Explaining Spatial Variation in Real Estate Development Activity in Turkey

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Outline

- Motivation
- Aims & Objectives
- Research design: Data & Method
- Preliminary findings

Motivation

- To explore the relationship between economic growth and construction in an emerging real estate market context

- To explore intra-regional differences within the national study area

  - to understand central and local policies on fostering construction growth
  - to determine the potentials / limitations of different areas that attracted / discouraged sector investments
  - to understand the role of planning at local and national level

Aims & Objectives

- To set out the initial analysis conducted as part of a newly started research study

Aims & Objectives

- The paper has four objectives:

  1. To understand the causal relationships between construction sector and economic growth at the aggregate level;

  2. To explore whether the relationship between the levels of activity in the construction sector and underlying economic fundamentals in different regions;

  3. To consider the potential reasons for uneven construction development;

  4. To identify areas where further secondary data analysis and qualitative investigations might enhance both our understanding of the relationship between the construction and the economy and our understanding of the role of planning (broadly defined) policies in deriving and/or constraining development activity in different regions.

- A pluralist research approach is required if we are to fully understand the relationship between the state and market outcomes (Adams &Watkins, 2014)

  ▫ In this study, we have begun to develop a framework that helps identify the market and policy influences on development activity.

  ▫ Our research design employs quantitative methods to develop an overview of the causal relations between the economy and construction activity and allows us to begin to identify where activity deviates from market fundamentals.

  ▫ We will also explore the extent to which these qualitative factors might be accommodated in structural equation models.

Research Design, Data and Methods

Data
The data is driven from two sources.

1. The first set is driven from TUIK (Turkish Statistical Institute) in NUTS-3 province level; it includes construction permit rates that covers 2002-2013 period.

2. Index values that driven from a research entitled *"The socio-economic development levels of provinces"* that developed by the Ministry of Development in 2013 and State Planning Organization in 2003.

Research Design, Data and Methods

Method: Exploratory analyses

Exploratory analyses were developed in two steps.

1. OLS regression at the aggregate level in order to reflect the causal relation between construction growth and socio-economic development level.

2. A straightforward Moran-I statistics for testing spatial autocorrelation in the regression residuals in order to reflect whether the uneven growth was the case in aggregate level.

Research Design, Data and Methods

Preliminary findings

- Four different regressions were estimated
- Equation estimations show that there is a positive and a linear relationship between construction growth and socio-economic development level.

	Total Construction Permit (2003)		Housing construction permit (2003)		Total Construction Permit (2013)		Housing construction permit (2013)	
	Constant	β	Constant	β	Constant	β	Constant	β
Coefficient	510.3877	600.028	439.9318	524.5776	1214.064	1497.561	1055.323	1345.642
Std.Error	56.8257	57.1816	51.6656	51.9891	118.4819	119.2178	108.0866	108.758
t-statistic	8.9816	10.4933	8.5149	10.0901	10.2468	12.5615	9.7636	12.3728
Prob(t-st.)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R-squared		0.58		0.56		0.66		0.65
Adj. R²		0.57		0.55		0.66		0.65
F-statistic		110.111		101.811		157.793		153.086
Prob(F-st)		0.0000		0.0000		0.0000		0.0000
Log likelihood		-619.136		-611.425		-678.652		-671.214
Akaike Info Criterion		1242.27		1226.85		1361.3		1346.43
Schwarz Criterion		1247.06		1231.64		1366.09		1351.22

Research Design, Data and Methods

Preliminary findings

- Moran-I values point to positive spatial autocorrelation and the null hypothesis of spatial randomness was rejected.

	z-value	Std. d	Mean	I	E[I]	Pseudo-p
Total Construction Permit (2003)	5.0426	0.0694	-0.0098	0.3402	-0.0125	0.001
Housing construction permit (2003)	5.1166	0.0672	-0.0144	0.3296	-0.0125	0.001
Total Construction Permit (2013)	4.1146	0.0677	-0.0126	0.2662	-0.0125	0.001
Housing construction permit (2013)	4.1127	0.0657	-0.0129	0.2573	-0.0125	0.001

LH

(Outlier: a low value is surrounded by high values)

The provinces that have relatively lower socio-economic development level. However, the construction growth is well explained by economic growth

HH

(Cluster of high values)

The provinces where the construction growth is well explained by other factors rather than economic growth

LL

(Cluster of low values)

The provinces where the construction growth is well explained by economic growth rather than other factors

HL

(Outlier: a high value is surrounded by low values)

The provinces that have relatively higher socio-economic development level. However, the construction growth is well explained by other factors rather than economic growth

LH

* The role of planning in construction sector growth

HH

* The major factors that have an impact on construction growth apart from the socio-economic development levels

* The potential reasons behind positive / negative causality between economic growth and construction growth

* The role of planning in construction sector growth

*Are they provinces that basically stimulate the demand creating factors?

LL

* The potential reasons behind positive / negative causality between economic growth and construction growth

* The role of planning in construction sector growth

*Are they provinces that basically stimulate the supply creating factors?

HL

* The role of planning in construction sector growth

Cluster map: Construction sector, 2003

Cluster map: Housing Construction, 2003

Cluster map: Construction sector, 2013

Cluster map: Housing Construction, 2013

| HH | LL | HL | LH |

How to use those clusters in further study?

- Geographically dispersed 2 sub-clusters in HH quadrant will be investigated by secondary data.

- The big-scale public investments, government incentives, centrally planned-supported private sector investments and these impacts on construction growth in these areas will be investigated

- The role of central and local policies will be discussed and reflect which is more superior in creating such an uneven development.

- The role of planning will be examined to the extent of the central or local governments planning policies, and which directed the construction growth more likely.

How to use those clusters in further study?

- The cluster at the LL quadrant has changed its geographical location.

- How much affected the power of economic development on construction growth; positive expectations of its sustainability on construction growth.

How to use those clusters in further study?

- The HL quadrant reflects the polarized provinces in housing construction growth.

- The major factors stimulating the dense growth will be investigated in line with central and local planning policies and practices. The capacity creating potential of these provinces via planning regulations will be discussed.

- It will be discussed whether these provinces are local housing bubbles or they are candidate of creating local bubbles.

- The market actors and their role in directing planning policies and planning applications will be examined particular to those provinces.

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