NSF CNH-Ex #1114931 Political Fragmentation Indicator Database (Version 3.01)

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NSF CNH-Ex #1114931 Project Team

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Introduction

This document is designed to provide a concise explanation of the political fragmentation indicator database (version 3.01), as an outcome of the NSF CNH-Ex #1114931: *Political Fragmentation in Local Governance and Water Resource Management* project. Database users should read this document in order to avoid any possible misuse or misinterpretation of the fragmentation indicator values in the database which are calculated primarily for the NSF CNH-Ex project. In particular, it should be noted that the data outside of the project's study area (i.e., the Interior Plains, demonstrated in figure 1) need to be carefully used, although the database covers the entire conterminous U.S. including 48 states and the District of Columbia.

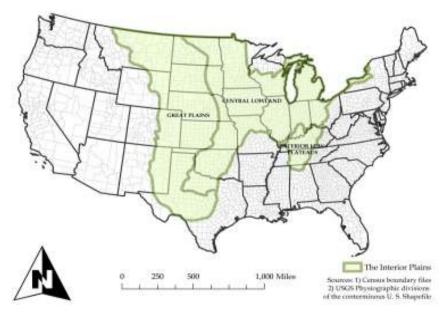


Figure 1. Study Area: The Interior Plains

Since the database contains a variety of metric, representing the varying degrees of political fragmentation at multiple geographic scales, this document first describes the geographical scales and key approaches to measuring the political fragmentation for empirical research on the relationship between institutional settings (i.e., political fragmentation) and the effectiveness of natural resource management. Then, detailed descriptions of individual metrics and data sources follow. In addition, a set of correlation analysis outcomes is presented to show how the metrics are interrelated with each other (at a single geographical scale or over the hierarchy) to promote appropriate uses of the data with the consideration of the interrelationships among the indicators.

Geographical Scales

In the literature, political fragmentation in local governance has been typically defined and measured at aggregate levels, such as state and metropolitan area scales (see e.g., Bluestone 2008; Yeung 2009; Hendrick et al. 2011; Kim and Jurey, 2013). Although such aggregate-level metrics may be adequate for the examination of the political fragmentation's effects on the overall fiscal, economic, and social conditions in the regions (i.e., states or metropolitan areas), the metrics have limited usefulness in conducting a more spatially-explicit analysis, as they do not consider the spatial variation of the fragmentation within each region. Therefore, in the NSF CNH-Ex #1114931 project, site-specific fragmentation indicators have been employed, in addition to the traditional regional variables. More specifically, political fragmentation is measured at the following geographical scales:

- 1) Regional
 - i. State
 - ii. Economic Areas, defined by the US Bureau of Economic Analysis (BEA)
 - iii. Metropolitan Statistical Areas (MSA)
 - iv. County
- 2) Site-scale: 12-digt watershed

In the database file (i.e., NSF-CNH-EX1114931_PFI-DB_Ver3-01.accdb), each data table contains the fragmentation indicator values at each geographic scale. More specifically, *ST-scale*, *EA-scale*, *MSA-scale*, *CTY-scale*, and *HUC12-scale* tables provide the data ranging from states to 12-digit watersheds, respectively. Another table, titled *ScaleBridgeTable*, is included to support the vertical integration of the data by presenting where a particular small site (i.e., 12-digit watershed) is located in terms of the upper scales.

Since the project attempts to examine the effects of political fragmentation in early 1990s (with an extensive use of 1992 Census of Governments data) on the resource management outcomes in following time periods, 1993 Office of Management and Budget (OMB) definitions of the MSAs (i.e., and 1995 BEA Economic Areas delineation are adopted. Regarding the MSA scale, it also needs to be noted that the New England metropolitan area delineations, as opposed to ordinary MSA boundaries, are utilized for the areas in the New England region to avoid the issue of the partially included counties. Furthermore, the counties, which are not included in any metropolitan areas, are grouped together in each state, and regarded as a metropolitan equivalent area to assign the MSA-level fragmentation indicator values to those rural places. In the database, each of these areas has a unique 6-digit identification number, structured as below.

- 1) MSAs or New England MSAs: "00" + 4-digit MSA/CMSA FIPS or 4-digit New England metropolitan area code (e.g., Wichita, KS MSA: 009040)
- 2) Non-metro areas: 2-digit state FIPS code + "9999" (e.g., Non-metro counties in Kansas: 209999)

¹ In addition to the political indicators, *HUC12-scale* table provides a set of land cover composition metrics, calculated through an area tabulation of the USGS NLCD (National Land Cover Database) 1992/2001 Retrofit Land Cover Change data.

Measurement Strategies

The NSF CNH-Ex #1114931 project utilizes various approaches to measuring political fragmentation at multiple geographical scales. For the regional scales (i.e., state, BEA economic areas, MSAs, and counties), it uses both a) traditional government counting approaches (see e.g., Hawkins and Dye 1970; Schneider 1986; Eberts and Gronberg 1988) and b) relatively more sophisticated diversification indexes that quantify the power distribution among government bodies in each region with the use of government expenditure data (see e.g., Grassmueck and Shields 2010; Hendrick et al. 2011; Lewis and Hamilton 2011), as follows.

1-A. Traditional government counting approaches

: One of the simplest, but powerful approaches to measuring political fragmentation is counting the number of local government units in each region (the more governments are, the more fragmented the local governance structure is). Although these approaches seem very straightforward at first glance, there are a few things to be carefully considered. Among others, counting the absolute number of government units may be problematic, as it does not consider different sizes of population or resources to be managed in different regions. In many cases, it would be better to normalize the number of government units by population or land areas of the regions. Another critical issue involved in these approaches is what kinds of government units need to be counted. One could consider all types of local governments, while some others may want to consider only general purpose government units (e.g., municipalities, townships, and counties). Given the issues, the present database takes a comprehensive approach and includes twelve (3×4) count variables by considering the following three choices of normalization and four selection criteria of government units at each regional scale.

- Normalization Options
 - i. no normalization (i.e., using the absolute number of government units)
 - ii. per thousand residents
 - iii. per squared miles
- Government unit selection criteria
 - i. all government units
 - ii. general purpose governments only
 - iii. special purpose governments only
 - iv. municipalities (i.e., incorporated places) only

Be advised that the government unit counting is conducted based upon 1992 Census of Governments data. Detailed descriptions of individual variables are provided in the next section of this document.

1-B. Diversification indexes

: Although the traditional counting approaches are simple and useful, they are somewhat limited in the sense that government units are equally treated (i.e., being counted as one unit) regardless of their sizes. In reality, political powers are not evenly distributed, and capturing the variation in the power distribution would be critical in representing the real political fragmentation in local governance. Therefore, this fragmentation indicator database employs two

diversification indexes that represent the level of power concentration (less fragmented) or dispersion (more fragmented) with the use of government expenditure information from 1992 Census of Governments. The first one is the Hirschman-Herfindahl index (HHI), designed to quantify the degree of the power balance among local governments within each region, as below (see p.646~647, Grassmueck and Shields 2010).

$$HHI_{i} = \sum_{i=1}^{n} \left(\frac{E_{ij}}{TE_{i}}\right)^{2}$$

where E_{ij} and TE_i represent the level of expenditure of government unit j in region i and the total government expenditure in region i, respectively, and n is the number of governmental units in the region. This index can have a value between 1/n and 1. A higher value indicates a lower level of fragmentation (i.e., expenditures are dominated by one or few local government bodies rather than being evenly distributed). Another index is the Power Diffusion Index (PDI) defined as follows.

$$PDI_i = \sum_{i=1}^n \left(\frac{E_{ij}}{TE_i}\right)^{1/2}$$

This index "gives greater value to the smaller players in government by taking the square root of the proportion of expenditures per government unit j in ... [region] i, while the [HH index] ... gives greater value to the larger players by squaring the proportion of expenditures. One advantage of using both [indexes] ... to measure vertical and horizontal government fragmentation is the ability to further investigate whether larger or smaller government units within a ... [region] in terms of expenditure amounts exert more influence" (p.647, Grassmueck and Shields 2010).

The present database also employs multiple strategies for measuring the political fragmentation at the site-scale (i.e., 12-digt watersheds). More specifically, the following four types of measurements are used: a) number of the intersected political units, b) mean section's distance to the closest incorporated place, c) entropy indexes, and d) presence of the water resource management districts.

2-A. Number of the intersected political units

First, similar to regional scale measurements, an attempt is made to determine how many government units are involved in each watershed. This is accomplished by overlaying the USDA watershed shapefile and Census boundary files, and calculating the number of the intersected political units in individual 12-digit watersheds. As shown in the data tables, a considerable number of watersheds are found to be shared by more than several incorporated cities or towns, while there are numerous watersheds which are not intersected with any municipal unit.

2-B. Mean section's distance to the closest incorporated place

Another spatially-explicit indicator included in the database is the mean section's (1mile×1mile land area) distance to the closest incorporated place. This measurement is designed to discern different spatial positions of different

watersheds.

$$MSDIST = \sum_{k=1}^{n} \frac{minDist_k}{n}$$

where $minDist_k$ indicates the k-th section's distance to the closet incorporated city or town, and n is the number of sections in each 12-digit watershed (note that n varies by watersheds). The MSDIST value will be small, if a watershed is surrounded by municipalities rather than out-positioned, and thus more likely to be under the influence of local political settings.

2-C. Entropy indexes

To represent the micro-level political power balance, the database utilizes the concept of entropy, originally developed in the field of thermodynamics, and further used in urban and regional studies (see e.g., Wilson 1970; Cervero 1989; Krizek 2003). In detail, the following entropy (i.e., *ENT*) and a modified entropy index (i.e., *ENTD2*), in which consideration is given to the three nearest municipalities (i.e., incorporated cities or towns) from each watershed, are utilized (see Kim and Hewings 2013 for more detailed explanations of these indexes).

$$ENT = \sum_{j=1}^{3} \frac{-p_{j} \cdot \ln(p_{j})}{\ln(3)} \text{ where } p_{j} = \frac{\left(\frac{1}{dist_{j}}\right)^{2}}{\sum_{j=1}^{3} \left(\frac{1}{dist_{j}}\right)^{2}}$$

$$ENTD2 = ENT \cdot \left(\frac{1}{1 + dist_{j}}\right)^{2}$$

where $dist_j$ indicates the Euclidian distance between each watershed and j-th closest locality. The indexes, having the range of values between 0 and 1, can capture the level of power balances among three nearest jurisdictions. A higher value of the indexes indicates a more evenly balanced distribution of powers (i.e., a higher degree of political fragmentation). It needs to be noted that the search of the three closest localities is limited by 20-mile radius in calculating these index values. In other words, if a watershed has less than three municipalities within its 20-mile radius, the index value computation considers a fewer number of municipalities.

2-D. Presence of the water resource management district

This group of measurements is traditional dummy variables, designed to identify the presence of a formalized institution, responsible for the management of water resources. For these metrics, 1992 Census of Governments is utilized, given the absence of the source of relevant watershed-level information across states. Specifically, first special districts for water resource management are identified from the Census of Governments dataset along with their annual spending information and the counties in which the special districts were mainly based in the survey year (i.e., Year 1992). Then, if a watershed (or the majority part of the watershed in terms of physical area) is included in the counties with the water management districts or similar units, 1 is assigned, otherwise 0.

Variables: Descriptions & Data Sources

Table 1 presents all variables contained in the political fragmentation database (i.e., NSF-CNH-EX1114931_PFI-DB_Ver3-01.accdb). The following is a list of major data sources.

- 1992CoGov: 1992 Census of Governments
- BEA-REIS: Regional Economic Information System, provided by U.S. BEA
- DC: Decennial Censuses
- USDA-WBD: USDA Watershed Boundary Dataset
- Census-BF: Census Boundary Files
- NLCD92/01: USGS NLCD 1992/2001 Retrofit Land Cover Change Dataset

Table 1. List of the Variables

Scale	Variable	Description	Data Sources
	STFIPS	State FIPS code	-
	ST_GOVALL	Number of total government units in the state	1992CoGov
	ST_GOVG	Number of general purpose government units in the state	1992CoGov
	ST_GOVS	Number of special purpose government units in the state	1992CoGov
	ST_GOVM	Number of municipalities (i.e., incorporated places) in the state	1992CoGov
	ST_PCGOVALL	Number of total government units per 1000 residents in the state	1992CoGov; BEA-REIS
	ST_PCGOVG	Number of general purpose government units per 1000 residents in the state	1992CoGov; BEA-REIS
	ST_PCGOVS	Number of special purpose government units per 1000 residents in the state	1992CoGov; BEA-REIS
	ST_PCGOVM	Number of municipalities (i.e., incorporated places) per 1000 residents in the state	1992CoGov; BEA-REIS
	ST_PAGOVALL	Number of total government units per squared miles in the state	1992CoGov; DC
	ST_PAGOVG	Number of general purpose government units per squared miles in the state	1992CoGov; DC
	ST_PAGOVS	Number of special purpose government units per squared miles in the state	1992CoGov; DC
	ST_PAGOVM	Number of municipalities (i.e., incorporated places) per squared miles in the state	1992CoGov; DC
	ST_PDIALLTR	PDI Index based upon the total revenue distribution of the entire government units in the state	1992CoGov
State level	ST_PDIGTR	PDI Index based upon the total revenue distribution of the general purpose government units in the state	1992CoGov
	ST_PDISTR	PDI Index based upon the total revenue distribution of the special purpose government units in the state	1992CoGov
	ST_PDIMTR	PDI Index based upon the total revenue distribution of the municipalities (i.e., incorporated places) in the state	1992CoGov
	ST_PDIALLTE	PDI Index based upon the total expenditure distribution of the entire government units in the state	1992CoGov
	ST_PDIGTE	PDI Index based upon the total expenditure distribution of the general purpose government units in the state	1992CoGov
	ST_PDISTE	PDI Index based upon the total expenditure distribution of the special purpose government units in the state	1992CoGov
	ST_PDIMTE	PDI Index based upon the total expenditure distribution of the municipalities (i.e., incorporated places) in the state	1992CoGov
	ST_HHIALLTR	HH Index based upon the total revenue distribution of the entire government units in the state	1992CoGov
	ST_HHIGTR	HH Index based upon the total revenue distribution of the general purpose government units in the state	1992CoGov
	ST_HHISTR	HH Index based upon the total revenue distribution of the special purpose government units in the state	1992CoGov
	ST_HHIMTR	HH Index based upon the total revenue distribution of the municipalities (i.e., incorporated places) in the state	1992CoGov
	ST_HHIALLTE	HH Index based upon the total expenditure distribution of the entire government units in the state	1992CoGov
	ST_HHIGTE	HH Index based upon the total expenditure distribution of the general purpose government units in the state	1992CoGov
	ST_HHISTE	HH Index based upon the total expenditure distribution of the special purpose government units in the state	1992CoGov
	ST_HHIMTE	HH Index based upon the total expenditure distribution of the municipalities (i.e., incorporated places) in the state	1992CoGov

Table 1. List of the Variables (Cont.)

Scale	Variable	Description	Data Sources
	BEA_EA95	US BEA (Bureau of Economic Analysis) 1995 Economic Area code	-
	EA_GOVALL	Number of total government units in the economic area	1992CoGov
	EA_GOVG	Number of general purpose government units in the economic area	1992CoGov
	EA_GOVS	Number of special purpose government units in the economic area	1992CoGov
	EA_GOVM	Number of municipalities (i.e., incorporated places) in the economic area	1992CoGov
	EA_PCGOVALL	Number of total government units per 1000 residents in the economic area	1992CoGov; BEA-REIS
	EA_PCGOVG	Number of general purpose government units per 1000 residents in the economic area	1992CoGov; BEA-REIS
	EA_PCGOVS	Number of special purpose government units per 1000 residents in the economic area	1992CoGov; BEA-REIS
	EA_PCGOVM	Number of municipalities (i.e., incorporated places) per 1000 residents in the economic area	1992CoGov; BEA-REIS
	EA_PAGOVALL	Number of total government units per squared miles in the economic area	1992CoGov; DC
	EA_PAGOVG	Number of general purpose government units per squared miles in the economic area	1992CoGov; DC
	EA_PAGOVS	Number of special purpose government units per squared miles in the economic area	1992CoGov; DC
	EA_PAGOVM	Number of municipalities (i.e., incorporated places) per squared miles in the economic area	1992CoGov; DC
BEA	EA_PDIALLTR	PDI Index based upon the total revenue distribution of the entire government units in the economic area	1992CoGov
Economic Area	EA_PDIGTR	PDI Index based upon the total revenue distribution of the general purpose government units in the economic area	1992CoGov
level	EA_PDISTR	PDI Index based upon the total revenue distribution of the special purpose government units in the economic area	1992CoGov
	EA_PDIMTR	PDI Index based upon the total revenue distribution of the municipalities (i.e., incorporated places) in the economic area	1992CoGov
	EA_PDIALLTE	PDI Index based upon the total expenditure distribution of the entire government units in the economic area	1992CoGov
	EA_PDIGTE	PDI Index based upon the total expenditure distribution of the general purpose government units in the economic area	1992CoGov
	EA_PDISTE	PDI Index based upon the total expenditure distribution of the special purpose government units in the economic area	1992CoGov
	EA_PDIMTE	PDI Index based upon the total expenditure distribution of the municipalities (i.e., incorporated places) in the economic area	1992CoGov
	EA_HHIALLTR	HH Index based upon the total revenue distribution of the entire government units in the economic area	1992CoGov
	EA_HHIGTR	HH Index based upon the total revenue distribution of the general purpose government units in the economic area	1992CoGov
	EA_HHISTR	HH Index based upon the total revenue distribution of the special purpose government units in the economic area	1992CoGov
	EA_HHIMTR	HH Index based upon the total revenue distribution of the municipalities (i.e., incorporated places) in the economic area	1992CoGov
	EA_HHIALLTE	HH Index based upon the total expenditure distribution of the entire government units in the economic area	1992CoGov
	EA_HHIGTE	HH Index based upon the total expenditure distribution of the general purpose government units in the economic area	1992CoGov
	EA_HHISTE	HH Index based upon the total expenditure distribution of the special purpose government units in the economic area	1992CoGov
	EA_HHIMTE	HH Index based upon the total expenditure distribution of the municipalities (i.e., incorporated places) in the economic area	1992CoGov

Table 1. List of the Variables (Cont.)

Scale	Variable	Description	Data Sources
	MSA90ID	6-digit 1990 Metropolitan Statistical Area code	-
	MSA_GOVALL	Number of total government units in the MSA	1992CoGov
	MSA_GOVG	Number of general purpose government units in the MSA	1992CoGov
	MSA_GOVS	Number of special purpose government units in the MSA	1992CoGov
	MSA_GOVM	Number of municipalities (i.e., incorporated places) in the MSA	1992CoGov
	MSA_PCGOVALL	Number of total government units per 1000 residents in the MSA	1992CoGov; BEA-REIS
	MSA_PCGOVG	Number of general purpose government units per 1000 residents in the MSA	1992CoGov; BEA-REIS
	MSA_PCGOVS	Number of special purpose government units per 1000 residents in the MSA	1992CoGov; BEA-REIS
	MSA_PCGOVM	Number of municipalities (i.e., incorporated places) per 1000 residents in the MSA	1992CoGov; BEA-REIS
	MSA_PAGOVALL	Number of total government units per squared miles in the MSA	1992CoGov; DC
	MSA_PAGOVG	Number of general purpose government units per squared miles in the MSA	1992CoGov; DC
	MSA_PAGOVS	Number of special purpose government units per squared miles in the MSA	1992CoGov; DC
	MSA_PAGOVM	Number of municipalities (i.e., incorporated places) per squared miles in the MSA	1992CoGov; DC
	MSA_PDIALLTR	PDI Index based upon the total revenue distribution of the entire government units in the MSA	1992CoGov
MSA level	MSA_PDIGTR	PDI Index based upon the total revenue distribution of the general purpose government units in the MSA	1992CoGov
	MSA_PDISTR	PDI Index based upon the total revenue distribution of the special purpose government units in the MSA	1992CoGov
	MSA_PDIMTR	PDI Index based upon the total revenue distribution of the municipalities (i.e., incorporated places) in the MSA	1992CoGov
	MSA_PDIALLTE	PDI Index based upon the total expenditure distribution of the entire government units in the MSA	1992CoGov
	MSA_PDIGTE	PDI Index based upon the total expenditure distribution of the general purpose government units in the MSA	1992CoGov
	MSA_PDISTE	PDI Index based upon the total expenditure distribution of the special purpose government units in the MSA	1992CoGov
	MSA_PDIMTE	PDI Index based upon the total expenditure distribution of the municipalities (i.e., incorporated places) in the MSA	1992CoGov
	MSA_HHIALLTR	HH Index based upon the total revenue distribution of the entire government units in the MSA	1992CoGov
	MSA_HHIGTR	HH Index based upon the total revenue distribution of the general purpose government units in the MSA	1992CoGov
	MSA_HHISTR	HH Index based upon the total revenue distribution of the special purpose government units in the MSA	1992CoGov
	MSA_HHIMTR	HH Index based upon the total revenue distribution of the municipalities (i.e., incorporated places) in the MSA	1992CoGov
	MSA_HHIALLTE	HH Index based upon the total expenditure distribution of the entire government units in the MSA	1992CoGov
	MSA_HHIGTE	HH Index based upon the total expenditure distribution of the general purpose government units in the MSA	1992CoGov
	MSA_HHISTE	HH Index based upon the total expenditure distribution of the special purpose government units in the MSA	1992CoGov
	MSA_HHIMTE	HH Index based upon the total expenditure distribution of the municipalities (i.e., incorporated places) in the MSA	1992CoGov

Table 1. List of the Variables (Cont.)

Scale	Variable	Description	Data Sources
	CTYFIPS_BEA	5-digit County FIPS code (BEA-REIS coding system)	
	CTY_GOVALL	Number of total government units in the county	1992CoGov
	CTY_GOVG	Number of general purpose government units in the county	1992CoGov
	CTY_GOVS	Number of special purpose government units in the county	1992CoGov
	CTY_GOVM	Number of municipalities (i.e., incorporated places) in the county	1992CoGov
	CTY_PCGOVALL	Number of total government units per 1000 residents in the county	1992CoGov; BEA-REIS
	CTY_PCGOVG	Number of general purpose government units per 1000 residents in the county	1992CoGov; BEA-REIS
	CTY_PCGOVS	Number of special purpose government units per 1000 residents in the county	1992CoGov; BEA-REIS
	CTY_PCGOVM	Number of municipalities (i.e., incorporated places) per 1000 residents in the county	1992CoGov; BEA-REIS
	CTY_PAGOVALL	Number of total government units per squared miles in the county	1992CoGov; DC
	CTY_PAGOVG	Number of general purpose government units per squared miles in the county	1992CoGov; DC
	CTY_PAGOVS	Number of special purpose government units per squared miles in the county	1992CoGov; DC
	CTY_PAGOVM	Number of municipalities (i.e., incorporated places) per squared miles in the county	1992CoGov; DC
	CTY_PDIALLTR	PDI Index based upon the total revenue distribution of the entire government units in the county	1992CoGov
County level	CTY_PDIGTR	PDI Index based upon the total revenue distribution of the general purpose government units in the county	1992CoGov
	CTY_PDISTR	PDI Index based upon the total revenue distribution of the special purpose government units in the county	1992CoGov
	CTY_PDIMTR	PDI Index based upon the total revenue distribution of the municipalities (i.e., incorporated places) in the county	1992CoGov
	CTY_PDIALLTE	PDI Index based upon the total expenditure distribution of the entire government units in the county	1992CoGov
	CTY_PDIGTE	PDI Index based upon the total expenditure distribution of the general purpose government units in the county	1992CoGov
	CTY_PDISTE	PDI Index based upon the total expenditure distribution of the special purpose government units in the county	1992CoGov
	CTY_PDIMTE	PDI Index based upon the total expenditure distribution of the municipalities (i.e., incorporated places) in the county	1992CoGov
	CTY_HHIALLTR	HH Index based upon the total revenue distribution of the entire government units in the county	1992CoGov
	CTY_HHIGTR	HH Index based upon the total revenue distribution of the general purpose government units in the county	1992CoGov
	CTY_HHISTR	HH Index based upon the total revenue distribution of the special purpose government units in the county	1992CoGov
	CTY_HHIMTR	HH Index based upon the total revenue distribution of the municipalities (i.e., incorporated places) in the county	1992CoGov
	CTY_HHIALLTE	HH Index based upon the total expenditure distribution of the entire government units in the county	1992CoGov
	CTY_HHIGTE	HH Index based upon the total expenditure distribution of the general purpose government units in the county	1992CoGov
	CTY_HHISTE	HH Index based upon the total expenditure distribution of the special purpose government units in the county	1992CoGov
	СТҮ_ННІМТЕ	HH Index based upon the total expenditure distribution of the municipalities (i.e., incorporated places) in the county	1992CoGov

Table 1. List of the Variables (Cont.)

Scale	Variable	Description	Data Sources
	HUC_12	12-digit Watershed code	USDA-WBD
		Political Fragmentation Indicators	
	NUMST	Number of the intersected states	USDA-WBD; Census-BF
	NUMCO	Number of the intersected counties	USDA-WBD; Census-BF
	NUMPL	Number of the intersected municipalities	USDA-WBD; Census-BF
	MSDIST	Mean section's distance to the closest municipality (miles)	USDA-WBD; Census-BF
	ENT	Entropy index of the watershed	USDA-WBD; Census-BF
	ENTD2	Modified entropy index of the watershed	USDA-WBD; Census-BF
	MSENT	Mean section's entropy index	USDA-WBD; Census-BF
	MSENTD2	Mean section's modified entropy index	USDA-WBD; Census-BF
	WDALL	Presence of any water districts located in the county primarily covering the watershed (1: Yes 0: No)	USDA-WBD; Census-BF; 1992CoGov
12-digit Watershed level	WD100+	Presence of water districts with \$100,000+ annual spending located in the county primarily covering the watershed (1: Yes 0: No)	USDA-WBD; Census-BF; 1992CoGov
2-digit Vatershed evel		Land Cover Compositions	
	LC92_URB	Share of urban (i.e., developed) land in 1992	USDA-WBD; NLCD92/01
	LC92_AG	Share of agricultural land in 1992	USDA-WBD; NLCD92/01
	LC92_FOR	Share of forest land in 1992	USDA-WBD; NLCD92/01
	LC92_WWI	Share of water, wetland, and ice/snow in 1992	USDA-WBD; NLCD92/01
	LC92_OTH	Share of other land covers (including barren and grassland/shrub) in 1992	USDA-WBD; NLCD92/01
	LC01_URB	Share of urban (i.e., developed) land in 2001	USDA-WBD; NLCD92/01
1	LC01_AG	Share of agricultural land in 2001	USDA-WBD; NLCD92/01
	LC01_FOR	Share of forest land in 2001	USDA-WBD; NLCD92/01
	LC01_WWI	Share of water, wetland, and ice/snow in 2001	USDA-WBD; NLCD92/01
	LC01_OTH	Share of other land covers (including barren and grassland/shrub) in 2001	USDA-WBD; NLCD92/01

Correlation among Metrics

Since the political fragmentation in local governance has been quantified using a large number of metrics at multiple geographical scales, it is imperative to explore and understand how the various metrics are correlated with each other, particularly when using more than one metrics in a multivariate statistical analysis setting. To support data users, a set of correlation analyses are conducted to reveal the interrelationships among the metrics at a single geographical scale or over the hierarchy; and the analysis outcomes are presented below. Figure 2 demonstrates the analytical framework, adopted here to accomplish the exploration of the correlations among a large number of metrics (defined and measured at five different scales) in a systematic manner. In other words, the correlation calculation has been performed based on the framework with 19 sub-matrices. The correlation values in each sub-matrix are summarized in figure 3.

Scales	ST	EA	MSA	CTY	HUC12
ST	1			2	3
EA		4		5	6
MSA			7	8	9
СТҮ	10	11	12	13	14
HUC12	15	16	17	18	19

Notes:

- White (i.e., 1,4,7,13, and 19): Correlations at a single geographical scale
- *Light Grey* (i.e., 2,3,5,6,8,9, and 14): Correlations at a higher scale (by applying the mean values of the lower level metric to the higher summary level)
- Dark Grey (i.e., 10,11,12,15,16,17, and 18): Correlations at a lower scale (by applying the values of the higher level metric to the lower summary level)

Figure 2. Analytical Framework for Correlation Analysis

	ST_GOVALL	ST_GOVG	ST_GOVS	ST_GOVM	ST_PCGOVALL	ST_PCGOVG	ST_PCGOVS	ST_PCGOVM S	ST_PAGOVALL	ST_PAGOVG	ST_PAGOVS	ST_PAGOVM	ST_PDIALLTR	ST_PDIGTR	ST_PDISTR	ST_PDIMTR	ST_PDIALLTE	ST_PDIGTE	ST_PDISTE	ST_PDIMTE	ST_HHIALLTR	ST_HHIGTR	ST_HHISTR	ST_HHIMTR	ST_HHIALLTE	ST_HHIGTE	ST_HHISTE	ST_HHIMTE
ST_GOVALL	1.000	0.866	0.898	0.864	0.206	0.220	0.145	0.246	0.244	0.391	0.120	0.287	0.882	0.771	0.869	0.720	0.885	0.775	0.871	0.722	-0.165	-0.108	-0.311	-0.059	-0.174	-0.117	-0.323	-0.068
ST_GOVG		1.000	0.558	0.825	0.290	0.381	0.104	0.354	0.283	0.555	0.072	0.366	0.803	0.867	0.663	0.704	0.804	0.864	0.666	0.703	-0.146	-0.110	-0.270	-0.055	-0.155	-0.120	-0.279	-0.064
ST_GOVS			1.000	0.709	0.087	0.030	0.149	0.096	0.155	0.160	0.136	0.155	0.757	0.518	0.859	0.576	0.762	0.526	0.859	0.581	-0.145	-0.082	-0.278	-0.049	-0.153	-0.090	-0.291	-0.056
ST_GOVM				1.000	0.040	0.090	-0.037	0.264	0.135	0.316	0.000	0.393	0.828	0.792	0.750	0.869	0.831	0.794	0.755	0.869	-0.197	-0.162	-0.297	-0.147	-0.205	-0.172	-0.308	-0.158
ST_PCGOVALL					1.000	0.941	0.881	0.884	-0.088	-0.003	-0.135	-0.174	0.210	0.234	0.144	0.063	0.200	0.222	0.138	0.056	-0.183	-0.174	-0.197	-0.162	-0.176	-0.168	-0.203	-0.149
ST_PCGOVG						1.000	0.669	0.853	-0.040	0.097	-0.127	-0.103	0.220	0.316	0.105	0.110	0.209	0.301	0.100	0.103	-0.143	-0.144	-0.153	-0.133	-0.137	-0.139	-0.155	-0.124
ST_PCGOVS							1.000	0.749	-0.138	-0.143	-0.120	-0.239	0.155	0.073	0.169	-0.015	0.147	0.066	0.163	-0.021	-0.202	-0.181	-0.220	-0.169	-0.194	-0.174	-0.227	-0.154
ST_PCGOVM								1.000	-0.166	-0.062	-0.219	-0.054	0.276	0.328	0.174	0.318	0.268	0.319	0.171	0.314	-0.229	-0.229	-0.234	-0.259	-0.223	-0.225	-0.240	-0.251
ST_PAGOVALL									1.000	0.906	0.959	0.758	0.248	0.287	0.221	0.066	0.248	0.286	0.222	0.067	-0.018	0.013	-0.076	0.115	-0.027	0.000	-0.079	0.112
ST_PAGOVG										1.000	0.750	0.745	0.438	0.550	0.327	0.251	0.436	0.546	0.327	0.250	-0.025	-0.013	-0.089	0.101	-0.033	-0.024	-0.090	0.093
ST_PAGOVS											1.000	0.688	0.096	0.082	0.128	-0.064	0.096	0.083	0.129	-0.063	-0.012	0.029	-0.059	0.112	-0.020	0.017	-0.064	0.114
ST_PAGOVM												1.000	0.288	0.332	0.229	0.359	0.289	0.329	0.235	0.358	0.123	0.153	0.097	0.189	0.118	0.143	0.087	0.188
ST_PDIALLTR													1.000	0.917	0.935	0.825	1.000	0.916	0.935	0.824	-0.410	-0.373	-0.535	-0.332	-0.414	-0.378	-0.546	-0.337
ST_PDIGTR														1.000	0.729	0.827	0.916	0.999	0.730	0.826	-0.439	-0.430	-0.496	-0.383	-0.441	-0.436	-0.498	-0.392
ST_PDISTR															1.000	0.692	0.936	0.731	1.000	0.692	-0.295	-0.244	-0.512	-0.195	-0.305	-0.251	-0.527	-0.198
ST_PDIMTR																1.000	0.827	0.827	0.697	0.999	-0.429	-0.420	-0.433	-0.479	-0.428	-0.425	-0.442	-0.490
ST_PDIALLTE																	1.000	0.917	0.936	0.826	-0.407	-0.370	-0.534	-0.328	-0.411	-0.375	-0.545	-0.334
ST_PDIGTE																		1.000	0.732	0.828	-0.435	-0.427	-0.495	-0.378	-0.438	-0.434	-0.497	-0.389
ST_PDISTE																			1.000	0.697	-0.294	-0.243	-0.511	-0.194	-0.304	-0.250	-0.528	-0.198
ST_PDIMTE																				1.000	-0.424	-0.416	-0.429	-0.471	-0.423	-0.421	-0.437	-0.485
ST_HHIALLTR																					1.000	0.985	0.864	0.861	0.999	0.983	0.847	0.862
ST_HHIGTR																						1.000	0.823	0.872	0.984	0.999	0.802	0.878
ST_HHISTR																							1.000	0.727	0.876	0.831	0.998	0.723
ST_HHIMTR																								1.000	0.848	0.864	0.719	0.997
ST_HHIALLTE																									1.000	0.984	0.858	0.851
ST_HHIGTE																										1.000	0.810	0.873
ST_HHISTE																											1.000	0.714
ST_HHIMTE																												1.000

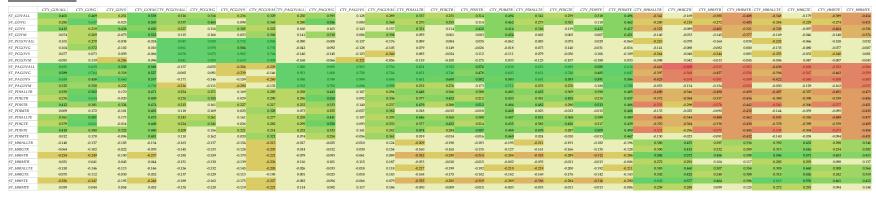
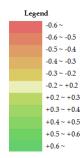


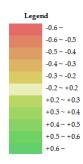
Figure 3. Correlation Values



	NUMST	NUMCO	NUMPL	MSDIST	ENT	ENTD2	MSENT	MSENTD2	WDALL	WD100
ST_GOVALL	-0.320	-0.005	-0.019	-0.231	-0.237	0.348	-0.172	0.331	0.063	0.03
ST_GOVG	-0.279	0.100	0.029	-0.341	-0.373	0.499	-0.299	0.461	-0.130	-0.13
ST_GOVS	-0.285	-0.096	-0.057	-0.084	-0.066	0.138	-0.022	0.144	0.219	0.19
ST_GOVM	-0.329	0.185	0.036	-0.403	-0.427	0.549	-0.345	0.530	-0.050	-0.10
ST_PCGOVALL	-0.167	-0.183	-0.211	0.019	0.065	0.037	0.078	-0.168	-0.095	-0.11
ST_PCGOVG	-0.139	-0.102	-0.145	-0.050	-0.021	0.121	-0.008	-0.075	-0.194	-0.19
ST_PCGOVS	-0.172	-0.260	-0.260	0.111	0.172	-0.087	0.183	-0.263	0.062	0.02
ST_PCGOVM	-0.215	-0.058	-0.176	-0.146	-0.104	0.254	-0.059	0.040	-0.151	-0.21
ST_PAGOVALL	0.150	0.182	0.301	-0.432	-0.482	0.353	-0.466	0.594	-0.066	0.09
ST_PAGOVG	0.079	0.260	0.308	-0.472	-0.536	0.428	-0.507	0.633	-0.188	-0.03
ST_PAGOVS	0.183	0.111	0.265	-0.361	-0.396	0.266	-0.391	0.506	0.022	0.16
ST_PAGOVM	0.192	0.380	0.529	-0.588	-0.667	0.543	-0.622	0.892	-0.313	-0.23
ST_PDIALLTR	-0.490	-0.024	-0.135	-0.250	-0.249	0.383	-0.177	0.312	0.059	0.08
ST_PDIGTR	-0.451	0.118	-0.113	-0.354	-0.375	0.512	-0.296	0.413	-0.075	-0.03
ST_PDISTR	-0.454	-0.117	-0.132	-0.158	-0.141	0.251	-0.085	0.205	0.109	0.15
ST_PDIMTR	-0.466	0.124	-0.069	-0.381	-0.379	0.541	-0.291	0.467	-0.013	-0.09
ST_PDIALLTE	-0.489	-0.021	-0.133	-0.252	-0.251	0.387	-0.179	0.316	0.057	0.08
ST_PDIGTE	-0.451	0.121	-0.114	-0.353	-0.375	0.515	-0.295	0.414	-0.080	-0.03
ST_PDISTE	-0.454	-0.116	-0.127	-0.162	-0.145	0.256	-0.089	0.212	0.110	0.15
ST_PDIMTE	-0.463	0.130	-0.069	-0.382	-0.381	0.545	-0.293	0.470	-0.024	-0.10
ST_HHIALLTR	0.843	0.388	0.797	-0.057	-0.125	-0.320	-0.213	0.085	-0.364	-0.23
ST_HHIGTR	0.802	0.313	0.772	-0.024	-0.095	-0.313	-0.173	0.106	-0.317	-0.23
ST_HHISTR	0.884	0.413	0.764	-0.016	-0.091	-0.340	-0.176	0.064	-0.270	-0.24
ST_HHIMTR	0.675	0.242	0.600	-0.104	-0.147	-0.154	-0.204	0.151	-0.358	-0.26
ST_HHIALLTE	0.856	0.392	0.808	-0.050	-0.119	-0.337	-0.209	0.077	-0.355	-0.24
ST_HHIGTE	0.809	0.310	0.775	-0.011	-0.083	-0.332	-0.162	0.092	-0.308	-0.23
ST_HHISTE	0.869	0.409	0.738	-0.006	-0.081	-0.337	-0.165	0.054	-0.267	-0.24
ST_HHIMTE	0.678	0.227	0.602	-0.096	-0.138	-0.166	-0.196	0.144	-0.347	-0.24



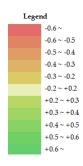
Figure 3. Correlation Values (Cont.)



	CTY_GOVALL	CTY_GOVG	CTY_GOVS	CTY_GOVM CTY	_PCGOVALL (CTY_PCGOVG	CTY_PCGOVS CTY_	PCGOVM :	TY_PAGOVALL 0	TY_PAGOVG	CTY_PAGOVS CI	Y_PAGOVM CTY	_PDIALLTR	CTY_PDIGTR	CTY_PDISTR	CTY_PDIMTR CT	Y_PDIALLTE	CTY_PDIGTE	CTY_PDISTE	CTY_PDIMTE CTY	Y_HHIALLTR	CTY_HHIGTR	CTY_HHISTR	CTY_HHIMTR CT	'_HHIALLTE	CTY_HHIGTE	CTY_HHISTE	CTY_HHIMTE
EA_GOVALL	0.470	0.489	0.323	0.420	0.204	0.239	0.116	0.177	0.576	0.479	0.587	0.379	0.509	0.479	0.424	0.423	0.506	0.477	0.425	0.423	-0.389	-0.405	-0.442	-0.353	-0.389	-0.401	-0.440	-0.355
EA_GOVG	0.351	0.606	0.102	0.396	0.247	0.377	0.046	0.247	0.565	0.597	0.447	0.436	0.424	0.553	0.238	0.398	0.420	0.547	0.239	0.397	-0.329	-0.438	-0.335	-0.345	-0.328	-0.431	-0.334	-0.346
EA_GOVS	0.498	0.298	0.468	0.369	0.129	0.073	0.160	0.083	0.487	0.290	0.615	0.262	0.500	0.330	0.520	0.373	0.498	0.332	0.521	0.374	-0.378	-0.306	-0.463	-0.301	-0.378	-0.305	-0.462	-0.303
EA_GOVM	0.253	0.363	0.117	0.454	0.062	0.126	-0.024	0.169	0.489	0.451	0.453	0.499	0.295	0.337	0.201	0.434	0.295	0.336	0.203	0.432	-0.238	-0.304	-0.261	-0.358	-0.239	-0.303	-0.260	-0.357
EA_PCGOVALL	0.159	0.339	0.009	-0.009	0.945	0.905	0.760	0.855	0.036	0.086	-0.021	-0.123	0.161	0.195	0.074	-0.023	0.154	0.184	0.072	-0.019	-0.257	-0.151	-0.231	0.015	-0.249	-0.133	-0.229	0.004
EA_PCGOVG	0.163	0.471	-0.062	0.060	0.812	0.951	0.463	0.753	0.094	0.206	-0.035	-0.030	0.160	0.302	0.004	0.050	0.153	0.289	0.004	0.053	-0.204	-0.212	-0.154	-0.056	-0.197	-0.195	-0.151	-0.066
EA_PCGOVS	0.114	0.087	0.096	-0.094	0.876	0.620	0.945	0.769	-0.047	-0.088	0.002	-0.210	0.122	0.011	0.144	-0.109	0.116	0.005	0.141	-0.106	-0.261	-0.037	-0.270	0.102	-0.254	-0.021	-0.269	0.092
EA_PCGOVM	0.020	0.260	-0.124	0.079	0.814	0.801	0.632	0.917	0.041	0.112	-0.037	0.033	0.039	0.127	-0.065	0.053	0.033	0.117	-0.066	0.054	-0.202	-0.155	-0.142	-0.065	-0.194	-0.139	-0.140	-0.073
EA_PAGOVALL	0.582	0.733	0.325	0.700	-0.011	0.086	-0.115	-0.017	0.998	0.923	0.924	0.846	0.650	0.754	0.448	0.680	0.648	0.753	0.453	0.678	-0.438	-0.596	-0.490	-0.590	-0.439	-0.599	-0.492	-0.586
EA_PAGOVG	0.431	0.803	0.091	0.639	0.020	0.188	-0.168	0.032	0.926	0.999	0.712	0.853	0.549	0.790	0.265	0.630	0.548	0.786	0.269	0.627	-0.379	-0.603	-0.391	-0.569	-0.379	-0.602	-0.394	-0.565
EA_PAGOVS	0.645	0.550	0.512	0.653	-0.041	-0.030	-0.044	-0.065	0.917	0.702	0.997	0.708	0.651	0.601	0.565	0.625	0.650	0.603	0.568	0.624	-0.429	-0.497	-0.514	-0.520	-0.432	-0.504	-0.515	-0.517
EA_PAGOVM	0.278	0.536	0.049	0.722	-0.185	-0.054	-0.284	-0.050	0.849	0.855	0.714	0.998	0.331	0.522	0.137	0.667	0.331	0.520	0.142	0.660	-0.179	-0.400	-0.202	-0.573	-0.181	-0.409	-0.205	-0.563
EA_PDIALLTR	0.507	0.583	0.315	0.441	0.221	0.248	0.139	0.191	0.607	0.549	0.575	0.393	0.633	0.618	0.497	0.456	0.630	0.615	0.499	0.457	-0.548	-0.566	-0.590	-0.407	-0.547	-0.558	-0.588	-0.413
EA_PDIGTR	0.377	0.672	0.096	0.407	0.206	0.325	0.027	0.210	0.615	0.652	0.484	0.459	0.519	0.691	0.279	0.429	0.516	0.686	0.282	0.430	-0.409	-0.588	-0.415	-0.396	-0.407	-0.577	-0.414	-0.405
EA_PDISTR	0.559	0.442	0.463	0.416	0.181	0.138	0.184	0.126	0.546	0.410	0.602	0.304	0.652	0.493	0.623	0.430	0.650	0.492	0.624	0.430	-0.566	-0.478	-0.654	-0.370	-0.566	-0.473	-0.652	-0.373
EA_PDIMTR	0.303	0.440	0.136	0.537	0.084	0.156	-0.016	0.191	0.503	0.503	0.427	0.516	0.365	0.425	0.234	0.542	0.364	0.422	0.237	0.540	-0.304	-0.397	-0.312	-0.489	-0.305	-0.394	-0.313	-0.488
EA_PDIALLTE	0.509	0.581	0.319	0.444	0.215	0.240	0.135	0.186	0.609	0.549	0.578	0.395	0.634	0.617	0.499	0.460	0.631	0.614	0.501	0.461	-0.546	-0.565	-0.589	-0.411	-0.545	-0.558	-0.587	-0.417
EA_PDIGTE	0.381	0.668	0.104	0.408	0.198	0.313	0.025	0.203	0.617	0.650	0.491	0.459	0.521	0.691	0.284	0.431	0.519	0.687	0.286	0.433	-0.408	-0.589	-0.416		-0.407	-0.580	-0.414	-0.408
EA_PDISTE	0.559	0.443	0.463	0.422	0.178	0.136	0.181	0.124	0.549	0.413	0.603	0.311	0.650	0.492	0.620	0.436	0.648	0.491	0.622	0.437	-0.563	-0.474	-0.652	-0.376	-0.563	-0.470	-0.650	-0.378
EA_PDIMTE	0.308	0.438	0.143	0.541	0.077	0.149	-0.021	0.187	0.507	0.503	0.434	0.519	0.367	0.425	0.239	0.547	0.367	0.423	0.242	0.545	-0.304	-0.397	-0.312		-0.305	-0.396	-0.313	-0.494
EA_HHIALLTR	-0.190	-0.327	-0.055	-0.176	-0.246	-0.230	-0.204	-0.233	-0.250	-0.284	-0.178	-0.152	-0.324	-0.351	-0.190	-0.189	-0.324	-0.346	-0.193	-0.187	0.440	0.411	0.371		0.434	0.393	0.373	0.225
EA_HHIGTR	-0.019	-0.270	0.132	-0.089	-0.165	-0.191	-0.097	-0.166	-0.183	-0.271	-0.065	-0.167	-0.122	-0.282	0.025	-0.133	-0.120	-0.276	0.021	-0.130	0.087	0.247	0.119		0.078	0.225	0.120	0.198
EA_HHISTR	-0.404	-0.384	-0.298	-0.277	-0.212	-0.180	-0.196	-0.176	-0.379	-0.325	-0.377	-0.184	-0.539	-0.436	-0.460	-0.282	-0.538	-0.435	-0.462	-0.281	0.663	0.543	0.629	0.262	0.662	0.535	0.627	0.264
EA_HHIMTR	-0.076	-0.209	0.023	-0.176	-0.057	-0.089	-0.007	-0.092	-0.152	-0.203	-0.077	-0.163	-0.146	-0.232	-0.041	-0.209	-0.146	-0.229	-0.044	-0.206	0.127	0.251	0.126	0.261	0.122	0.239	0.128	0.258
EA_HHIALLTE	-0.206	-0.330	-0.075	-0.185	-0.233	-0.216	-0.194	-0.219	-0.261	-0.287	-0.195	-0.157	-0.336	-0.357	-0.204	-0.199	-0.336	-0.353	-0.208	-0.197	0.441	0.416	0.371		0.436	0.400	0.375	0.233
EA_HHIGTE	-0.019	-0.259	0.125	-0.082	-0.147	-0.173	-0.083	-0.151	-0.182	-0.262	-0.072	-0.161	-0.118	-0.276	0.026	-0.130	-0.117	-0.272	0.022	-0.127	0.081	0.245	0.110		0.073	0.225	0.112	0.199
EA_HHISTE	-0.407	-0.385	-0.301	-0.289	-0.201	-0.169	-0.187	-0.165	-0.382	-0.328	-0.380	-0.196	-0.531	-0.430	-0.455	-0.293	-0.532	-0.430	-0.458	-0.293	0.642	0.525	0.615	0.272	0.642	0.520	0.616	0.274
EA_HHIMTE	-0.083	-0.198	0.007	-0.185	-0.033	-0.070	0.015	-0.080	-0.154	-0.197	-0.088	-0.167	-0.146	-0.225	-0.046	-0.219	-0.146	-0.224	-0.049	-0.217	0.127	0.256	0.121	0.268	0.123	0.246	0.123	0.268

	NUMST	NUMCO	NUMPL.	MSDIST	ENT	ENTD2	MSENT	MSENTD2	WDALL	WD100
EA_GOVALL	-0.027	0.027	0.307	-0.159	-0.172	0.176	-0.157	0.242	0.076	0.1
EA_GOVG	-0.010	0.110	0.341	-0.263	-0.292	0.315	-0.270	0.343	-0.086	-0.0
EA_GOVS	-0.037	-0.054	0.225	-0.037	-0.034	0.020	-0.028	0.109	0.210	0.3
EA_GOVM	0.009	0.188	0.450	-0.315	-0.341	0.321	-0.319	0.406	0.011	0.0
EA_PCGOVALL	-0.038	-0.160	-0.237	0.023	0.053	0.030	0.060	-0.117	-0.129	-0.0
EA_PCGOVG	-0.056	-0.092	-0.131	-0.079	-0.061	0.149	-0.055	-0.008	-0.237	-0.1
EA_PCGOVS	-0.006	-0.206	-0.313	0.147	0.184	-0.128	0.192	-0.226	0.040	0.0
EA_PCGOVM	0.060	0.015	-0.077	-0.179	-0.161	0.223	-0.134	0.089	-0.173	-0.1
EA_PAGOVALL	0.096	0.262	0.715	-0.472	-0.532	0.498	-0.482	0.723	0.015	0.0
EA_PAGOVG	0.083	0.306	0.686	-0.509	-0.578	0.590	-0.525	0.771	-0.162	-0.1
EA_PAGOVS	0.094	0.177	0.635	-0.361	-0.403	0.328	-0.363	0.563	0.193	0.2
EA_PAGOVM	0.206	0.464	0.898	-0.645	-0.720	0.665	-0.663	0.918	-0.055	-0.0
EA_PDIALLTR	-0.102	0.003	0.293	-0.156	-0.174	0.198	-0.152	0.281	0.040	0.3
EA_PDIGTR	-0.038	0.143	0.345	-0.271	-0.307	0.352	-0.280	0.396	-0.119	-0.1
EA_PDISTR	-0.105	-0.082	0.231	-0.056	-0.057	0.058	-0.045	0.161	0.144	0.2
EA_PDIMTR	-0.056	0.169	0.461	-0.351	-0.370	0.391	-0.339	0.463	0.014	0.0
EA_PDIALLTE	-0.102	0.007	0.299	-0.158	-0.176	0.199	-0.154	0.284	0.041	0.3
EA_PDIGTE	-0.038	0.146	0.348	-0.271	-0.307	0.350	-0.279	0.397	-0.116	-0.1
EA_PDISTE	-0.105	-0.077	0.238	-0.062	-0.064	0.064	-0.051	0.167	0.142	0.3
EA_PDIMTE	-0.058	0.176	0.468	-0.354	-0.374	0.394	-0.342	0.466	0.010	0.0
EA_HHIALLTR	0.102	0.003	-0.091	0.115	0.111	-0.130	0.086	-0.162	0.009	-0.3
EA_HHIGTR	-0.083	-0.182	-0.108	0.194	0.197	-0.268	0.175	-0.235	0.132	0.0
EA_HHISTR	0.157	0.081	-0.138	0.090	0.082	-0.052	0.061	-0.129	-0.039	-0.2
EA_HHIMTR	-0.033	-0.104	-0.172	0.150	0.173	-0.215	0.152	-0.221	-0.045	-0.1
EA_HHIALLTE	0.096	-0.002	-0.102	0.118	0.117	-0.130	0.091	-0.165	0.003	-0.3
EA_HHIGTE	-0.088	-0.191	-0.108	0.200	0.203	-0.268	0.183	-0.231	0.130	0.0
EA_HHISTE	0.148	0.070	-0.150	0.104	0.094	-0.067	0.072	-0.142	-0.035	-0.2
A_HHIMTE	-0.029	-0.114	-0.185	0.163	0.186	-0.218	0.167	-0.223	-0.044	-0.1

Figure 3. Correlation Values (Cont.)





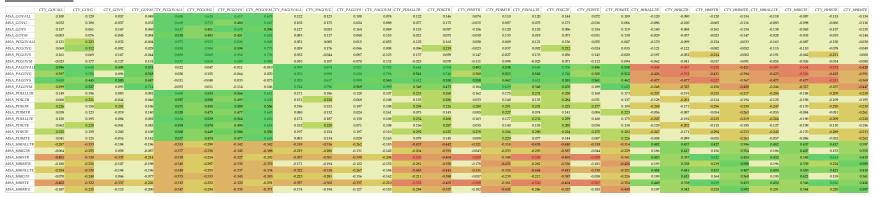
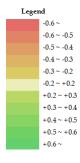


Figure 3. Correlation Values (Cont.)



	NUMST	NUMCO	NUMPL	MSDIST	ENT	ENTD2	MSENT	MSENTD2	WDALL	WD100+
MSA_GOVALL	0.023	-0.003	-0.022	0.031	0.047	0.071	0.055	-0.029	-0.078	-0.078
MSA_GOVG	0.022	0.040	-0.017	-0.031	-0.018	0.129	-0.004	0.025	-0.142	-0.134
MSA_GOVS	0.020	-0.046	-0.024	0.089	0.108	0.002	0.108	-0.081	-0.002	-0.011
MSA_GOVM	0.031	0.081	0.054	-0.058	-0.044	0.123	-0.033	0.054	-0.117	-0.129
MSA_PCGOVALL	0.056	-0.116	-0.171	0.099	0.120	0.042	0.154	-0.061	-0.064	-0.066
MSA_PCGOVG	0.054	-0.037	-0.102	-0.012	0.000	0.114	0.031	0.026	-0.158	-0.143
MSA_PCGOVS	0.048	-0.191	-0.223	0.218	0.246	-0.055	0.275	-0.156	0.066	0.043
MSA_PCGOVM	0.088	0.001	-0.018	-0.085	-0.072	0.149	-0.025	0.155	-0.132	-0.184
MSA_PAGOVALI	0.158	0.154	0.518	-0.361	-0.420	0.241	-0.370	0.629	0.079	0.108
MSA_PAGOVG	0.164	0.223	0.506	-0.410	-0.478	0.339	-0.412	0.712	-0.090	-0.083
MSA_PAGOVS	0.125	0.072	0.435	-0.257	-0.299	0.119	-0.270	0.449	0.201	0.241
MSA_PAGOVM	0.110	0.274	0.755	-0.515	-0.589	0.282	-0.537	0.823	-0.034	-0.091
MSA_PDIALLTR	0.040	-0.011	-0.001	0.059	0.072	0.061	0.079	-0.021	-0.083	-0.063
MSA_PDIGTR	0.078	0.056	-0.006	0.010	0.019	0.115	0.030	0.016	-0.154	-0.141
MSA_PDISTR	0.017	-0.061	0.008	0.096	0.114	0.009	0.113	-0.055	-0.024	0.008
MSA_PDIMTR	0.023	0.048	0.074	-0.038	-0.019	0.118	-0.011	0.053	-0.110	-0.135
MSA_PDIALLTE	0.039	-0.010	0.002	0.058	0.071	0.061	0.078	-0.020	-0.083	-0.063
MSA_PDIGTE	0.078	0.057	-0.006	0.011	0.020	0.114	0.031	0.016	-0.153	-0.140
MSA_PDISTE	0.017	-0.058	0.012	0.093	0.110	0.010	0.109	-0.051	-0.025	0.004
MSA_PDIMTE	0.021	0.049	0.076	-0.038	-0.019	0.118	-0.011	0.055	-0.110	-0.134
MSA_HHIALLTR	-0.093	0.021	-0.118	-0.047	-0.036	-0.039	-0.057	-0.074	-0.007	-0.068
MSA_HHIGTR	-0.194	-0.089	-0.079	-0.023	-0.023	-0.097	-0.029	-0.055	0.103	0.108
MSA_HHISTR	-0.052	0.030	-0.131	-0.036	-0.036	0.006	-0.057	-0.099	-0.070	-0.116
MSA_HHIMTR	-0.098	0.022	-0.124	-0.046	-0.046	-0.045	-0.062	-0.044	0.033	0.063
MSA_HHIALLTE	-0.083	0.030	-0.121	-0.050	-0.040	-0.042	-0.059	-0.073	-0.008	-0.069
MSA_HHIGTE	-0.193	-0.084	-0.074	-0.031	-0.033	-0.097	-0.039	-0.050	0.112	0.106
MSA_HHISTE	-0.037	0.036	-0.141	-0.027	-0.027	-0.002	-0.048	-0.107	-0.083	-0.119
MSA_HHIMTE	-0.089	0.023	-0.126	-0.049	-0.048	-0.046	-0.064	-0.043	0.030	0.05

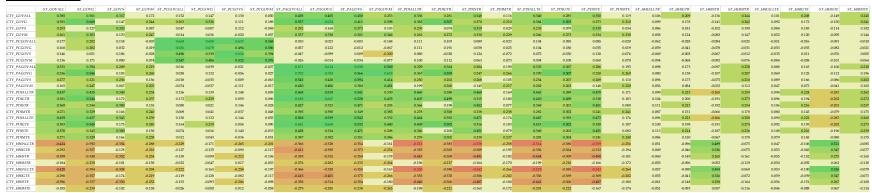
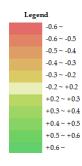


Figure 3. Correlation Values (Cont.)



	EA_GOVALL	EA_GOVG	EA_GOVS	EA_GOVM EA	_PCGOVALL	EA_PCGOVG	EA_PCGOVS	EA_PCGOVM E	EA_PAGOVALL	EA_PAGOVG	EA_PAGOVS	EA_PAGOVM I	EA_PDIALLTR	EA_PDIGTR	EA_PDISTR	EA_PDIMTR	EA_PDIALLTE	EA_PDIGTE	EA_PDISTE	EA_PDIMTE E	A_HHIALLTR	EA_HHIGTR	EA_HHISTR	EA_HHIMTR	EA_HHIALLTE	EA_HHIGTE	EA_HHISTE	EA_HHIMTE
CTY_GOVALL	0.384	0.303	0.393	0.218	0.130	0.138	0.089	0.043	0.495	0.415	0.500	0.294	0.383	0.313	0.407	0.226	0.384	0.314	0.407	0.228	-0.084	0.000	-0.263	-0.031	-0.095	-0.002	-0.261	-0.031
CTY_GOVG	0.411	0.481	0.263	0.292	0.248	0.347	0.064	0.191	0.571	0.637	0.428	0.427	0.431	0.484	0.346	0.320	0.430	0.480	0.348	0.320	-0.144	-0.110	-0.256	-0.109	-0.152	-0.107	-0.254	-0.105
CTY_GOVS	0.279	0.121	0.386	0.122	0.025	-0.026	0.085	-0.061	0.334	0.180	0.432	0.143	0.266	0.133	0.353	0.114	0.268	0.138	0.352	0.118	-0.027	0.070	-0.207	0.025	-0.037	0.066	-0.206	0.022
CTY_GOVM	0.274	0.253	0.244	0.280	-0.006	0.030	-0.052	0.039	0.391	0.371	0.354	0.407	0.281	0.258	0.269	0.291	0.283	0.259	0.272	0.293	-0.059	-0.014	-0.150	-0.066	-0.066	-0.013	-0.156	-0.068
CTY_PCGOVALL	0.104	0.139	0.049	-0.003	0.675	0.591	0.627	0.577	-0.040	-0.009	-0.063	-0.173	0.101	0.097	0.068	0.027	0.097	0.091	0.067	0.023	-0.159	-0.104	-0.116	-0.072	-0.152	-0.091	-0.109	-0.058
CTY_PCGOVG	0.141	0.229	0.026	0.053	0.632	0.661	0.448	0.559	0.021	0.100	-0.056	-0.085	0.133	0.185	0.057	0.087	0.128	0.176	0.057	0.084	-0.147	-0.121	-0.100	-0.090	-0.141	-0.110	-0.094	-0.079
CTY_PCGOVS	0.032	-0.004	0.062	-0.067	0.534	0.342	0.657	0.436	-0.100	-0.134	-0.054	-0.227	0.036	-0.032	0.060	-0.051	0.034	-0.034	0.059	-0.055	-0.128	-0.055	-0.102	-0.032	-0.122	-0.044	-0.097	-0.018
CTY_PCGOVM	0.099	0.144	0.034	0.088	0.594	0.524	0.545	0.623	-0.056	-0.020	-0.082	-0.089	0.112	0.123	0.061	0.124	0.109	0.119	0.061	0.123	-0.166	-0.115	-0.104	-0.117	-0.160	-0.105	-0.100	-0.110
CTY_PAGOVALL	0.461	0.396	0.440	0.335	-0.026	0.015	-0.072	-0.050	0.695	0.628	0.661	0.564	0.435	0.406	0.449	0.281	0.437	0.410	0.449	0.287	0.011	0.029	-0.241	0.032	-0.006	0.018	-0.240	0.023
CTY_PAGOVG	0.451	0.492	0.323	0.361	0.028	0.122	-0.100	0.020	0.713	0.759	0.568	0.632	0.444	0.490	0.390	0.334	0.445	0.490	0.391	0.338	-0.036	-0.046	-0.230	-0.028	-0.052	-0.053	-0.229	-0.033
CTY_PAGOVS	0.399	0.264	0.459	0.264	-0.062	-0.067	-0.041	-0.095	0.577	0.435	0.629	0.428	0.362	0.283	0.425	0.198	0.365	0.289	0.423	0.206	0.045	0.080	-0.212	0.072	0.029	0.068	-0.211	0.061
CTY_PAGOVM	0.287	0.273	0.247	0.302	-0.102	-0.053	-0.143	-0.044	0.465	0.452	0.411	0.517	0.268	0.270	0.263	0.257	0.270	0.273	0.265	0.262	0.036	0.022	-0.112	0.012	0.024	0.014	-0.118	0.005
CTY_PDIALLTR	0.459	0.383	0.448	0.293	0.133	0.136	0.099	0.060	0.581	0.518	0.557	0.356	0.514	0.434	0.531	0.306	0.513	0.434	0.529	0.308	-0.159	-0.038	-0.397	-0.083	-0.170	-0.038	-0.388	-0.081
CTY_PDIGTR	0.443	0.469	0.334	0.309	0.152	0.237	0.009	0.105	0.630	0.659	0.513	0.450	0.490	0.523	0.430	0.327	0.489	0.522	0.428	0.329	-0.133	-0.094	-0.316	-0.109	-0.145	-0.097	-0.306	-0.108
CTY_PDISTR	0.385	0.241	0.457	0.218	0.056	0.007	0.105	-0.034	0.453	0.326	0.509	0.233	0.418	0.275	0.500	0.204	0.418	0.278	0.497	0.206	-0.083	0.024	-0.328	-0.011	-0.095	0.022	-0.322	-0.009
CTY_PDIMTR	0.320	0.300	0.280	0.311	-0.007	0.038	-0.063	0.038	0.438	0.420	0.391	0.429	0.329	0.312	0.314	0.326	0.331	0.314	0.317	0.328	-0.063	-0.032	-0.166	-0.080	-0.071	-0.035	-0.171	-0.082
CTY_PDIALLTE	0.458	0.382	0.448	0.295	0.128	0.131	0.095	0.056	0.581	0.518	0.559	0.359	0.514	0.434	0.531	0.308	0.514	0.434	0.529	0.310	-0.160	-0.038	-0.399	-0.084	-0.171	-0.039	-0.390	-0.082
CTY_PDIGTE	0.444	0.467	0.337	0.311	0.145	0.227	0.005	0.099	0.634	0.659	0.519	0.454	0.491	0.524	0.432	0.329	0.491	0.523	0.431	0.331	-0.132	-0.093	-0.317	-0.110	-0.144	-0.097	-0.308	-0.110
CTY_PDISTE	0.383	0.240	0.455	0.218	0.052	0.004	0.101	-0.037	0.453	0.326	0.508	0.235	0.416	0.274	0.498	0.203	0.416	0.276	0.496	0.205	-0.081	0.023	-0.326	-0.011	-0.092	0.022	-0.320	-0.009
CTY_PDIMTE	0.321	0.300	0.281	0.311	-0.004	0.041	-0.061	0.040	0.440	0.422	0.394	0.431	0.331	0.314	0.316	0.327	0.333	0.316	0.319	0.330	-0.063	-0.034	-0.167	-0.081	-0.071	-0.037	-0.173	-0.084
CTY_HHIALLTR	-0.358	-0.304	-0.344	-0.261	-0.220	-0.180	-0.220	-0.205	-0.359	-0.324	-0.341	-0.191	-0.460	-0.359	-0.466	-0.311	-0.457	-0.356	-0.464	-0.309	0.293	0.051	0.526	0.146	0.295	0.045	0.508	0.141
CTY_HHIGTR	-0.330	-0.320	-0.278	-0.255	-0.110	-0.143	-0.042	-0.122	-0.409	-0.404	-0.356	-0.290	-0.396	-0.386	-0.365	-0.289	-0.395	-0.385	-0.363	-0.290	0.171	0.072	0.355	0.136	0.178	0.074	0.340	0.139
CTY_HHISTR	-0.348	-0.273	-0.357	-0.247	-0.155	-0.110	-0.178	-0.115	-0.365	-0.309	-0.365	-0.194	-0.422	-0.314	-0.455	-0.254	-0.420	-0.313	-0.453	-0.252	0.186	0.056	0.397	0.087	0.190	0.052	0.387	0.080
CTY_HHIMTR	-0.227	-0.222	-0.189	-0.220	-0.012	-0.047	0.036	-0.048	-0.310	-0.306	-0.269	-0.300	-0.240	-0.231	-0.223	-0.243	-0.241	-0.232	-0.225	-0.245	0.067	0.045	0.129	0.083	0.072	0.048	0.132	0.084
CTY_HHIALLTE	-0.358	-0.304	-0.344	-0.263	-0.213	-0.175	-0.214	-0.200	-0.361	-0.326	-0.344	-0.194	-0.461	-0.361	-0.467	-0.315	-0.458	-0.358	-0.465	-0.312	0.293	0.049	0.529	0.146	0.296	0.043	0.511	0.142
CTY_HHIGTE	-0.332	-0.321	-0.280	-0.258	-0.099	-0.133	-0.033	-0.114	-0.416	-0.409	-0.363	-0.300	-0.397	-0.388	-0.366	-0.294	-0.396	-0.388	-0.364	-0.295	0.167	0.069	0.357	0.136	0.175	0.071	0.344	0.139
CTY_HHISTE	-0.344	-0.269	-0.354	-0.243	-0.151	-0.106	-0.173	-0.110	-0.363	-0.308	-0.364	-0.195	-0.416	-0.310	-0.449	-0.250	-0.414	-0.309	-0.448	-0.248	0.183	0.056	0.392	0.086	0.187	0.053	0.384	0.080
CTY_HHIMTE	-0.229	-0.222	-0.192	-0.222	-0.016	-0.050	0.032	-0.053	-0.314	-0.310	-0.273	-0.304	-0.243	-0.235	-0.226	-0.248	-0.244	-0.236	-0.228	-0.250	0.070	0.049	0.133	0.088	0.076	0.052	0.136	0.089

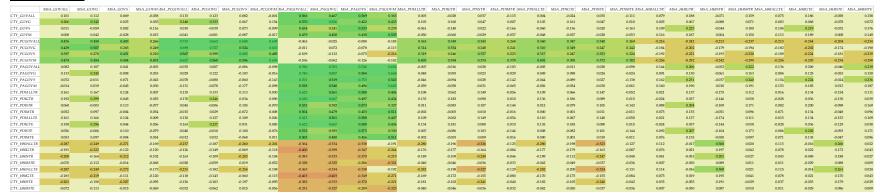
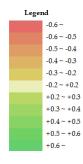


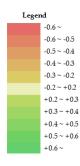
Figure 3. Correlation Values (Cont.)





	NUMST	NUMCO	NUMPL	MSDIST	ENT	ENTD2	MSENT	MSENTD2	WDALL	WD100
CTY_GOVALL	-0.043	-0.217	0.321	-0.068	-0.099	-0.011	-0.088	0.206	0.160	0.22
CTY_GOVG	-0.047	-0.171	0.325	-0.195	-0.234	0.097	-0.193	0.346	0.045	0.08
CTY_GOVS	-0.031	-0.197	0.245	0.028	0.010	-0.076	-0.001	0.071	0.197	0.26
CTY_GOVM	-0.022	-0.123	0.552	-0.233	-0.277	0.001	-0.262	0.370	0.096	0.13
CTY_PCGOVALL	-0.010	-0.127	-0.157	0.117	0.131	-0.006	0.142	-0.156	-0.016	-0.0
CTY_PCGOVG	-0.016	-0.084	-0.110	0.009	0.023	0.060	0.046	-0.063	-0.058	-0.0
CTY_PCGOVS	-0.001	-0.141	-0.168	0.211	0.221	-0.080	0.213	-0.222	0.036	0.0
CTY_PCGOVM	0.035	-0.059	-0.114	-0.012	-0.002	0.070	0.043	-0.017	-0.047	-0.0
CTY_PAGOVALL	0.061	0.099	0.597	-0.296	-0.344	0.028	-0.350	0.406	0.091	0.1
CTY_PAGOVG	0.038	0.094	0.551	-0.336	-0.387	0.091	-0.363	0.484	0.012	0.0
CTY_PAGOVS	0.069	0.087	0.541	-0.221	-0.259	-0.023	-0.287	0.286	0.137	0.1
CTY_PAGOVM	0.081	0.139	0.699	-0.313	-0.369	-0.018	-0.378	0.412	0.027	0.0
CTY_PDIALLTR	-0.065	-0.272	0.311	-0.074	-0.112	-0.008	-0.089	0.255	0.172	0.2
CTY_PDIGTR	-0.036	-0.176	0.291	-0.190	-0.233	0.092	-0.184	0.361	0.061	0.0
CTY_PDISTR	-0.047	-0.271	0.291	0.006	-0.021	-0.082	-0.029	0.138	0.209	0.2
CTY_PDIMTR	-0.020	-0.155	0.455	-0.244	-0.279	0.047	-0.229	0.416	0.094	0.3
CTY_PDIALLTE	-0.067	-0.271	0.312	-0.075	-0.114	-0.006	-0.091	0.257	0.171	0.3
CTY_PDIGTE	-0.038	-0.175	0.290	-0.190	-0.233	0.095	-0.183	0.363	0.061	0.3
CTY_PDISTE	-0.045	-0.269	0.294	0.002	-0.025	-0.080	-0.034	0.141	0.208	0.2
CTY_PDIMTE	-0.020	-0.154	0.453	-0.243	-0.278	0.047	-0.227	0.416	0.095	0.1
CTY_HHIALLTR	0.130	0.312	-0.114	0.004	0.043	0.006	-0.001	-0.159	-0.185	-0.2
CTY_HHIGTR	0.064	0.161	-0.147	0.156	0.194	-0.072	0.134	-0.277	-0.118	-0.1
CTY_HHISTR	0.075	0.280	-0.158	0.019	0.053	0.024	0.034	-0.161	-0.183	-0.2
CTY_HHIMTR	0.004	0.134	-0.208	0.185	0.195	-0.090	0.124	-0.324	-0.064	-0.0
CTY_HHIALLTE	0.133	0.308	-0.114	0.006	0.045	0.004	0.000	-0.161	-0.181	-0.2
CTY_HHIGTE	0.068	0.160	-0.146	0.158	0.195	-0.085	0.133	-0.285	-0.115	-0.3
TY_HHISTE	0.072	0.277	-0.162	0.024	0.058	0.023	0.039	-0.163	-0.182	-0.3
TY_HHIMTE	0.002	0.132	-0.210	0.184	0.196	-0.090	0.124	-0.327	-0.064	-0.1

Figure 3. Correlation Values (Cont.)



	ST_GOVALL	ST_GOVG	ST_GOVS	ST_GOVM ST	r_PCGOVALL	ST_PCGOVG	ST_PCGOVS	ST_PCGOVM ST	_PAGOVALL	ST_PAGOVG	ST_PAGOVS	ST_PAGOVM	ST_PDIALLTR	ST_PDIGTR	ST_PDISTR	ST_PDIMTR	ST_PDIAILTE	ST_PDIGTE	ST_PDISTE	ST_PDIMTE	ST_HHIALLTR	ST_HHIGTR	ST_HHISTR	ST_HHIMTR	ST_HHIALLTE	ST_HHIGTE	ST_HHISTE	ST_HHIMTE
NUMST	-0.045	-0.024	-0.047	-0.031	0.004	0.002	0.005	0.016	0.020	0.013	0.023	0.023	-0.051	-0.027	-0.057	-0.036	-0.051	-0.027	-0.057	-0.035	0.012	0.003	0.046	0.013	0.013	0.003	0.049	0.012
NUMCO	0.060	0.114	0.004	0.136	-0.017	0.011	-0.049	0.040	0.124	0.135	0.094	0.185	0.085	0.152	0.025	0.140	0.086	0.152	0.025	0.140	-0.054	-0.077	-0.050	-0.044	-0.061	-0.085	-0.042	-0.048
NUMPI.	0.160	0.220	0.073	0.229	-0.070	-0.019	-0.119	-0.002	0.280	0.273	0.245	0.335	0.182	0.241	0.116	0.228	0.185	0.242	0.119	0.230	-0.019	-0.020	-0.067	0.019	-0.031	-0.033	-0.067	0.008
MSDIST	-0.232	-0.354	-0.081	-0.360	-0.064	-0.117	0.023	-0.189	-0.348	-0.366	-0.275	-0.448	-0.310	-0.422	-0.182	-0.397	-0.310	-0.422	-0.184	-0.395	0.169	0.206	0.308	0.044	0.194	0.229	0.298	0.048
ENT	-0.185	-0.298	-0.053	-0.299	-0.030	-0.082	0.046	-0.133	-0.295	-0.316	-0.229	-0.380	-0.241	-0.345	-0.131	-0.313	-0.242	-0.344	-0.133	-0.312	0.102	0.129	0.193	0.027	0.120	0.146	0.185	0.033
ENTD2	0.069	0.132	0.005	0.117	0.013	0.044	-0.032	0.061	0.129	0.146	0.092	0.170	0.089	0.143	0.038	0.125	0.089	0.144	0.038	0.126	-0.021	-0.032	-0.053	0.002	-0.028	-0.040	-0.051	-0.002
MSENT	-0.183	-0.289	-0.056	-0.295	-0.037	-0.085	0.036	-0.132	-0.288	-0.306	-0.225	-0.370	-0.246	-0.343	-0.139	-0.311	-0.246	-0.342	-0.141	-0.309	0.113	0.143	0.210	0.035	0.131	0.160	0.201	0.039
MSENTD2	0.247	0.416	0.057	0.396	-0.061	0.030	-0.165	0.088	0.477	0.503	0.376	0.601	0.299	0.448	0.151	0.408	0.303	0.451	0.155	0.411	-0.045	-0.057	-0.120	0.031	-0.065	-0.081	-0.118	0.015
WDALL	0.008	-0.163	0.129	-0.076	-0.113	-0.179	0.003	-0.158	-0.115	-0.194	-0.015	-0.179	-0.030	-0.163	0.045	-0.055	-0.030	-0.165	0.046	-0.061	-0.106	-0.051	0.049	-0.113	-0.093	-0.032	0.037	-0.102
WD100+	0.051	-0.101	0.146	-0.052	-0.076	-0.138	0.027	-0.120	-0.031	-0.113	0.059	-0.115	0.044	-0.079	0.116	-0.021	0.046	-0.079	0.117	-0.025	-0.114	-0.078	-0.104	-0.087	-0.109	-0.066	-0.106	-0.069

Sub-matrix 16

	EA GOVALL	EA GOVG	EA GOVS	EA COVM EA	BCCOVALI	EA BCCOVC	EA BCCOVS	EA BCCOVM I	A PACOVALI	EA PACOVC	EA PACOVS	EA_PAGOVM	EA POMALLTP	EA PROCTE	EA PRINTE	EA DOBATE	EA POTATITE	EA POICTE	EA PRICTE	EA_PDIMTE	EA USUIALITE	EA HHIGTR	EA HHISTR	EA WURATTE	EA MUTATITE	EA MUNCTE	EA MURETE	EA HHIMTE
NIIMST	0.005	0.000	0.000	EA_GOVM EA	1_PCGOVALL	EA_PCGOVG	21_100073	EA_PCGOVM I	A_PAGOVALL	EA_PAGOVG	EA_FAGOVS	EA_FAGOVM	EA_PDIALLIK	EA_FDIGTR	EA_PDISTR	EA_PDIMITE .	O O O	EA_FINGTE	EA_FDISTE	EA_PDIMIE	EA_HHIALLIK	0.003	EA_HHISTK	EA_HHIMIK	EA_HHALLIE	EA_HHIGTE	EA_HHISTE	EA_HHIMITE
	0.005	0.009	0.000	0.008	-0.001	-0.003	0.002	0.011	0.021	0.020	0.020	0.050	-0.011	0.002	-0.014	-0.010	-0.011	0.002	40.015	-0.010	0.027	0.003	0,033	0.011	0,025	uous	0.033	0.011
NUMCO	0.069	0.096	0.026	0.116	-0.028	0.007	-0.063	0.033	0.139	0.149	0.108	0.192	0.073	0.116	0.032	0.106	0.073	0.116	0.034	0.107	-0.034	-0.065	-0.037	-0.028	-0.037	-0.069	-0.040	-0.034
NUMPI.	0.199	0.203	0.147	0.250	-0.094	-0.028	-0.151	-0.020	0.324	0.311	0.287	0.380	0.195	0.215	0.161	0.231	0.197	0.217	0.163	0.234	-0.023	-0.036	-0.079	-0.040	-0.031	-0.043	-0.084	-0.050
MSDIST	-0.229	-0.277	-0.127	-0.312	-0.042	-0.123	0.071	-0.187	-0.376	-0.391	-0.305	-0.460	-0.253	-0.315	-0.170	-0.330	-0.254	-0.313	-0.175	-0.331	0.165	0.178	0.216	0.093	0.170	0.182	0.224	0.103
ENT	-0.188	-0.236	-0.095	-0.262	-0.015	-0.088	0.081	-0.134	-0.320	-0.340	-0.253	-0.395	-0.206	-0.266	-0.130	-0.267	-0.206	-0.265	-0.134	-0.268	0.109	0.129	0.142	0.081	0.114	0.134	0.147	0.092
ENTD2	0.075	0.106	0.026	0.108	0.011	0.053	-0.043	0.064	0.142	0.160	0.102	0.176	0.084	0.120	0.043	0.117	0.085	0.119	0.045	0.118	-0.049	-0.064	-0.048	-0.049	-0.051	-0.066	-0.051	-0.052
MSENT	-0.188	-0.231	-0.100	-0.258	-0.020	-0.090	0.074	-0.132	-0.314	-0.330	-0.251	-0.385	-0.208	-0.263	-0.136	-0.263	-0.208	-0.262	-0.140	-0.264	0.113	0.132	0.149	0.079	0.118	0.137	0.155	0.089
MSENTD2	0.261	0.328	0.131	0.376	-0.083	0.034	-0.205	0.076	0.522	0.550	0.415	0.642	0.287	0.372	0.181	0.381	0.290	0.373	0.186	0.385	-0.111	-0.145	-0.136	-0.124	-0.119	-0.152	-0.144	-0.135
WDALL	-0.008	-0.114	0.101	-0.060	-0.123	-0.193	-0.001	-0.173	-0.078	-0.171	0.026	-0.124	-0.024	-0.124	0.051	-0.048	-0.024	-0.122	0.048	-0.050	0.006	0.060	0.004	-0.012	0.007	0.062	0.007	-0.007
IVI2100+	0.086	-0.039	0.191	0.006	-0.081	-0.132	0.006	-0.142	0.025	-0.083	0.128	-0.058	0.103	-0.011	0.177	0.036	0.103	-0.009	0.176	0.035	-0.091	-0.041	-0.155	-0.068	-0.096	-0.041	-0.155	-0.060

Sub-matrix 17

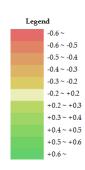
	MSA_GOVALL	MSA_GOVG	MSA_GOVS	MSA_GOVM 4SA	A_PCGOVALL N	MSA_PCGOVG	MSA_PCGOVS	MSA_PCGOVM IS	A_PAGOVALL .	MSA_PAGOVG	MSA_PAGOVS	MSA_PAGOVM N	MSA_PDIALLTR	MSA_PDIGTR	MSA_PDISTR	MSA_PDIMTR N	ASA_PDIALLTE	MSA_PDIGTE	MSA_PDISTE	MSA_PDIMTE MS	SA_HHIALLTR	MSA_HHIGTR	MSA_HHISTR	MSA_HHIMTR	MSA_HHIALLTE	MSA_HHIGTE	MSA_HHISTE M:	.SA_HHIMTE
NUMST	-0.007	-0.005	-0.008	0.002	0.003	0.001	0.004	0.015	0.019	0.017	0.018	0.023	-0.012	-0.003	-0.016	-0.005	-0.012	-0.003	-0.016	-0.005	-0.004	-0.022	0.013	-0.010	-0.004	-0.022	0.013	-0.009
NUMCO	0.071	0.088	0.034	0.123	-0.016	0.017	-0.058	0.036	0.118	0.134	0.087	0.157	0.067	0.100	0.035	0.101	0.068	0.100	0.037	0.102	-0.020	-0.041	-0.002	-0.024	-0.017	-0.038	-0.008	-0.021
NUMPL	-0.009	0.035	-0.055	0.058	-0.119	-0.047	-0.186	-0.069	0.390	0.359	0.357	0.458	-0.040	-0.010	-0.054	-0.004	-0.038	-0.009	-0.051	-0.002	0.100	0.112	0.043	0.114	0.099	0.114	0.040	0.115
MSDIST	-0.187	-0.245	-0.077	-0.274	-0.040	-0.123	0.084	-0.156	-0.350	-0.373	-0.276	-0.406	-0.164	-0.223	-0.100	-0.233	-0.165	-0.222	-0.104	-0.233	0.026	0.032	0.050	0.043	0.022	0.026	0.059	0.034
ENT	-0.140	-0.196	-0.043	-0.217	-0.007	-0.084	0.101	-0.099	-0.305	-0.327	-0.240	-0.356	-0.115	-0.170	-0.058	-0.169	-0.115	-0.169	-0.061	-0.170	-0.009	-0.002	0.005	0.003	-0.013	-0.007	0.012	-0.002
ENTD2	0.080	0.113	0.024	0.116	0.020	0.057	-0.036	0.067	0.109	0.135	0.070	0.127	0.071	0.103	0.036	0.098	0.072	0.103	0.038	0.099	-0.021	-0.030	-0.014	-0.032	-0.020	-0.029	-0.017	-0.030
MSENT	-0.133	-0.184	-0.044	-0.208	-0.007	-0.082	0.099	-0.092	-0.306	-0.322	-0.246	-0.356	-0.113	-0.164	-0.062	-0.163	-0.114	-0.163	-0.065	-0.164	-0.014	-0.006	0.004	-0.001	-0.017	-0.011	0.011	-0.007
MSENTD2	0.110	0.209	-0.026	0.234	-0.084	0.032	-0.221	0.046	0.499	0.534	0.392	0.588	0.067	0.149	-0.009	0.143	0.069	0.152	-0.005	0.147	0.054	0.054	0.025	0.061	0.058	0.060	0.021	0.066
WDALL	-0.119	-0.208	0.009	-0.163	-0.121	-0.197	0.016	-0.171	-0.057	-0.161	0.043	-0.101	-0.138	-0.220	-0.055	-0.173	-0.138	-0.219	-0.057	-0.176	0.068	0.121	0.041	0.082	0.066	0.121	0.047	0.078
IVI2100+	-0.115	-0.174	-0.021	-0.164	-0.106	-0.160	-0.005	-0.158	0.042	-0.072	0.135	-0.026	-0.134	-0.201	-0.064	-0.187	-0.133	-0.199	-0.064	-0.187	0.081	0.160	0.010	0.132	0.079	0.159	0.014	0.130

Sub-matrix 18

	CTY_GOVALL	CTY_GOVG	CTY_GOVS	CTY_GOVM C	TY_PCGOVALL	CTY_PCGOVG	CTY_PCGOVS	CTY_PCGOVM	TY_PAGOVALL	CTY_PAGOVG	CTY_PAGOVS	CTY_PAGOVM C	TY_PDIALLTR	CTY_PDIGTR	CTY_PDISTR	CTY_PDIMTR (CTY_PDIALLTE	CTY_PDIGTE	CTY_PDISTE	CTY_PDIMTE CTY_HHI	ALLTR CTY_HHIG	R CTY_HHISTI	CTY_HHIMTR	CTY_HHIALLTE	CTY_HHIGTE	CTY_HHISTE C	CTY_HHIMTE
NUMST	-0.035	-0.021	-0.033	-0.018	0.009	0.001	0.015	0.023	0.015	0.014	0.014	0.021	-0.038	-0.014	-0.040	-0.020	-0.039	-0.015	-0.041	-0.020	0.049 0.0	18 0.04	0.011	0.049	0.019	0.041	0.011
NUMCO	-0.086	-0.005	-0.107	-0.014	-0.019	0.013	-0.048	0.025	0.123	0.139	0.090	0.133	-0.093	-0.002	-0.120	-0.025	-0.093	-0.004	-0.118	-0.025	0.108 0.0	0.09	0.018	0.105	0.003	0.089	0.019
NUMPL	0.223	0.279	0.138	0.436	-0.122	-0.053	-0.159	-0.063	0.499	0.465	0.441	0.587	0.216	0.265	0.146	0.350	0.216	0.264	0.149	0.348	-0.087 -0.3	72 -0.09	-0.188	-0.089	-0.174	-0.100	-0.188
MSDIST	-0.055	-0.215	0.044	-0.234	0.024	-0.080	0.133	-0.111	-0.354	-0.379	-0.274	-0.352	-0.073	-0.221	0.025	-0.231	-0.072	-0.216	0.020	-0.227	0.026 0.3	22 0.02	0.197	0.027	0.225	0.034	0.191
ENT	-0.049	-0.195	0.041	-0.204	0.031	-0.057	0.120	-0.071	-0.314	-0.339	-0.240	-0.318	-0.065	-0.200	0.025	-0.190	-0.065	-0.195	0.021	-0.187	0.026 0.3	81 0.02	0.149	0.026	0.181	0.030	0.144
ENTD2	-0.002	0.080	-0.044	0.046	-0.009	0.036	-0.057	0.041	0.099	0.131	0.058	0.089	0.011	0.083	-0.034	0.064	0.011	0.083	-0.033	0.063	0.003 40.0	61 0.00	-0.071	0.001	-0.064	0.001	-0.070
MSENT	-0.052	-0.192	0.035	-0.206	0.026	-0.061	0.116	-0.070	-0.319	-0.335	-0.252	-0.322	-0.063	-0.192	0.022	-0.180	-0.063	-0.187	0.018	-0.177	0.017 0.3	73 0.02	0.130	0.017	0.172	0.027	0.126
MSENTD2	0.115	0.317	-0.020	0.333	-0.132	-0.009	-0.226	0.009	0.494	0.554	0.363	0.520	0.162	0.339	0.023	0.351	0.163	0.337	0.027	0.348	-0.084 -0.3	-0.08	-0.275	-0.088	-0.259	-0.092	-0.274
WDALL	0.179	-0.032	0.245	0.078	-0.108	-0.143	-0.032	-0.186	0.001	-0.109	0.089	-0.048	0.174	-0.019	0.244	0.063	0.174	-0.015	0.242	0.068	-0.185 -0.0	61 -0.18	-0.034	-0.187	-0.067	-0.184	-0.045
IVD100+	0.315	0.083	0.357	0.182	-0.142	-0.157	-0.078	-0.202	0.088	-0.039	0.174	0.013	0.324	0.111	0.381	0.162	0.327	0.115	0.381	0.164	-0.257 -0.3	44 -0.26	-0.082	-0.260	-0.151	-0.267	-0.089

	NUMST	NUMCO	NUMPI.	MSDIST	ENT	ENTD2	MSENT	MSENTD2	WDALL	MD100+
NUMST	1.000	0.296	0.034	-0.011	-0.015	-0.003	-0.007	0.019	-0.014	-0.016
NUMCO		1.000	0.106	-0.160	-0.122	0.057	-0.113	0.143	-0.089	-0.063
NUMPL			1.000	-0.320	-0.385	-0.219	-0.373	0.444	-0.007	0.046
MSDIST				1.000	0.753	-0.196	0.795	-0.560	0.176	0.042
ENT					1.000	0.037	0.832	-0.503	0.131	0.040
ENTD2						1.000	-0.060	0.233	-0.064	-0.043
MSENT							1.000	-0.423	0.139	0.039
MSENTD2								1.000	-0.090	-0.040
WDALL									1.000	0.548
IVID100+										1.000

Figure 3. Correlation Values (Cont.)



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