

Nizalov, Denys

Conference Paper

The Effect of Municipal Strategic Planning on Urban Growth in Ukraine

50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Nizalov, Denys (2010) : The Effect of Municipal Strategic Planning on Urban Growth in Ukraine, 50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/119165>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

The Effect of Municipal Strategic Planning on Urban Growth in Ukraine¹

Denys Nizalov, Kyiv School of Economics (nizalov@kse.org.ua);

Olena Nizalova, Kyiv School of Economics (nizalova@kse.org.ua)

Abstract

This paper assesses the effect of a communities' strategic planning on regional economic development outcomes. A case of Local Economic Development Project in Ukraine is used as a source of exogenous innovation in practice of the municipal management. The project helps the local governments in Ukraine to initiate and to implement a process of strategic planning for their municipalities during the period of 2005-2008. Empirical analysis of the project's impact reveals that communities that have started a strategic planning process were able to increase the number of businesses per capita, the amount of investments in fixed capital, and the number of jobs per capita in a short run. It also has affected the unemployment rate in a longer run. However, no evidence was found for the effect of the project on the inflow of FDI.

Kyiv, Ukraine: 2009

¹ An updated version of the paper will be available at www.nizalov.kse.org.ua or will be sent to a reviewer upon request

A large number of economic development tools were developed and applied by local and national governments throughout the world in order to facilitate regional and local economic growth. Bradshaw and Blakely (1999) distinguishes the following three historical waves of development and application of such tools:

1st wave – Incentive-based competition for industrial location (smokestack chasing) (e.g., direct incentives, reimbursement of relocation and infrastructure costs, tax-breaks);

2nd wave – Cost-benefit-based assistance, internal growth (business incubators, start-up funds, trainings);

3rd wave – Building a “soft infrastructure” (institutions) of economic growth (e.g., strategic planning, marketing, PPP, financing, regulation, intergovernmental collaboration).

While the effect of the first two waves on various growth outcomes was studied extensively (for reviews, see Bartik 1991; Fisher 1997; Wasylenko 1997; Goss and Phillips 1999; Buss 2001) the effect of the policies representing the third wave is less known. There are several reasons for that. These policies were developed relatively recently, they are hard to measure and compare and most likely have a long run effect. This paper, however, concedes an example of the third wave policy that can be evaluated. This example is related to a process of municipal strategic planning initiated by the Local Economic Development (LED) Project in Ukraine started by the USAID in 2004.

Municipal Strategic Planning is a process that helps to set goals and priorities for community economic development and helps to coordinate activities in different areas of community life. It also allows establishing partnerships among various stakeholders and interest groups, and mobilizing public and private resources facilitating economic development by these means.

Until recently, the effect of the planning was studied exclusively by case-studies. Among them are the cases of Randstad (Priemus, 1994), Lisbon (Alden and Pires, 1996), London (Newman and Thornley, 1997), Hong Kong (Jessop and Sum, 2000), Guangzhou (Li, Yeung, Seabrooke, 2005; Wu and Zhang, 2007), and Hangzhou (Wu and Zhang, 2007). Despite the fact that the above mentioned cases describe the planning process and the perceived benefits in great details they do not address the question if the Strategic Planning caused a higher rate of community economic growth.

There are several issues that make an evaluation of strategic planning difficult (if possible at all). Among them are non-comparability of cases and endogenous placement. The procedure of planning while being similar in general **differs** greatly in the implementation details from case to case that makes the comparison even more complicated. Moreover, the decision to start the planning process in those cases are thought to be **endogenous** since cities that are more likely to benefit from a strategic planning are more likely to get involved into the process.

Local Economic Development Project Overview

The above mentioned problems are not present in example of the LED Project in Ukraine. 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).

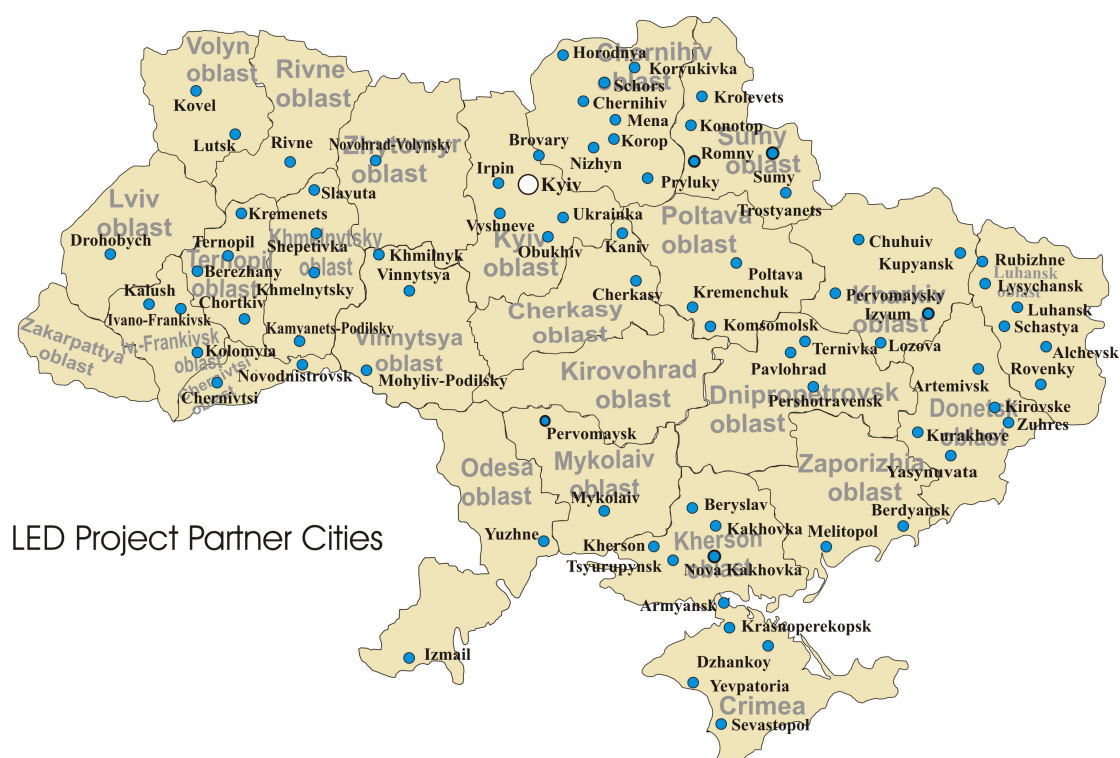


Figure 1. LED Partner Cities

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 realize² \$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).

² According to the total size of committed investment projects.

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.

Impact Evaluation Strategy

The evaluation of the Project impact is performed with regression based difference-in-difference³. 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.

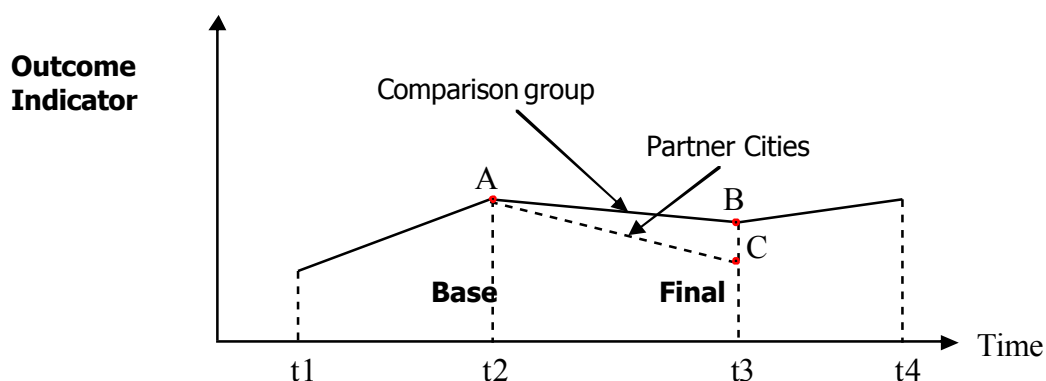


Figure 2. Difference-in-Difference Procedure

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 by conditioning on the following controls:

³ 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.: LCSPR/PRMPO, The World Bank

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

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).

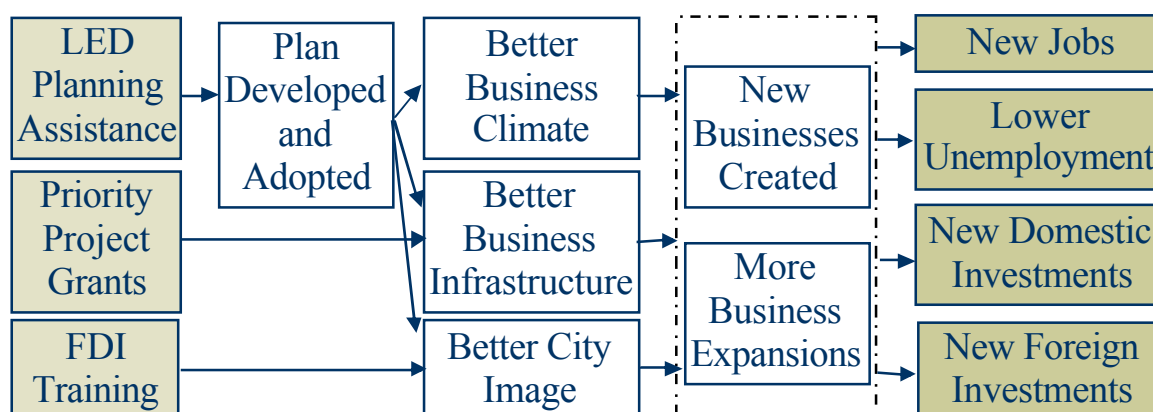


Figure 3. LED Impact Channels

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

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

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

	Number of Businesses P/C	Fixed Capital Investment P/C	Number of Jobs	Unemployment Rate	FDI P/C
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 rate⁴ 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 month⁵. 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

⁴ For unemployment estimated imprecisely

⁵ 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.

REFERENCES

- Bartik, T.J., 1991. *Who Benefits from State and Local Economic Development Policies?* Upjohn Institute for Employment Research: Kalamazoo, MI.
- Buss, T.F., 2001. "The Effect of State Tax Incentives on Economic Growth and Firm Location Decisions: An Overview of the Literature," *Economic Development Quarterly* 15(1), 90-105.
- Fisher, R.C., 1997. "The Effect of State and Local Public Services on Economic Development," *New England Economic Review* March/April, 53-67.
- Goss, E. and J. Phillips, 1999. "Do Business Tax Incentives Contribute to a Divergence in Economic Growth?" *Economic Development Quarterly* 13(3), 217-228.
- Wasylenko, M., 1997. "Taxation and Economic Development," *New England Economic Review* March/April, 37-52.

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

	Number of Businesses P/C	Fixed Capital Investment P/C	Number of Jobs P/C	Unemployment Rate	FDI P/C
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

	Number of Businesses P/C	Fixed Capital Investment P/C	Number of Jobs P/C	Unemployment Rate	FDI P/C
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

	Number of Businesses P/C	Fixed Capital Investment P/C	Number of Jobs P/C	Unemployment Rate	FDI P/C
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

	Number of Businesses P/C	Fixed Capital Investment P/C	Number of Jobs P/C	Unemployment Rate	FDI P/C
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