



**Economic Impact of Local Economic  
Development (LED) Project in Ukraine:  
Structure of Project Evaluation Study and  
Preliminary Results**

Dr. Denys Nizalov,  
Senior Economist,  
Kyiv Economics Institute,  
[nizalov@eerc.kiev.ua](mailto:nizalov@eerc.kiev.ua)

Kyiv, Ukraine: 2009

## **Economic Impact of Local Economic Development (LED) Project in Ukraine: Structure of Project Evaluation Study and Preliminary results**

Dr. Denys Nizalov, Senior Economist, Kyiv Economics Institute,  
[nizalov@eerc.kiev.ua](mailto:nizalov@eerc.kiev.ua)

### **Summary**

As the LED Project comes to an end, it is important to know if the Project activities have benefited the participated communities. Unlike self-reporting results presented by the communities and Program administration, this study presents preliminary results of a robust statistical analysis of the Project impact on various economic development outcomes for Ukrainian cities. This results show a positive and significant effect of the LED project on the number of businesses per capita, the fixed capital investment per capita and the number of jobs per capita. The report also suggests methodology that allows further refining of the presented results.

**Table of Content**

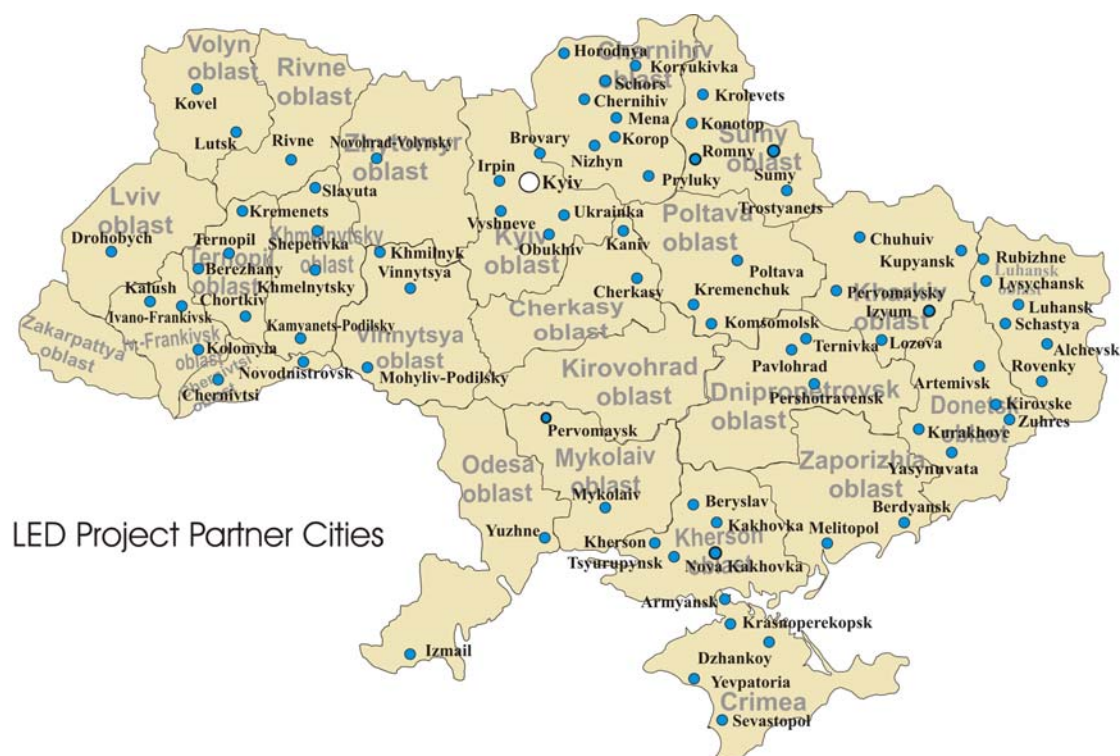
Local Economic Development Project Overview ..... 4  
Impact Evaluation Strategy ..... 6  
Project Effects and Project Effectiveness ..... 7  
Short vs. Long-term Effects and the LED Project Impact Channels ..... 7  
The LED Project effect estimates ..... 9  
Conclusions ..... 12  
Appendix. Technical details ..... 13

**List of Figures**

Figure 1. LED Partner Cities ..... 4  
Figure 2. Difference-in-Difference Procedure ..... 6  
Figure 3. LED Impact Channels ..... 8

### Local Economic Development Project Overview

The Local Economic Development (LED) Project in Ukraine has been started by the USAID in 2004. The Project has introduced strategic planning system to practice of municipal governance in Ukraine. This system represents a new technology in local government decision making and includes establishing of partnership with various local stakeholders and setting long-term goals for community development. Such goals help to coordinate various ongoing activities and projects and to consolidate resources for their achievement. 74 cities from all regions of Ukraine have participated in the Project by the middle of 2008 (see Figure 1).



**Figure 1. LED Partner Cities**

Implementation of the strategic planning system in the participating cities has been performed using a standardized procedure with the help of LED advisors and local consultants. With one exception, the implementation took from 4 to 12 months. In addition to the assistance with planning, the LED Project has provided small grants to the partner communities that help in implementation of communities' priority projects. Also, trainings on FDI attraction have been provided to local government officials and representatives of local consulting firms. Altogether, the LED activities have targeted at the FDI growth and creation of new jobs.

Internal reports point to a great success of the Project. More than 30 cities have reported an increase in FDI by the middle of 2008. Collectively, the partner cities have reported to realize<sup>1</sup> \$700 million of inflowing investment and the addition of about 12,000 jobs. For example, the City of Ivano-Frankivsk that has adopted a strategic plan in December 2005 attributes several investment projects to the LED participation (see Box 1).

***Box 1. Ivano-Frankivsk***

Started: March, 2005

Plan Adoption: December 8, 2005

**Stories on this site:**

- [First Four-Star Hotel Opened in Ivano-Frankivsk \[Jun 16, 2008\]](#)
- [New Office Center Construction in Ivano-Frankivsk Begun in \[September, 2007\]](#)
- [Tyco to Invest €150 million and Create 3,000 Jobs in Ivano-Frankivsk \[Jul 14, 2006\]](#)
- [Ivano-Frankivsk Airport to Take Part in RAIRDev Project \[Jun 29, 2006\]](#)
- [Delphi to Make Cables in Ivano-Frankivsk \[Mar 30, 2006\]](#)
- [Ivano-Frankivsk U-Project to Clothe Europe with GAS Jeanswear \[Mar 27, 2006\]](#)
- [Merloni Expands Operations in Ivano-Frankivsk \[Feb 24, 2006\]](#)

In addition to the reports, official statistics by the State Statistics Committee of Ukraine show that in 2007 cities participating in the LED Project have more businesses (29 vs. 21) and jobs per thousand population (289 vs. 225).

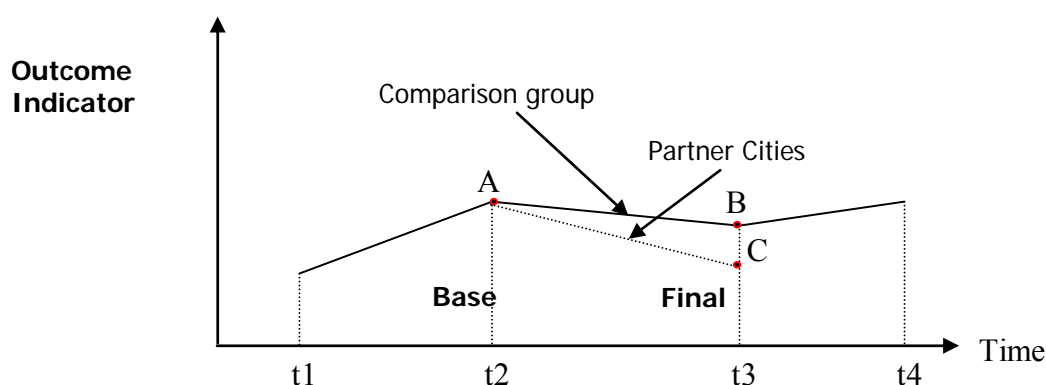
However, the above mentioned results may not reflect the true impact of the Project for several reasons. One is that the reported development may have taken place anyway, even without the LED Project leading to the overestimation of the true impact. Another is that the cities may have had other factors influencing the outcomes of interest leading to either over- or underestimation of the true impact. Yet another is related to a possibility of selection, i.e. the fact that the Project and/or the statistics may reflect selective targeting of the cities with better economic conditions. In order to assess the true (causal) effect of the Project, its impact has to be evaluated using advanced statistical methods as described below.

---

<sup>1</sup> According to the total size of committed investment projects.

### Impact Evaluation Strategy

The evaluation of the Project impact involves statistical procedure called regression based difference-in-difference<sup>2</sup>. This procedure compares the change in an outcome of interest (e.g., unemployment rate) for the LED partner cities (Difference A-C on Figure 2) with changes over the same period of time for communities not participating in the LED Project (Difference A-B on Figure 2). The Project effect constitutes the difference B-C on Figure 2. In other words, if the difference between (A-C) and (A-B) exists, then the LED Project has an effect beyond what would happen without the Project.



**Figure 2. Difference-in-Difference Procedure**

The described difference-in-difference procedure is subject to an assumption that the Partner Cities and the Comparison Group cities have a similar growth trend in absence the LED participation. This assumption may be too strong and is relaxed using the regression method. This method allows accounting for all factors that may affect the change in an outcome of interest besides the LED Project impact. Among such factors are:

- National macroeconomic conditions;
- City population;
- City wage rate;
- All time invariant city specific factors (e.g., geographic location, natural endowments).

<sup>2</sup> For reference see:

World Bank (2006) *Conducting Quality Impact Evaluations under Budget, Time and Data Constraints*

Baker, Judy L. (2000). *Evaluating the Impact of Development Projects on Poverty: A Handbook for Practitioners*. Washington D.C.: LCSRP/PRMPO, The World Bank

The use of above mentioned procedure provides for a high quality (precision) of the LED effect estimation.

### ***Project Effects and Project Effectiveness***

The specified above procedure allows estimating two types of project effect: the Average LED Project Effect and the LED Effect on Partner Cities (see Box 2). The former effect (if exists) is used for justification of the Project expansion. It shows what should be expected if the Project activities are replicated in other Ukrainian cities. The latter effect provides grounds for the **cost-benefit analysis** of the LED Project by showing the change in outcomes attributed to the Project in the participating cities. In turn, the cost-benefit or project effectiveness analysis addresses the following questions:

- How much does it cost to achieve the estimated results?
- Are the LED activities more or less expensive development interventions than the other alternatives?

#### ***Box 2. Project Effects***

- **Average LED Project Effect (Average Treatment Effect):** what should be expected if the Project activities are placed in an average Ukrainian city?
- **LED Effect on the Partner Cities (Treatment on the Treated Effect):** what should be attributed to the LED effect in the participating cities?

The difference in the above effects is related to the way the comparison group is constructed. In the first case, the group is representative of all Ukrainian cities. In the second, it includes only non-partner cities that are similar to the partner-cities in statistical sense.

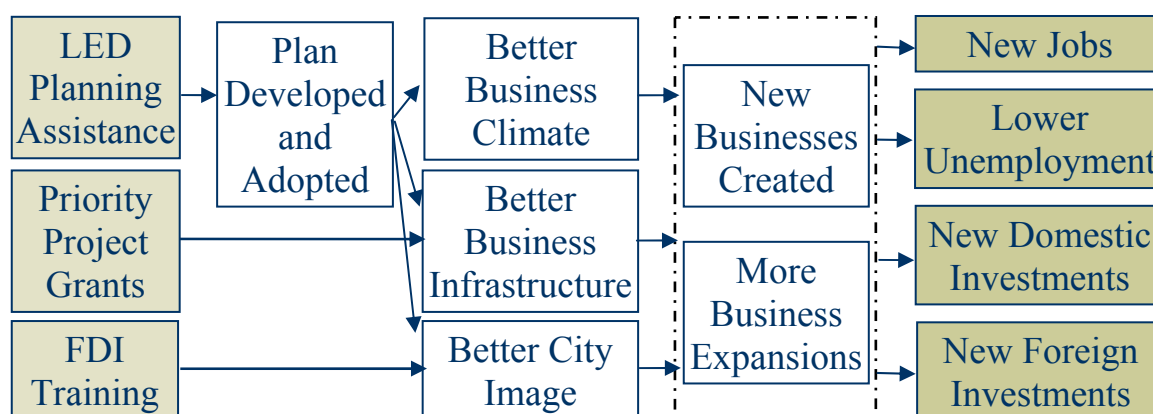
### ***Short vs. Long-term Effects and the LED Project Impact Channels***

The described evaluation method can be used for assessment of the LED impact on various outcomes, starting with an attitude towards local government and ending with growth in local production or value added. However, it is reasonable to expect a different scale of Project impact on different outcomes. The primary reason for the differences is related to the time needed for realization of changes in an outcome. For example, it is reasonable to expect improvement in the attitude towards local

government in a relatively short time after the government starts involving various stakeholders into the planning process. However, it may take several years to observe in official statistics an increase in foreign investments that is a result of the strategic planning. The investment projects require time for site selection and development; it also may take several years before regular operations of the investment project start. Secondly, some outcomes may be unrelated to the project activities. For that matter a direct LED Project effect should not be expected (e.g., effect on quality of education).

In order to identify a list of interim and final project outcomes that are subject to evaluation a Project impact models and impact channels are developed (Figure 3). It includes project activities, interim results and final outcomes.

The LED Project has three major activities: (i) LED Assistance with Planning, (ii) Priority Project Grants, and (iii) FDI Training. The major pathway through which the LED impact manifests itself is through facilitation of development and adoption of the strategic plan. The plan mainly focuses on improvement of business climate and business infrastructure and creation of a better city image. And it is not only the plan activities but actually the process of strategic planning – in which businesses interact with the municipalities – plays important role in the business climate improvement. Priority Projects Grants are given to support activities that lead to improvements in the business infrastructure. FDI training involves component on the creation of a better city image to attract investors. All these is conducive to the creation of new and expansion of existing businesses which in turn lead to job creation and investment growth (both domestic and foreign).



**Figure 3. LED Impact Channels**

Each block on Figure 3 specifies an outcome that has to be measured with data. While the data on number of businesses, jobs and investments is available from the State Statistics, and the data on LED project activities is available from the administrative files, the data on business climate and infrastructure has to be collected with a separate survey.

Regarding the time for observing changes in the above mentioned outcomes, it ranges from a very short run (immediately observed) to long-run (3-5 years) – see Table 1. The effect on short-run outcomes can be assessed with a reasonable precision after one year since majority of the LED partner cities adopt their strategic plans. In contrast, assessment of the long-run Project effects requires that at least three years pass since the plan adoption for most cities.

**Table 1. Timeline of changes**

<b>Short run</b>	<b>Short to long-run</b>	<b>Long-run</b>
<ul style="list-style-type: none"> <li>• Better Business Climate</li> </ul>	<ul style="list-style-type: none"> <li>• Better Business Infrastructure</li> <li>• Better City Image</li> <li>• New Businesses Created</li> <li>• More Business Expansions</li> <li>• New Jobs</li> <li>• Lower Unemployment</li> </ul>	<ul style="list-style-type: none"> <li>• New Domestic Investments</li> <li>• New Foreign Investments</li> </ul>

***The LED Project effect estimates***

The statistical evaluation procedure of LED Project described above is tested on data from the State Statistics Committee of Ukraine for period 2003- 2007. This time interval is limited by the data availability and allows assessing only a short-run effect.

The group of cities affected by the LED Project is limited to 41 target cities. The partner cities participating in the project during the last year of the Project are excluded from the analysis since the Project placement is endogenous (based on self-selection) in their case and because it is too early to observe any effect in these cities.

Five outcomes are considered for the analysis:

- Number of Businesses Per Capita;
- Fixed Capital Investment Per Capita;
- Number of Jobs Per Capita;
- Unemployment Rate;
- FDI Per Capita.

The major results are presented in Table 2. Technical details can be found in Appendix.

The estimates of the average LED Project effect show that the Project has positive overall effect on:

- The number of Businesses Per Capita;
- Fixed Capital Investment Per Capita;
- Number of Jobs Per Capita;
- Unemployment Rate.

The positive effect means that a participation in the LED Project leads to an increase in the outcome for the participating city. While the first three results correspond to the expected direction of the LED effect, the overall effect on unemployment is puzzling. Also, the effect on FDI could not be identified (precisely estimated).

**Table 2. Summary of results**

	<b>Number of Businesses P/C</b>	<b>Fixed Capital Investment P/C</b>	<b>Number of Jobs</b>	<b>Unemployment Rate</b>	<b>FDI P/C</b>
1. LED Overall	+	+	+	+	N
2. LED month	+	+	+	N	N
3. LED month Squared	-	-	-	N	N
4. Turning Point, month	19.9	26.1	24.7	15.0	N
5. Municipality Administrative Subordination Effect	N	N	N	N	Y
6. Team Specific Effect	N	N	Y	N	Y

Note: based on City Fixed Effect estimation; Reported if significant at 10%; N – no significant effect was found.

Regarding the absolute values of the precisely estimated effects, participation in the LED project leads to **10-14** new jobs per 1,000 of population and **20-58** new businesses per 100,000 of population as well as **40-57** mln. UAH of investments in fixed capital per 100,000, controlling for other factors of influence. If we assume that the LED partner cities are similar (in statistical sense) to a Ukrainian city with average characteristics, then approximately 82,000 – 113,000 new jobs, 1,600 – 4,600 new

businesses and 3,100 – 4,700 mln. UAH of investments in fixed capital can be attributed to the Project overall in all partner cities.

The precision (quality) of the impact estimates depends greatly on similarity (homogeneity) of the Project effect within the group of LED partner cities. However, there are several reasons to expect differences in the Project effect among the cities. Such reasons include:

- Different time after the start of the Project activities (1-33 month by Dec. 2007);
- Different implementation team (6 Advisors);
- Different administrative subordination of a municipality (58 cities and 16 small towns of rayon subordination);
- Different city size;
- Different involvement in the LED Project activities;
- Different presence of other similar interventions (e.g., Municipal Governance and Sustainable Development Program by UNDP or Community Economic Development in Ukraine by CIDA).

Existence of the first three sources of difference in the LED effect is assessed as a part of the current analysis.

It is found that the project effects on the number of businesses, fixed capital investment, number of jobs and unemployment rate<sup>3</sup> change from month to month (Lines 2 and 3, Table 2). Positive effect in Line 1 means that the Project effect is increasing each month. However, negative effect on the squared number of months (Line 3) means that the increase is smaller and smaller each month<sup>4</sup>. The turning point is presented in Line 4. It ranges from 20 to 26 month after the start of strategic planning process for three outcomes, and equals to 15 month for unemployment rate. This point means that after it the Project effect starts decreasing each month. It also implies that in order to maintain economic growth in the partner cities, the strategic plans need to be updated every 2-3 years. Regarding the unemployment, the estimated increase in unemployment slows down after approximately 15 month and the Project effect leads to decrease in unemployment after approximately 30 month. The fact that partner cities on average have 14 month after start of the strategic planning explains why the overall effect (Line 1) has a positive sign – the cities haven't reached the

---

<sup>3</sup> For unemployment estimated imprecisely

<sup>4</sup> More flexible functional form has to be considered as a part of more in depth analysis.

turning point yet. For that matter, the LED effect on unemployment should be treated as a longer run effect.

Regarding other sources of heterogeneity, administrative subordination (Line 5, Table 2) affects only the LED effect on FDI (effect for cities is larger than for rural towns). The team specific differences (Line 6, Table 2) are detected for the LED effect on the FDI and on the Number of Jobs.

The fact that the effect on the FDI is more heterogeneous than the effect on other outcomes is one explanation why the overall effect on the FDI is estimated imprecisely. The other explanation of the imprecise estimates is related to its long run nature (it is early to observe the results), and a specifics of the statistical data used for the analysis (some FDI projects may not appear in the statistical reports yet).

### ***Conclusions***

Current evaluation study provides an evidence of positive and significant effect of the LED Project on the number of businesses per capita, fixed capital investment per capita and the number of jobs per capita at community level. However, the effect decreases over time calling for update of the city strategic plans every 2-3 years. This results show that a strategic planning process introduced to Ukrainian cities by the LED Project is strong and important tool for municipal economic development. Based on the presented results it is reasonable to expect that cities that introduce similar planning system will benefit.

The presented estimates constitute a short-run effect and it is expected that the overall effect will be much larger as the time horizon is extended. The evaluation also lays ground for further analysis of the LED project effect; including estimation treatment-on-the-treated (city specific) effects and conducting a cost benefit analysis.

**Appendix. Technical details**

**Note:** Robust standard errors in parentheses; Fixed-effect estimates presented.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Number of Businesses is measured per 100,000 population; Fixed Capital Investment is measured in mln. UAH per 100,000 population; Number of Jobs is measured per 1,000 population; Unemployment Rate is measured in percentage points; FDI is measured in thousand USD per 100,000 population

**Table A1. Overall Effect**

	<b>Number of Businesses P/C</b>	<b>Fixed Capital Investment P/C</b>	<b>Number of Jobs P/C</b>	<b>Unemployment Rate</b>	<b>FDI P/C</b>
LED Overall	39.106 (18.833)**	48.834 (9.889)***	12.221 (1.964)***	0.225 (0.128)*	-0.611 (0.475)
Year 2004	56.589 (10.529)***	12.450 (7.297)*	-4.632 (1.622)***	-0.383 (0.125)***	0.636 (0.292)**
Year 2005	120.080 (21.827)***	9.597 (15.208)	1.611 (3.344)	-1.153 (0.230)***	0.933 (0.585)
Year 2006	224.275 (30.835)***	26.924 (21.603)	5.399 (4.736)	-2.295 (0.321)***	0.880 (0.822)
Year 2007	280.321 (41.796)***	60.986 (28.076)**	8.027 (6.208)	-3.752 (0.419)***	-0.647 (1.085)
Population	-12.411 (4.036)***	-0.799 (1.875)	-0.762 (0.441)*	-0.121 (0.023)***	0.066 (0.082)
Population Squared	0.005 (0.001)***	0.000 (0.000)	0.000 (0.000)**	0.000 (0.000)***	-0.000 (0.000)
Log(Wage)	-16.155 (34.289)	47.409 (24.453)*	-27.632 (5.384)***	2.061 (0.369)***	0.296 (0.941)
Constant	2,263.845 (337.898)***	-154.444 (189.077)	423.998 (42.876)***	4.147 (2.685)	-3.701 (7.795)
Observations	3310	3263	3309	2690	3310
R-squared	0.69	0.37	0.29	0.21	0.04
Number of rayons/cities	662	662	662	568	662

**Table A2. Difference in the LED Effect over Time**

	<b>Number of Businesses P/C</b>	<b>Fixed Capital Investment P/C</b>	<b>Number of Jobs P/C</b>	<b>Unemployment Rate</b>	<b>FDI P/C</b>
LED Month	7.309 (3.099)**	6.429 (1.796)***	1.532 (0.324)***	0.030 (0.020)	-0.012 (0.079)
LED Month Squared	-0.184 (0.106)*	-0.123 (0.066)*	-0.031 (0.012)***	-0.001 (0.001)	-0.000 (0.003)
Year 2004	56.137 (10.470)***	12.475 (7.283)*	-4.548 (1.617)***	-0.380 (0.124)***	0.607 (0.291)**
Year 2005	119.279 (21.622)***	10.192 (15.134)	1.943 (3.324)	-1.147 (0.229)***	0.852 (0.579)
Year 2006	222.229 (30.594)***	26.822 (21.516)	5.660 (4.711)	-2.287 (0.319)***	0.767 (0.815)
Year 2007	277.876 (41.453)***	60.832 (27.940)**	8.420 (6.168)	-3.742 (0.417)***	-0.802 (1.075)
Population	-12.665 (4.003)***	-1.065 (1.828)	-0.806 (0.437)*	-0.121 (0.023)***	0.063 (0.082)
Population Squared	0.005 (0.001)***	0.000 (0.000)	0.000 (0.000)**	0.000 (0.000)***	-0.000 (0.000)
Log(Wage)	-14.964 (34.038)	46.733 (24.359)*	-28.053 (5.357)***	2.053 (0.368)***	0.404 (0.934)
Constant	2,273.767 (335.279)***	-133.016 (186.283)	429.347 (42.550)***	4.184 (2.684)	-4.138 (7.762)
Observations	3310	3263	3309	2690	3310
R-squared	0.69	0.37	0.30	0.21	0.04
Number of rayons/cities	662	662	662	568	662

**Table A3. Difference in the LED Effect with Respect to Municipality Administrative Subordination**

	<b>Number of Businesses P/C</b>	<b>Fixed Capital Investment P/C</b>	<b>Number of Jobs P/C</b>	<b>Unemployment Rate</b>	<b>FDI P/C</b>
LED Month	1.401 (4.687)	2.142 (1.219)*	0.459 (0.290)	-0.001 (0.014)	0.083 (0.057)
LED*City	1.370 (4.875)	1.268 (1.395)	0.325 (0.317)	0.016 (0.017)	-0.115 (0.066)*
Year 2004	57.098 (10.488)***	13.132 (7.288)*	-4.396 (1.617)***	-0.379 (0.124)***	0.619 (0.291)**
Year 2005	121.905 (21.616)***	11.985 (15.121)	2.363 (3.317)	-1.143 (0.228)***	0.880 (0.577)
Year 2006	226.260 (30.566)***	29.569 (21.487)	6.304 (4.700)	-2.280 (0.318)***	0.810 (0.813)
Year 2007	282.766 (41.474)***	64.174 (27.922)**	9.202 (6.156)	-3.734 (0.416)***	-0.752 (1.073)
Population	-12.576 (4.018)***	-1.012 (1.838)	-0.793 (0.439)*	-0.121 (0.023)***	0.066 (0.082)
Population Squared	0.005 (0.001)***	0.000 (0.000)	0.000 (0.000)**	0.000 (0.000)***	-0.000 (0.000)
Log(Wage)	-18.480 (34.028)	44.313 (24.375)*	-28.610 (5.350)***	2.048 (0.367)***	0.363 (0.933)
Constant	2,288.262 (336.025)***	-122.465 (187.039)	431.722 (42.629)***	4.191 (2.684)	-4.070 (7.756)
Observations	3310	3263	3309	2690	3310
R-squared	0.69	0.37	0.29	0.21	0.04
Number of rayons/cities	662	662	662	568	662

**Table A4. Difference in the LED Effect among the LED Advisors**

	<b>Number of Businesses P/C</b>	<b>Fixed Capital Investment P/C</b>	<b>Number of Jobs P/C</b>	<b>Unemployment Rate</b>	<b>FDI P/C</b>
LED Month	1.961 (1.431)	2.769 (0.772)***	0.509 (0.220)**	0.012 (0.010)	-0.032 (0.057)
LED*Advisor 1	-4.381 (3.084)	-0.887 (1.766)	-0.149 (0.411)	0.022 (0.014)	-0.024 (0.089)
LED*Advisor 2	8.567 (5.821)	3.627 (2.822)	1.028 (0.414)**	0.019 (0.031)	0.193 (0.080)**
LED*Advisor 4	1.706 (2.337)	0.965 (1.338)	0.465 (0.260)*	-0.014 (0.018)	-0.000 (0.076)
Year 2004	56.763 (10.469)***	13.031 (7.293)*	-4.398 (1.620)***	-0.379 (0.124)***	0.593 (0.291)**
Year 2005	121.301 (21.594)***	11.811 (15.130)	2.373 (3.327)	-1.144 (0.228)***	0.824 (0.577)
Year 2006	225.507 (30.546)***	29.373 (21.504)	6.334 (4.714)	-2.281 (0.318)***	0.728 (0.812)
Year 2007	281.077 (41.444)***	63.548 (27.964)**	9.168 (6.179)	-3.739 (0.416)***	-0.879 (1.075)
Population	-13.365 (4.004)***	-1.278 (1.832)	-0.866 (0.442)*	-0.119 (0.024)***	0.054 (0.083)
Population Squared	0.005 (0.001)***	0.000 (0.000)	0.000 (0.000)***	0.000 (0.000)***	-0.000 (0.000)
Log(Wage)	-18.905 (33.995)	44.123 (24.396)*	-28.762 (5.371)***	2.052 (0.367)***	0.440 (0.933)
Constant	2,343.210 (334.527)***	-103.773 (186.957)	437.401 (42.951)***	4.079 (2.706)	-3.753 (7.784)
Observations	3310	3263	3309	2690	3310
R-squared	0.69	0.37	0.30	0.21	0.04
Number of rayons/cities	662	662	662	568	662
F(Team Effect)	1.89	0.86	2.93	1.45	3.07
P-value	0.13	0.46	0.03	0.23	0.03