2003 due to an increase in investments covering olive trees and vine planting activities. Besides, the number of development agencies in the county area, their activities and importance have increased, which is evident in the tables (see the Appendix). The analyses and their results are a starting point for upgrading the system and defining economic policy.

6. Conclusion

Due to their specific features, theoretical models and numerous empirical studies, also including this one, do not offer one solution but they can contribute to the conception and strategy of regional policy in the Istrian county. As regional policy is faced with many new requirements and new approaches to be found, adjusting the relations between power and responsibility to new forms and relations of development, the Istrian county is confronted with the need to accelerate the economic growth through using its developmental possibilities more completely as well as strengthening its own ability to provide internationally competitive offers.

Although it immediately follows the City of Zagreb being a leading county, which has recently invested lots of efforts to reconstruct economy, largely investing in major infrastructure projects, building new facilities, encouraging investments in revitalising and planting new olive groves and vineyards, developing entrepreneurial zones, establishing the University, it still encounters numerous limitations.

One of the relevant obstacles to a new direction towards an upturn refers to the pro-recession economic policy burdened with a dogma according to which stabilisation at the current low level of using production (material, financial and human) factors is seen as a pre-requisite of development as well as the insufficient educational level needed for using high technologies which create new values. Namely, Europe and other parts in the world are abandoning the classical industrial society and entering a new IT society which relies on microelectronics, biotics, energetics and robotics, so the development imperatives are to be found in resources such as sciences, information, time, new research approaches. The above-stated changes encourage a decrease in production costs, quality improvements, international competitiveness, export, which affect also the structure of economy and the economic position of particular countries.

Finally, it can be concluded that an important support in case of the regional economic policy lies in the availability of scientifically and professionally rooted statistical-analytical foundation, continuous research into the status and changes of national economy, and the analysis of possibilities concerning the future development in relation to the international environment.
REFERENCES

Armstrong, Harvey (2000), Regional Economics and Policy, Backwell publishing
Babić M. (1993) Međunarodna ekonomija, Mate d.o.o., Zagreb
Baldwin, R. and Wyplosz, C. (2003) The Economics of European Integration, Published by McGrow-Hill Education
Bogunović, A. (2001), Ekonomsko integracije i regionalna politika, Ekonomski fakultet Zagreb, Fakultet ekonomije i turizma “Dr. Mijo Mirković” u Puli i Mikrorad d.o.o., Zagreb
Bogunović, A. (2001) Ekonomsko integracije i regionalna politika, Mikrorad d.o.o., Zagreb
Fujita, Masahisa (2007) Regional Integration in East Asia: From the Viewpoint of Spatial Economics, Pelgrave Macmillan
Kubović, B. (1975) Metode usmjerenja regionalnog razvoja, Ekonomska institut, Zagreb
Lang, R. (1986) Koncepcija i strategija razvoja, Ekonomska institut, Zagreb
Lefeber L. (1958) Allocation in Space Promotion, Transport and Industrial Location, North-Holland Publishing Co, Amsterdam,
Maleković, S., Jurlin, K., Polić M. (2001) Proces prilagodbe regionalne politike Hrvatske s regionalnom politikom EU, Ekonomski fakultet, Rijeka
Maleković S. (1992) Regionalni razvoj u Europi, smjernice za regionalnu politiku Republike Hrvatske, IRMO, Zagreb
Markowski, T. (1991) Regional and development organization, Unido, Poland
Nekrasov N. (1978) Regionalna ekonomika, Ekonomika, Moskva
Osmanković J. (2001) Regionalizacija (teorija i praksa), BETA, Sarajevo
Sharma, S. (1990) Svjetska privreda, Narodne Novine, Zagreb,
http://www.dzs.hr
http://www.ida.hr
http://hr.wikipedia.org
http://hgk.biznet.hr/hgk
http://www.istra-istria.hr/masterplan
ANALIZA EFKASNOSTI REGIONALNE POLITIKE ISTARSKE ŽUPANIJE

SAŽETAK

Svaka makroekonomska analiza razine i strukture razvijenosti ima određena teorijska polazišta te metodološku osnovu za izradu odgovarajućeg analitičkog okvira. Širenje spoznaja o prostoru i njegovim brojnim prostornim sadržajima te sve izraženijoj prostornoj raznolikosti stvara impulse za regionalna izučavanja i usklađivanja odnosa. Regionalna pitanja razvoja sve više okupiraju pažnju te su prisutni brojni pristupi koji zbog različitosti koje obilježavaju današnji svijet se ne mogu uopćavati. Određeni pristupi generirani su izraženim problemima privrede ali i doprinosom pojedinih teoričara. Različitosti u pristupima predstavljaju širenje pogleda i obogaćuje spoznaje o ovoj disciplini. S obzirom da sadržaje u prostoru karakterizira višedimenzionalnost i međusobna zavisnost očito je da se prisutnost korelacijskih veza manifestira na kumuliranje regionalnog sklada ili neskalda pojedinog područja u vremenskom horizontu što je bio cilj istraživanja ovog rada. Regresijskom analizom istražena je korelacija između bruto domaćeg proizvoda i varijabli od utjecaja na regionalni razvoj na primjeru istarske županije. Ograničenje modela predstavlja vremenska komponenta te nemogućnost obuhvata svih relevantnih pokazatelja koji nameću potrebu subjektivne selekcije. Dobiveni model može poslužiti kao analitička osnova za optimiziranje regionalnog razvoja te za prikaz ostvarenih strukturnih promjena.

JEL: R00, R1, R5, 02

Ključne riječi: Teorije ekonomskog razvoja, Regionalna politika, Teorije regionalnog razvoja, Ekonomski rast