Incontri di Artimino sullo Sviluppo Locale

I DISTRETTI INDUSTRIALI ITALIANI: UN'ANALISI ESPLORATIVA

Giuseppe GIORDANO, Università di Salerno
Patrizia PASTORE, Università della Calabria
Ilaria PRIMERANO, Università di Salerno
Silvia TOMMASO, Università della Calabria

Outline

- Research Question
- Framework and Definitions
- The Research Method
- The Database
- Industrial District as Complex Data
- Explorative Multidimensional Data Analysis

Research Question

The Italian Industrial Districts have different governance systems

There exists a formal relation between governance and performance for the Italian IDs?

Framework and Definitions

Italian Industrial District as Organizational Model

*The concentration of specialized firms in particular localities (*Marshall,1922)

- **Role and Importance in Italy**

  Law 317/1991, art. 36

- **Industrial District**

  "un'area territoriale locale caratterizzata da un'elevata concentrazione di piccole imprese con particolare riferimento al rapporto tra la presenza delle imprese e la popolazione residente, nonché alla specializzazione produttiva dell'insieme delle stesse imprese"

- **Criteria for Industrial District identification -> ** Key role of Italian Regions:

  - legislative recognition
  - definition of the geographical scope and the manufacturing sector
  - planning and organization of activities
  - implementation of development plans

- **Governance and Performance -> "District Effect"**

  Industrial districts characterized by an organizational structure able to produce strategies, policies and actions shared between institutions and companies in the area –**Governace-** achieve different **Performance** (productivity and profitability) and usually higher than those of companies operating outside of the districts in the same sector and size class

The Research Method

- **Desk Research**

  Goals

  to get deeper knowledge of economical and organizational dynamics of Italian industrial districts from secondary data

  Data Sources

  different ID maps available (Mediobanca-Unioncamere, Osservatorio nazionale Distretti Italiani, Fondazione Edison , Regions, Il Sole 24ore, …)

  Results

  the selection of the surveyed industrial districts

- **Quantitative Analysis**

  Goals

  to describe the formal relation between governance and performance of Italian Industrial Districts

  Database

  Interval-valued data table

  Analysis

  Exploratory Data Analysis on Symbolic Data

Desk Research

Distribution of IDs by Region according to different Data Sources

Regioni	Istat (2001)	Mediobanca - Unioncamere (2013)	Normativa regionale (IPI, 2008)	Intesa Sanpaolo (dicembre 2013)	ODI (2014)	Il Sole 24 Ore (2012-2013)	Censis (2001)	Distretti "made in Italy" nel Mezzo-giorno (Viesti, 2000)	Club dei distretti (1999)	Cnel / Ceris-Cnr (1997)	Libro della piccola impresa (1996)	Il Sole 24 Ore (1992)
Piemonte	11	7	27	11	7	11	9		9	9	8	7
Valle d'Aosta												
Lombardia	27	11	16	23	12	22	4		24	22	33	15
Trentino Alto Adige	4			6	1	1			1	1		1
Veneto	22	8	44	22	22	14	6		9	9	18	9
Friuli Venezia Giulia	3	2	9	6	8	4	2		4	4	3	4
Liguria			10	2		3			1	1		3
Emilia Romagna	13	5		19	6	11	7		11	11	9	7
Toscana	15	9	12	18	11	11	7		11	10	10	4
Umbria	5			3		1					1	
Marche	27	6	26	7	8	6	3		5	5	6	4
Lazio	2	1	3	1	4	1	5		2	2	1	1
Abruzzo	6	2	6	5	3	1		6	1	1	2	1
Molise	2					1		1				1
Campania	6	3	7	6	5	8	1	8	2	2	2	2
Puglia	8	3	9	9	5	3	2	7	3	3	4	2
Basilicata	1	1	4		3	1	1	2	1	1		1
Calabria			1									
Sicilia	2		23	4	4	1	2	1			1	
Sardegna		1	4	2	2	3	2		3	3	2	3
Totale Italia	150	59	201	144	101	103	51	25	87	84	100	65

The Database

From substantive to operative ID definition

- Territorial entity, productive specialization, prevalence of activity
- Aggregation Territorial Units: Italian Provinces
- Specialization: ATECO 2007 coding, 3-digits
- Querying AIDA repository

Mining AIDA Repository

- Several indicators have been extracted related to 4 years: 2009-2012 about 59 IDs
- 27 Profitability and Financial Ratios:

ROI, ROE, ROS, ROA, EBITDA/Sales, Leverage, etc.

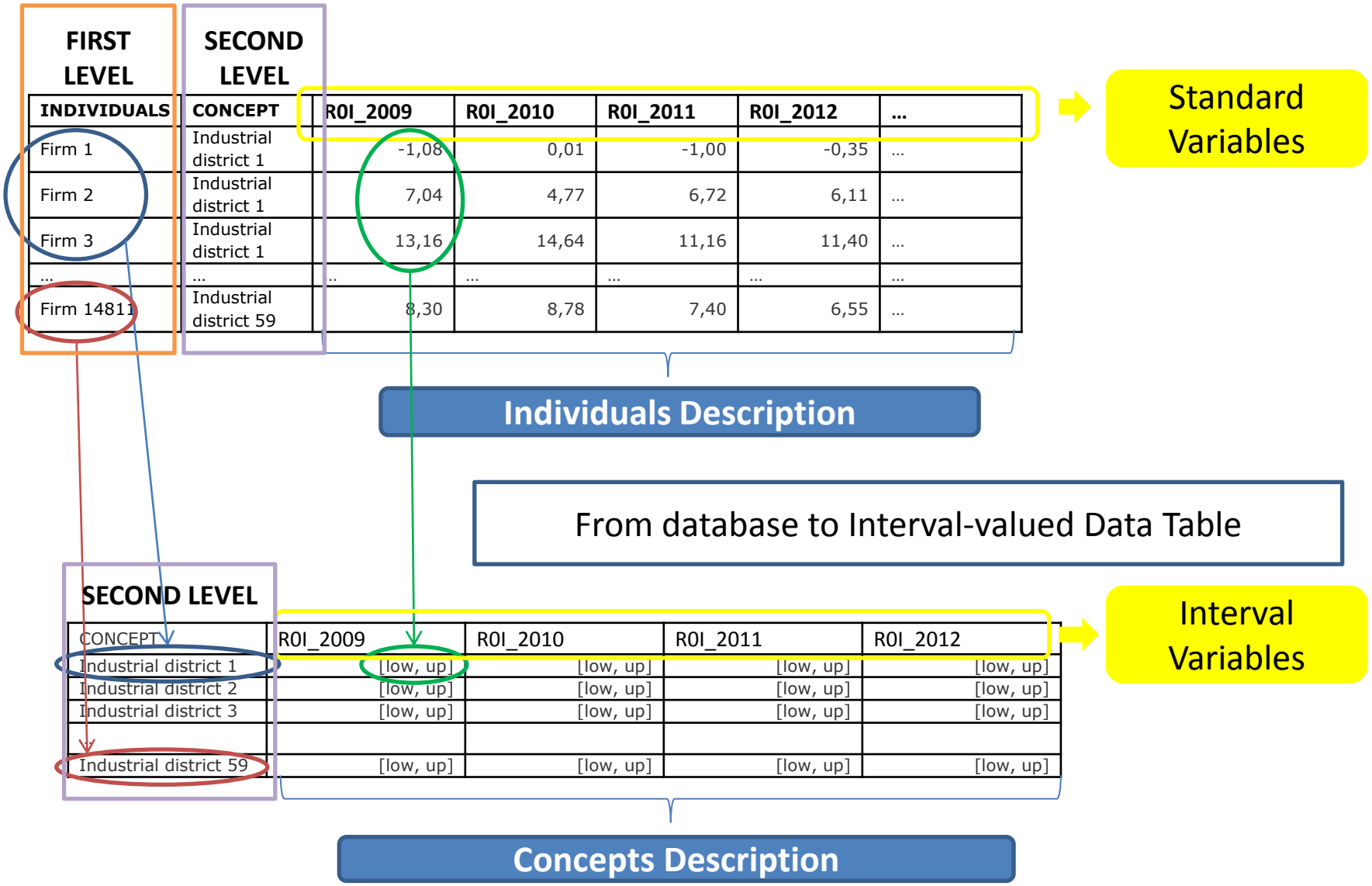
The final database consists of 14811 observations and 108 (27 x 4) variables.

The statistical units at micro-level is the firm.

Since we are interested to District level analysis, we have to transform raw data into District Units.

Industrial Districts by Interval Variables

- The first level units (firm) will be aggregated into second level units (district) according to Symbolic Data Analysis (Bock, Diday, 2000)
- A symbolic data analysis consists of visualizing, classifying and reducing the information retrieved in a «symbolic data matrix»
- Symbolic Data Analysis (SDA) aims at extending statistics and data mining methods from first-order (i.e. micro-data) to second-order objects (often obtained by aggregation of micro-data into groups), taking into account *variability* that is inherent to the data


FIRST LEVEL
SECOND LEVEL
INDIVIDUALS
CONCEPT
R0I_2009
R0I_2010
R0I_2011
R0I_2012
...
Firm 1
Industrial district 1
-1,08
0,01
-1,00
-0,35
Firm 2
Industrial district 1
7,04
4,77
6,72
6,11
Firm 3
Industrial district 1
13,16
14,64
11,16
11,40
Firm 14811
Industrial district 59
8,30
8,78
7,40
6,55
Standard Variables
Individuals Description
From database to Interval-valued Data Table
SECOND LEVEL
CONCEPT
R0I_2009
R0I_2010
R0I_2011
R0I_2012
Industrial district 1
Industrial district 2
Industrial district 3
Industrial district 59
[low, up]
Interval Variables
Concepts Description

The Database

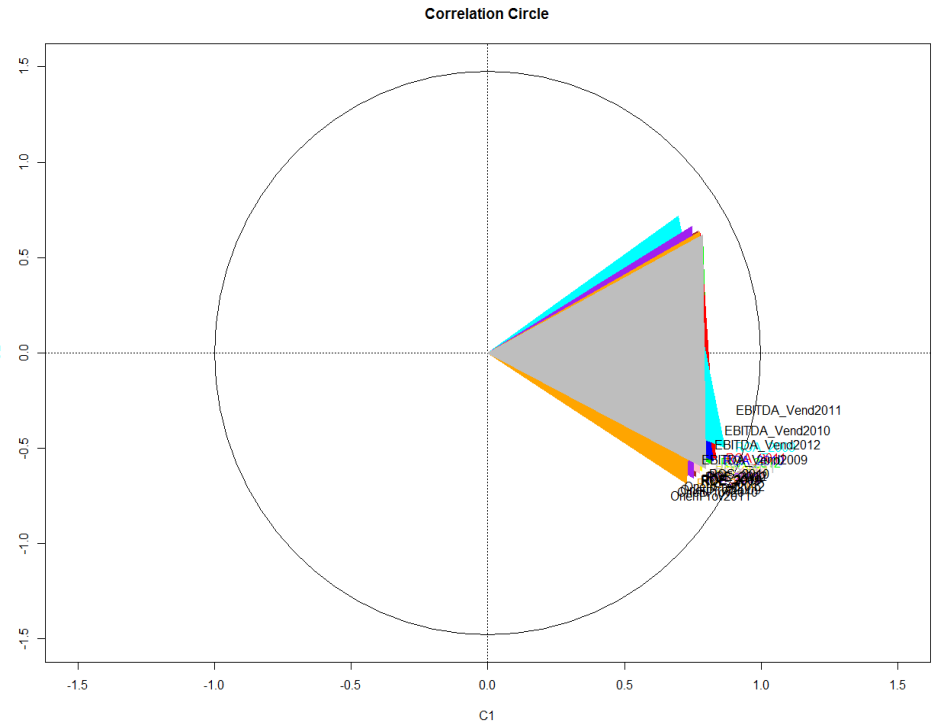
The final database holds:

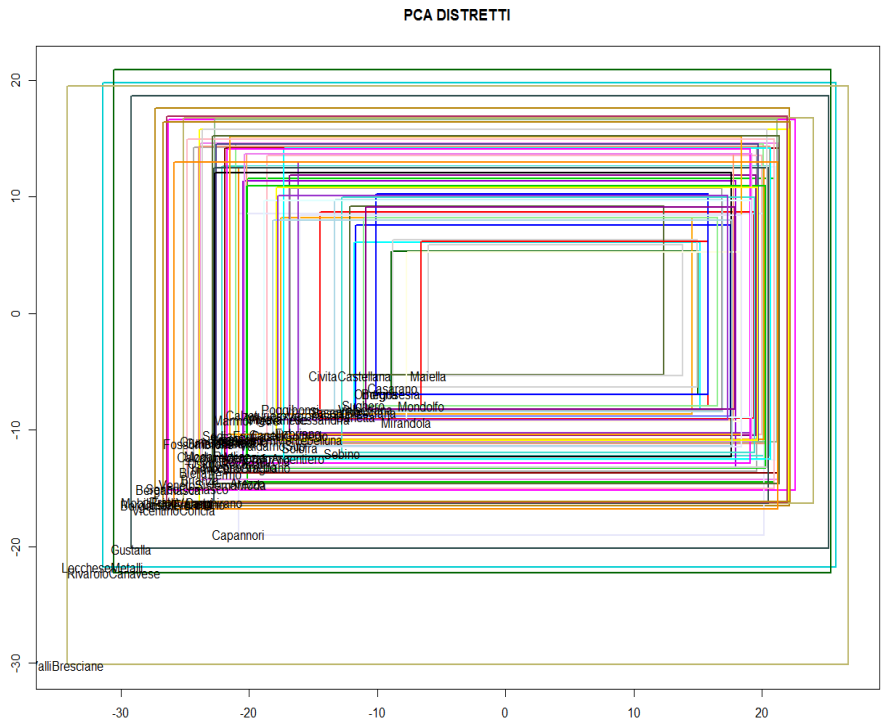
- 59 Industrial districts
  second level units
- 108 interval valued variables
  27 profitability and financial ratios per 4 years
- 4 governance attribute variables

Exploratory Data Analysis

- Principal Component Analysis for Interval Valued Data
- Factorial maps will highlight the main relationships among the Indices, reducing redundancy and discovering useful patterns into the data
- Working on different selection of variables

PCA on Profitability Interval Variables





ROI, ROE, ROS, ROA,
Gross Margin,
Non Operating Income
Observed in 2009-2012

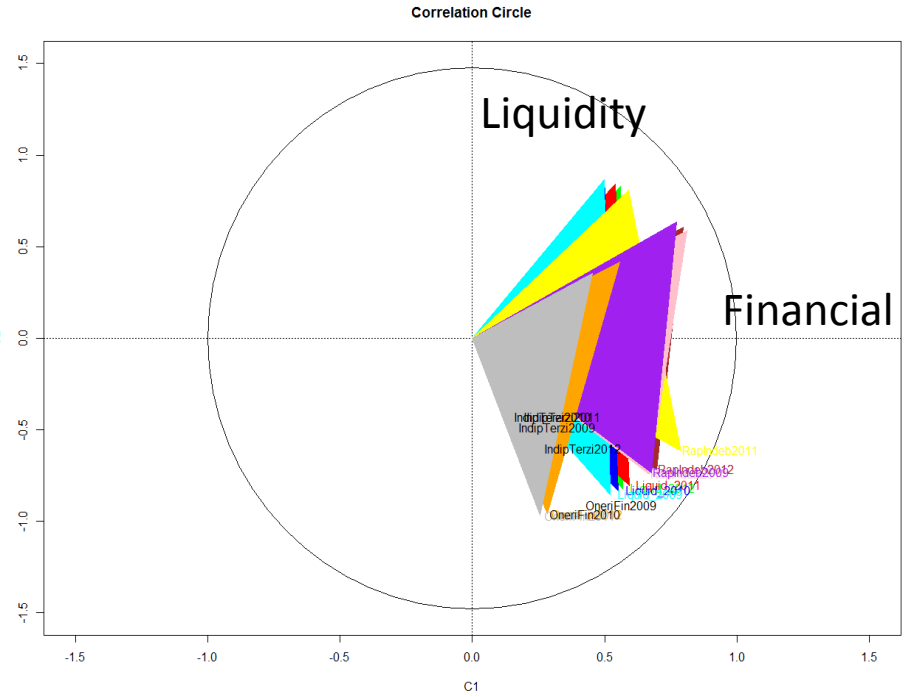
Mechanical Engeneerings ⟺ Textile and clothing

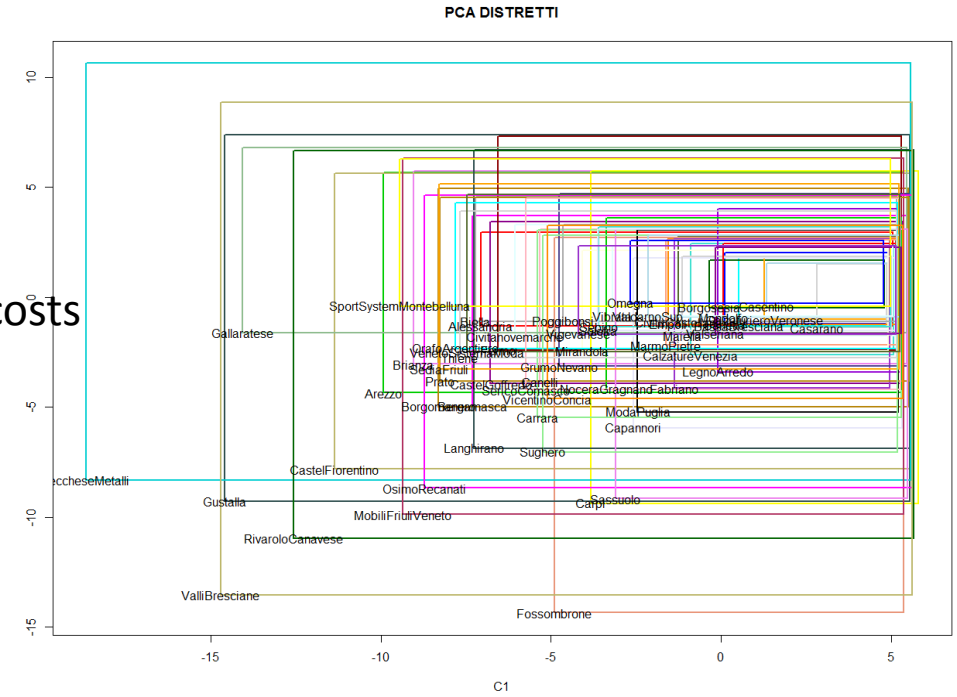
Each District is represented as a box
which size depends on intrinsic variability

High Correlation

Size Effects

PCA on Financial interval variables





High Correlations

Size Effect

Liquidity Ratio, Leverage,
Debt Ratio, Financial Independence.
In 2009-2012

Governance vs/ Performance

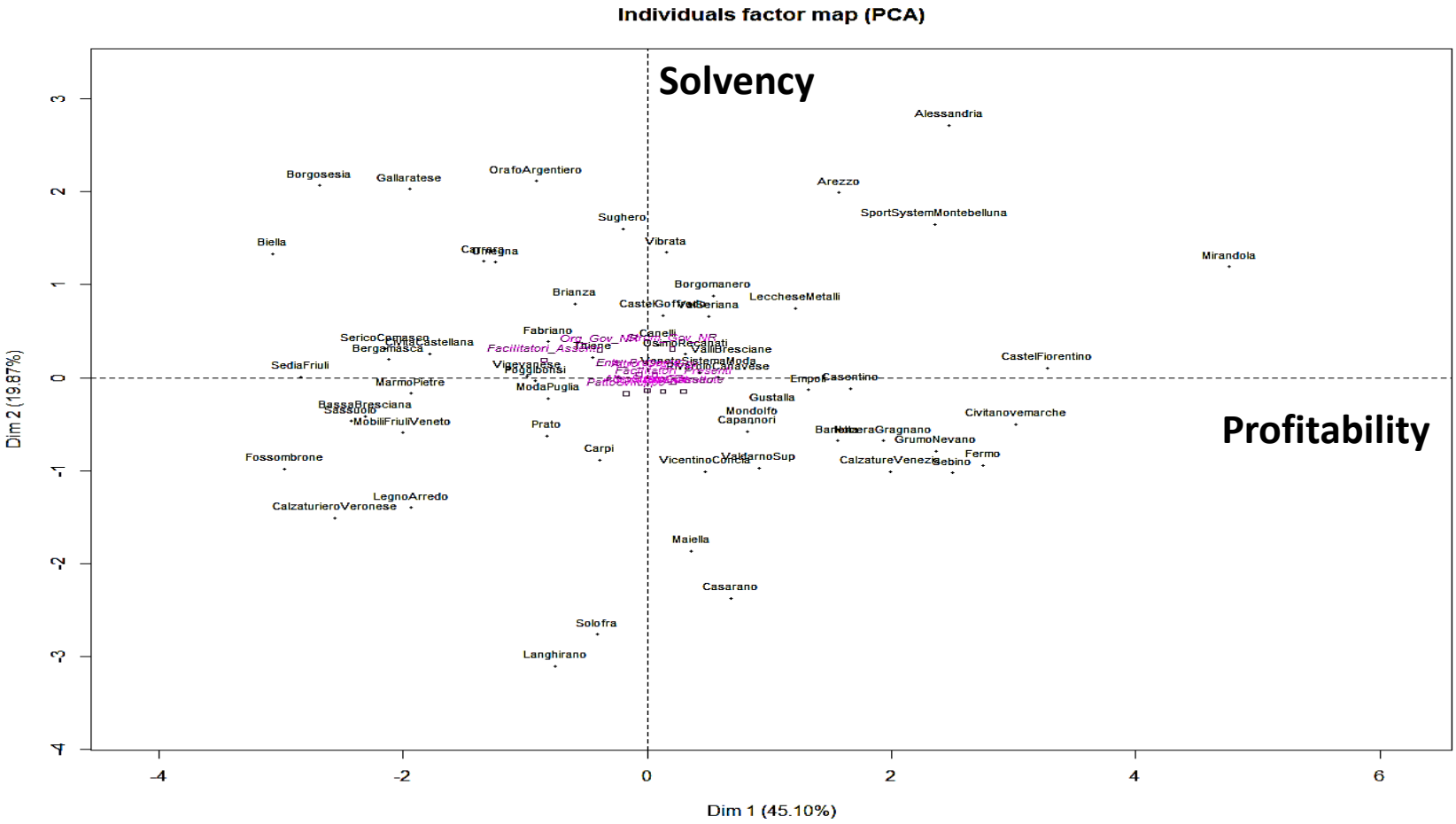
Aiming at describing the relations between
District Governance and Economic and Financial Performance
we consider the following indicators:

Governance:
Organism of Governance - Presence/Absence of Steering Committee
Normative Governance (Agreements, laws, …)
Presence/absence of Support Services as Reference Entities

Performance:
Data are aggregated across Years and District
ROI
ROS
ROE
ROA
Leverage
Debt Ratio
Financial Independence

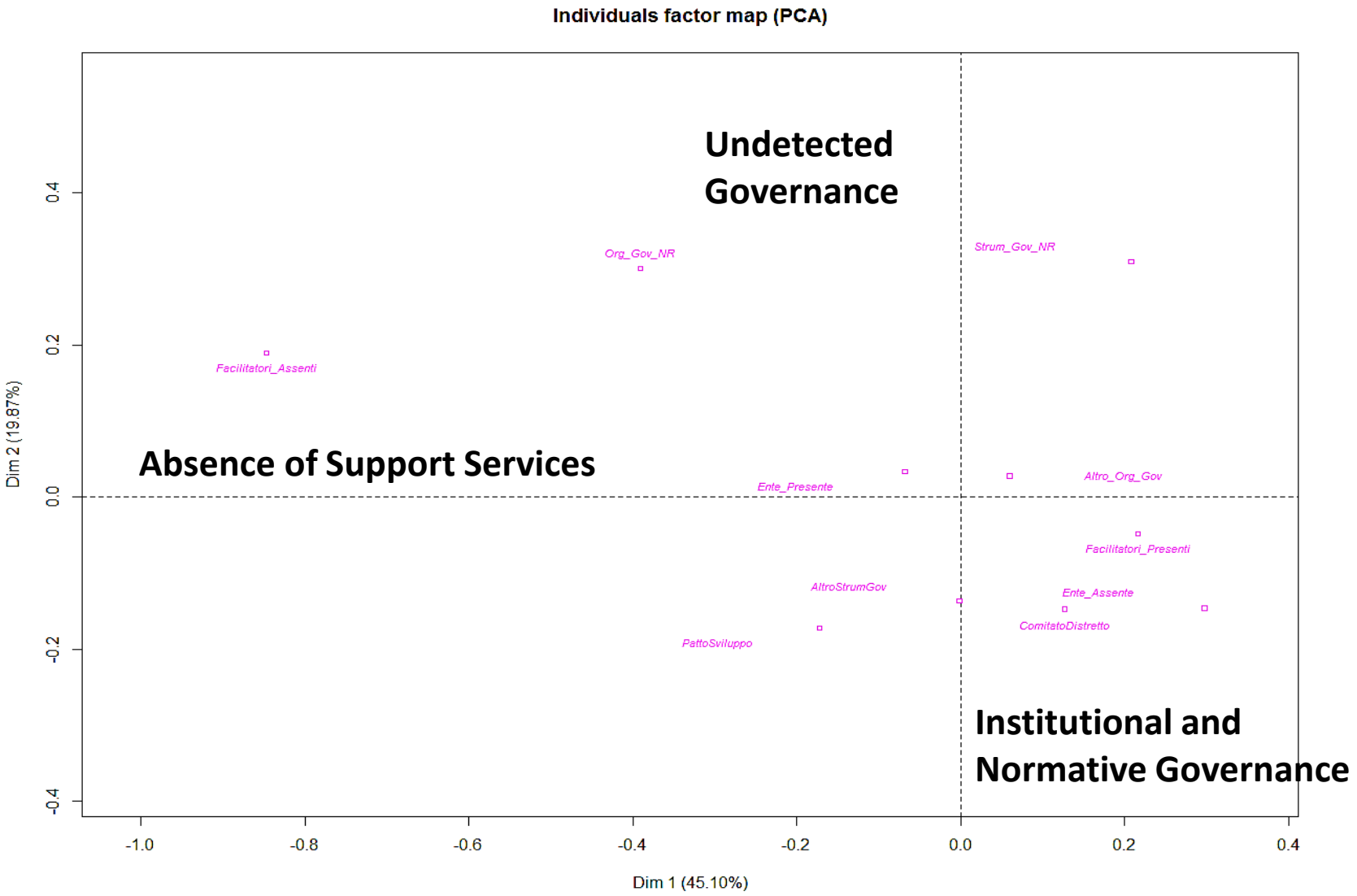
PCA on Governance/Performance

Performance Indices are **Active** and **Governance Attributes** are **Illustrative**



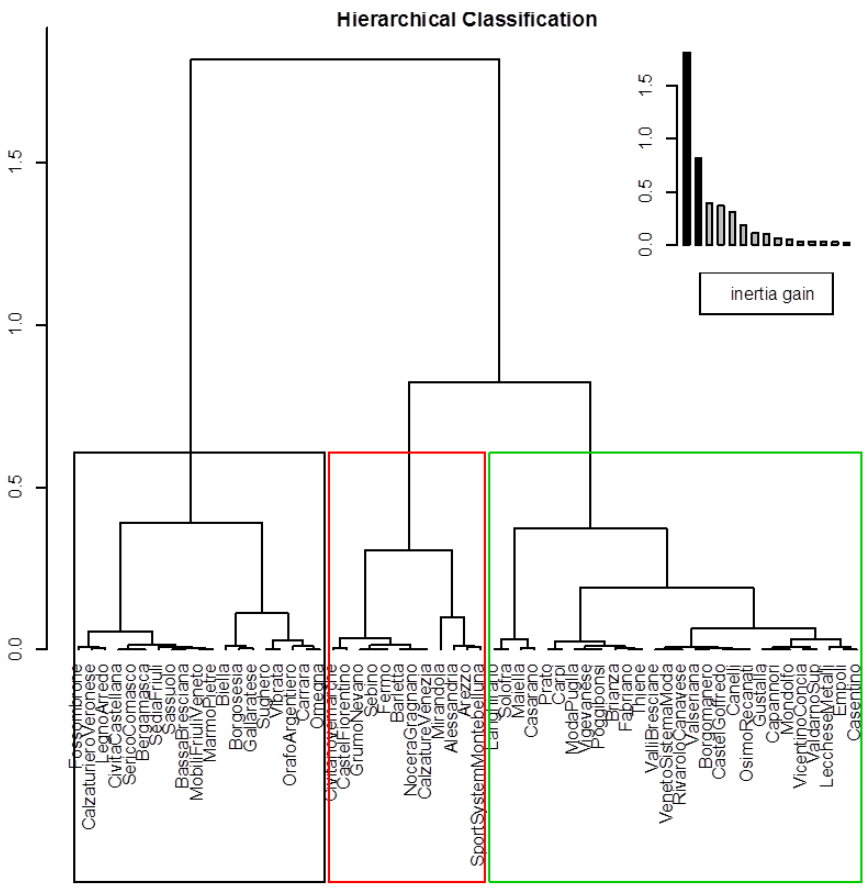
Governance attributes seem do not discriminate

Governance Attributes



District Classification

"Worst Performer" Class:
Fossombrone/Pesaro (legno e mobili); Calzaturiero Veronese (calzature); Legno Arredo Pugliese/ Matera e Motescaglioso (legno e mobili), Civita Castellana (ceramica); Serico Comasco (tessile e abbigliamento); Bergamasca-Val Cavallina-Oglio/Val Seriana (tessile, confezioni e arredamento); Sedia del Friuli; Sassuolo (piastrelle); Bassa Bresciana (abbigliamento); Mobile del Friuli e del Veneto; Marmo e Pietre del Veneto; Biella (tessile, abbigliamento e macchine tessili); Gattinara-Borgosesia (tessile e abbigliamento); Gallaratese (tessile e abbigliamento); Sughero di Calangianus-Tempio di Pausania (sughero); Vibrata-Tordino-Vomano (tessile e abbigliamento); Orafo Argentiero di Vicenza; Carrara (marmo); Omegna-Stresa-Varallo Sesia (casalinghi).

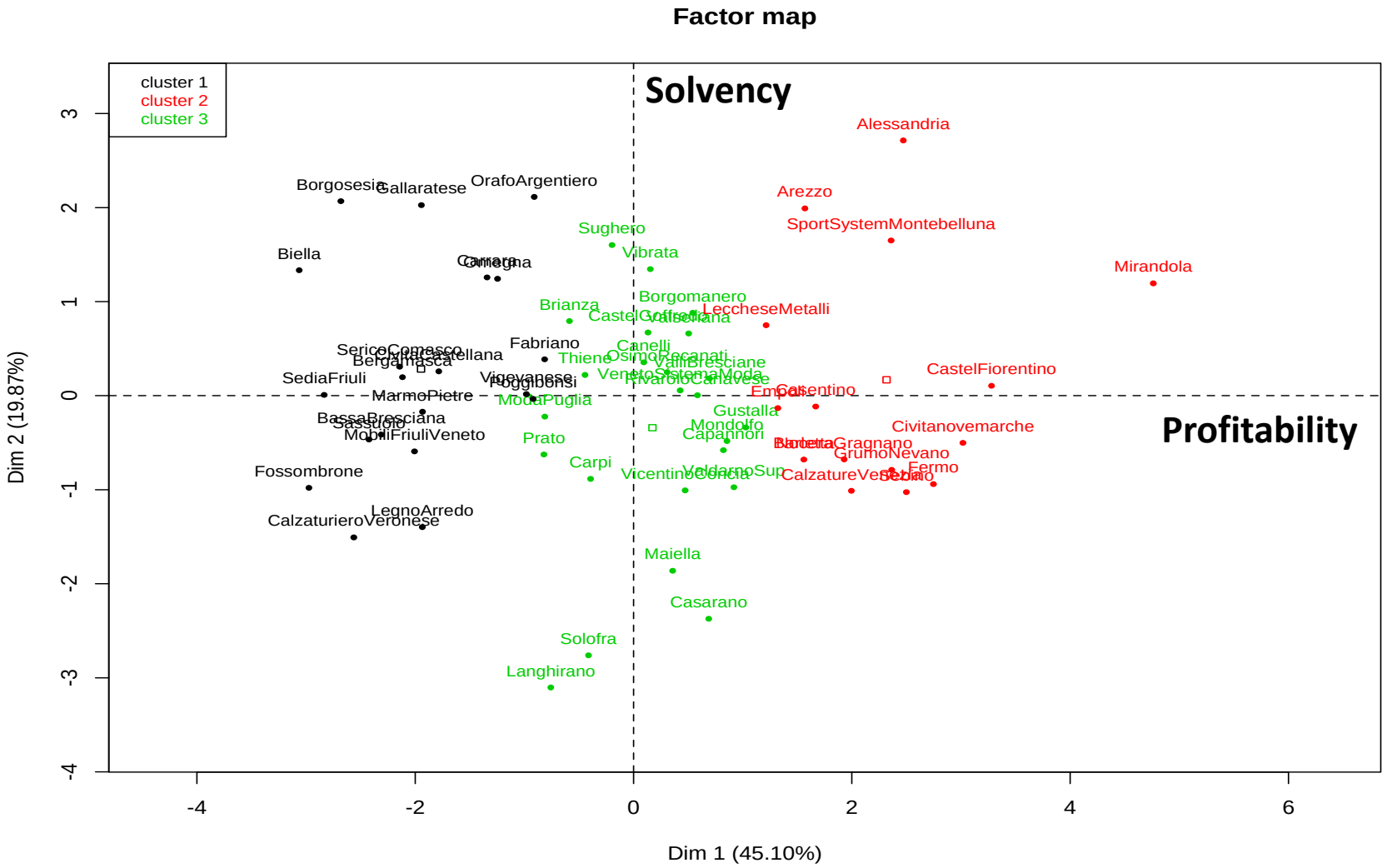


"Best Performer" Class:
Civitanova Marche (pelli, cuoio e calzature); Castel Fiorentino/Santa Croce sull'Arno (concia e calzature); Grumo Nevano (tessile, abbigliamento e concia); Sebino (gomma e guarnizioni in plastica); Fermo (pelli, cuoio e calzature); Barletta (calzature); Nocera Inferiore/Gragnano (agro-alimentare); Calzaturiero Veneto (calzature); Mirandola (biomedicale); Valenza Po (oreficeria); Arezzo (oreficeria); SportSystem Montebelluna (calzature sportive).

Leather and Footwear
Jewellery

Textile and clothing
Wood and furniture

Industrial District Typology



Final Remarks

Complexity of Italian industrial districts

Concept, Definition, Measurement,…

Governance Vs./ Performance Assessment

Definition, Indicators, Modelling, …

Mixed Approach and Relational Data

Direct surveys inside the districts focus on formal and informal relation among firms

Main References

Becattini, G. (1990), "The Marshallian Industrial District as a Socio-Economic Notion. In Industrial Districts and Inter-Firm Co-operation in Italy", in Pyke, F., Beccattini, G. and Sengenberger W. (eds), *Industrial Districts and Interfirm Cooperation in Italy*, International Institute for Labour, Ginevra.

Becattini, G. (2000), *Il distretto industriale*, Rosenberg e Sellier, Torino.

Bellandi, M., Caloffi, A. and Toccafondi, D. (2011), "Riaggiustamento delle reti distrettuali e differenziazione dei percorsi di reazione alla crisi di mercato", in Zazzaro, A. (eds), *Reti d'imprese e territorio. Tra vincoli e nuove opportunità*, Il Mulino, Bologna.

Bentivogli, C., Quintiliani, F. and Sabbatini, D. (2013), "Il contratto di rete: limiti e opportunità", in *L'Industria*, No.2, aprile-giugno, pp.347-348.

Billard, L, Diday, E (2006), *Symbolic Data Analysis: Conceptual Statistics and Data Mining*, Wiley, New York.

Bock, H.H, Diday, E. (2000), *Analysis of Symbolic Data*, Springer-Verlag, Berlin.

Brusco, S. (1999), "The rules of the game in industrial districts", in Grandori, A. (ed), *Inter-firm networks organization and industrial competitiveness*, Routledge

Caloffi A. (2000), *Politiche regionali per i distretti industriali***,** Ricerca effettuata nel corso dello stage di formazione Presso l'Unione Industriale Pratese, dicembre 2000

Capuano, G. (2003), "Fattori creditizi e non creditizi nella formazione dei tassi di interesse", Istituto Tagliacarne - Collana Working Paper, No.34.03, Roma

Di Giacinto, V., Gomellini, M., Micucci, M. (2011), "Mapping Local Productivity Advantages in Italy: Industrial districts, cities or both?", *mimeo, Bank of Italy*

De Blasio, G., Omiccioli, M. and Signorini, L.F. (2009), "Measuring the district effect", in Becattini, G., Bellandi, M. and De Propris L. (eds), *A Handbook of Industrial Districts*, Edward Elgar, Cheltenham UK, pp.381-393.

Dei Ottati, G. (2002), "Social Concertation and Local Development: The Case of Industrial Districts", *European Planning Studies*, Vol.10, No.4, pp.449-466.

Foresti, G., Guelpa, F. and Trenti, S. (2008), "I distretti industriali alla prova della palingenesi", *L'Industria*, N.S., a. XXIX, No.3, luglio-settembre, pp.547- 570.

Guelpa, F. (2013), "Forme ibride di organizzazione per rafforzare la competitività", *L'Industria*, N.S., a. XXXIV, n. 2, aprile-giugno, pp.211-216.

Hess, C. and Ostrom, E. (2006), *Understanding Knowledge as a Commons: From Theory to Practice*, The MIT Press, Cambridge, Massachusetts.

Istat (2005), Distretti industriali e sistemi locali del lavoro 2001 Istat - 8° Censimento generale dell'industria e dei servizi 2001, Roma

Iuzzolino, G., G. Micucci (2011), "Le recenti trasformazioni nei distretti industriali italiani", in *II Rapporto dell'Osservatorio Nazionale Distretti Italiani*, Roma, febbraio, 75-110.

Loasby, B. J. (1998), "Industrial Districts as Knowledge Communities", in Bellet, M. and Harmet, C.L. (eds), *Industry, Space and Competition. The Contributions of Economists of the Past*, Edward Elgar, Cheltentham, pp.70-85.

Malmberg, A., Maskell, P. (2002), "The elusive concept of localization economies: towards a knowledge-based theory of spatial clustering", Environment and Planning, No.34, pp. 429

Mediobanca e Unioncamere (2013), «Le medie imprese industriali italiane (2002-2011)»

Nova, A. (2001), "L'economia delle imprese nei distretti italiani: redditività, dominanza e strategie differenziali", *Economia e politica industriale*, Vol.XXVIII, No.111, pp.107-143.

Paniccia, I. (2002), *Industrial Districts: Evolution and Competitiveness in Italian Firms*, Edward Elgar, Cheltenham, UK.

Pastore, P. and Tommaso, S. (2013*), Italian Industrial Districts: Influence of the Governance on Performance and Financial Distress of Firms. An Explorative Study*, In Corporate Ownership & Control, vol. 11 , p. 962-991

Ricciardi, A. (2006), "Distretti industriali: criticità della gestione finanziaria e strumenti innovativi", in Antoldi, F. (ed), *Piccole imprese e distretti industriali*, Il Mulino, Bologna, pp. 131-162.

Ricciardi, A. (2010c), "Strategie di cooperazione tra aziende e mitigazione del rischio operativo: i vantaggi competitivi delle reti di imprese", in Airoldi G., Corbetta, G. e Invernizzi, G. (eds), *Economia Aziendale & Management: scritti in onore di Vittorio Coda,* Egea, Milano.