Fiscal Impact Analysis: New Methods, New Data and Best Practices

Speakers

Steven L. Nelson, AICP, Econsult Solutions, Inc.

Peter Angelides, AICP, Ph.D., Econsult Solutions, Inc.

Sidney Wong, Ph.D., Community Data Analytics

American Planning Association
The Pennsylvania Chapter Conference
October 18, 2016
Session E1

Introduction

- Development Impacts
- Fiscal Impact Analysis Methods and Issues
- Data Sources & Multipliers in Pennsylvania
- Reverse Fiscal Impact Analysis
- Discussions

Why Do We Care about Development Impacts?

- Fiscal
- Economic
- School
- Traffic
- Environment
- Social
- Political
- Others

Fiscal Benefits

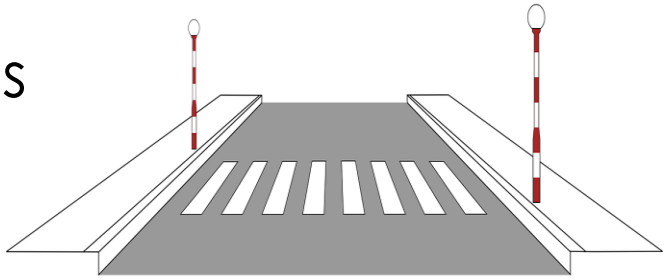
Which is the most important?

- Property tax revenues
- Local wage tax revenues
- Sales tax revenues
- Other levies
- User charges, fees and fines
- Increment of property values / tax base expansion
- Others

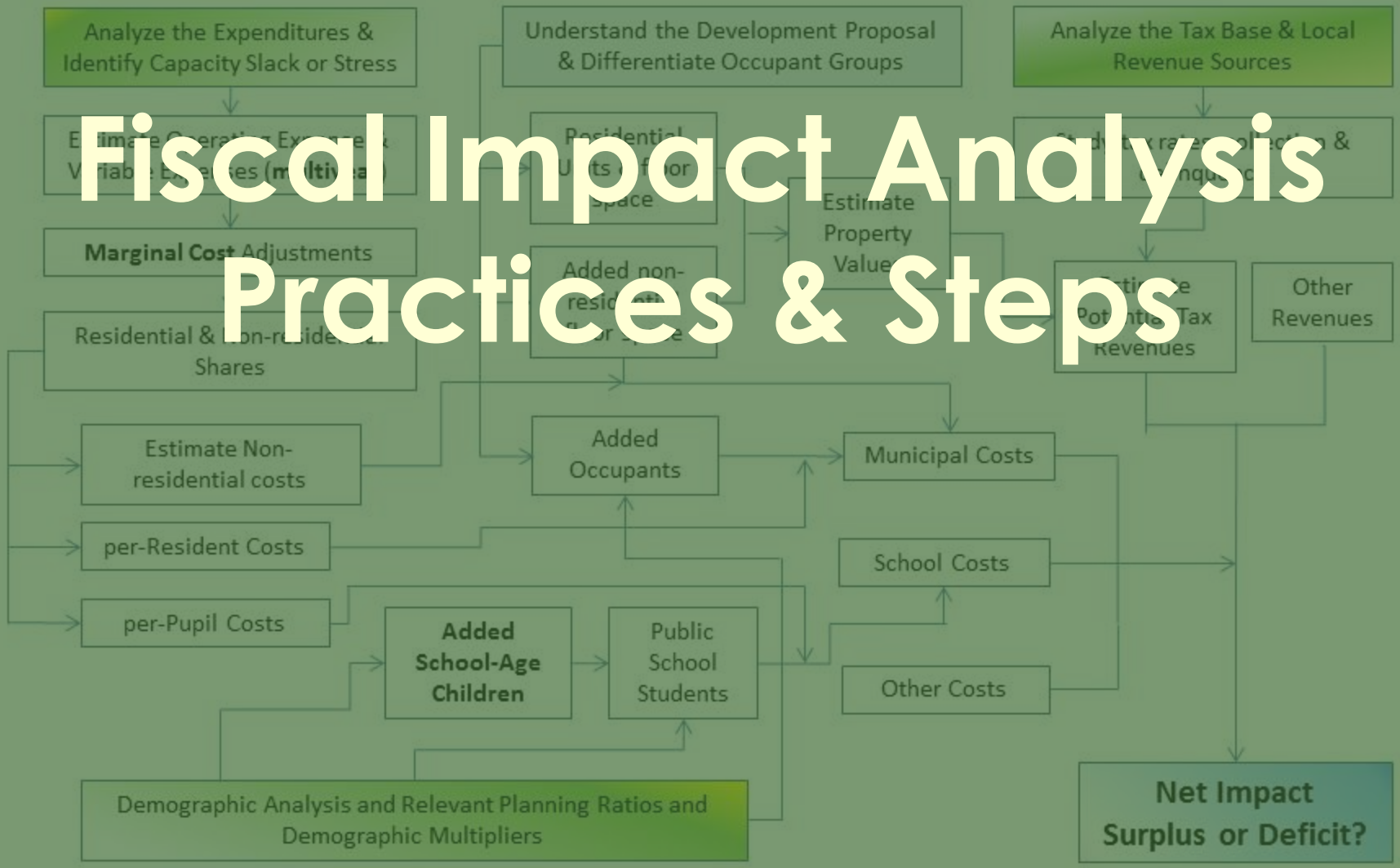
Fiscal Costs

Which is the most important?

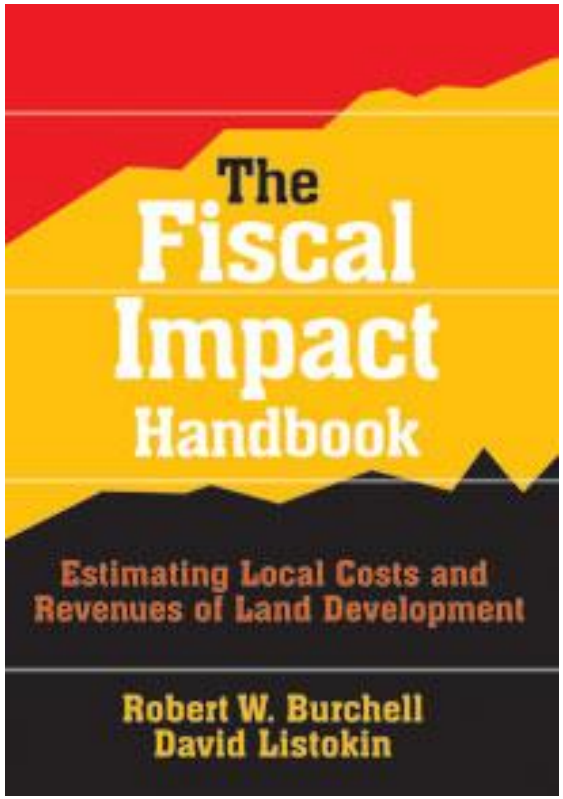
- School expenditures
- Government operating expenses
- Capital improvement costs
- Traffic improvement expenditures
- Debt financing
- Others



Fiscal Impact Analysis Practices & Steps



Fiscal Impact Analysis



Source: http://www.transactionpub.com/title/The-Complete-Illustrated-Book-of-Development-Definitions-978-1-4128-5504-4.html

"[a] projection of the direct, current, public costs, and revenues associated with residential or nonresidential growth to the local jurisdiction(s) in which this growth is taking place."

Page 1,
Burchell, Robert W. and David Listokin, 1978.
The Fiscal Impact Handbook

"Is growth good or bad for my for community?"

- It depends…
- Development generates a host of new costs for a municipality.
- Also generates new revenues.
- It is important that municipalities determine if the new revenues offset the associated costs.
- FIA can help elected officials make fiscally sound land use decisions.

The Uses of FIA

- Planning Applications of FIA include:
  - Land use policies
  - Rezonings
  - Annexations
  - Redevelopment
- Budget and Finance Applications
  - Capital improvement programming
  - Revenue forecasting
  - Fiscal planning
  - Level of service changes

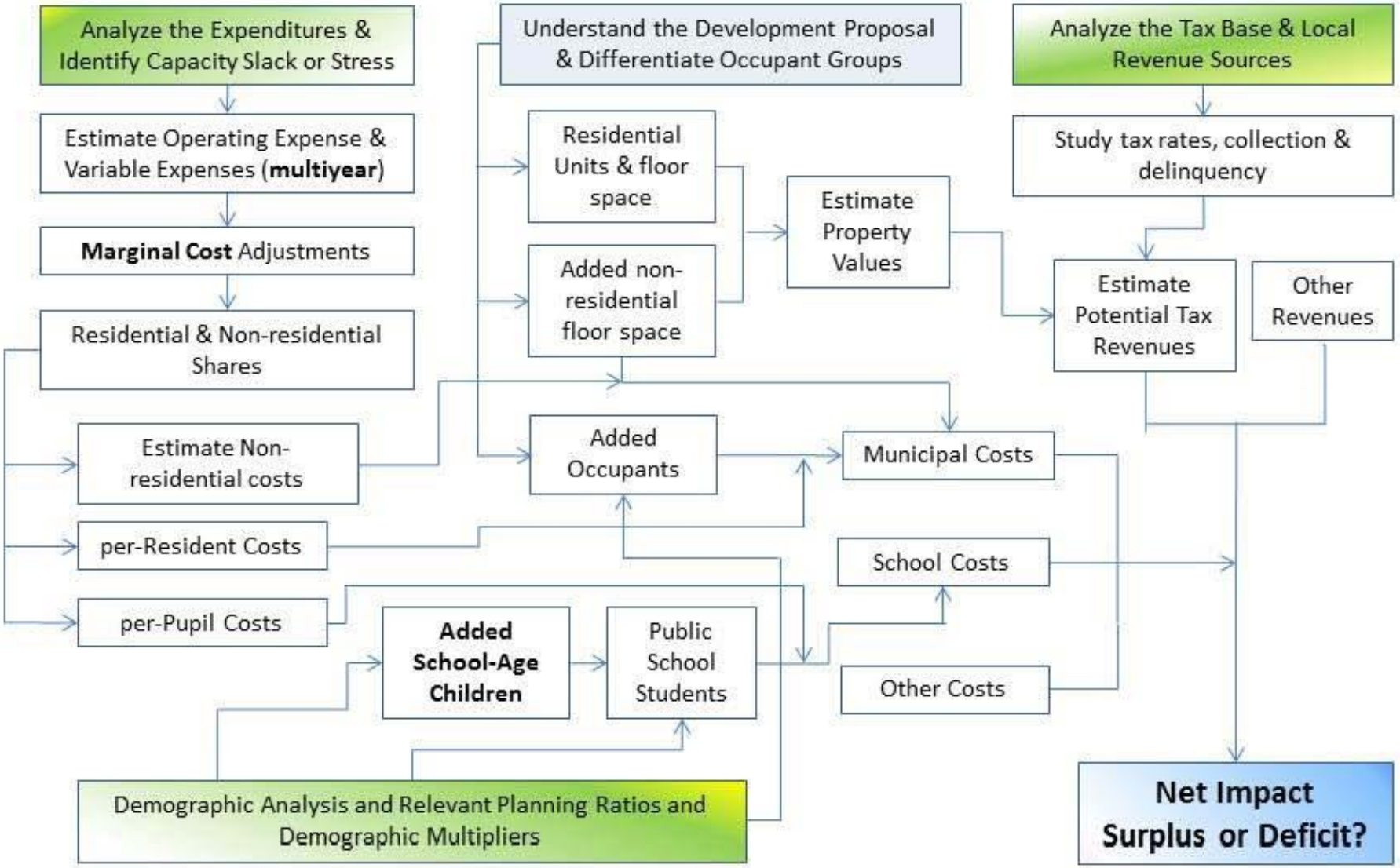
Methods of Fiscal Impact Analysis

- There are number of standard approaches to choose from.
- The two most common include:
  - The Average Cost approach
  - The Marginal Cost approach
- The distinction between the two is fundamental to FIA.
- They may result in dramatically different estimates of the fiscal impacts.

The Hybrid Approach

- Combines the Average Cost approach with a case study analysis.
- The Average Cost approach is used to calculate per-capita costs and revenues.
- The case studies are used to identify areas of capacity constraints.
  - This helps bring in the benefits of the Marginal Approach.

Steps of Fiscal Impact Analysis



FIA Steps

- Step 1: Estimate the number of residents and/or employees
  - Total population
  - School-Age Children

  Based on the type of housing units
  - PUMS data provides the most up-to-date information

FIA Steps

- Step 2: Estimate the costs associated with the development.
  - Not all spending categories will be impacted.
- Step 3: Allocate costs between residential and non-residential uses
  - The method depends on the cost categories.

FIA Steps

- Step 4: Derive per-capita, per-student, per-employee expenditure estimates

- Step 5: Sum Total Costs
  - Operating costs vs. capital costs
  - Use case studies and interviews to understand potential capital costs
- Assess need for new capacity

FIA Steps

- Step 7: Estimate the revenues associated with the project.
  - Property tax vs. other revenues
- Step 8: Allocate other revenue to land uses
  - Estimate per-capita and per-employee revenues

FIA Steps

- Step 9: Sum Total Revenues
  - Property taxes
  - Other revenues
  - One-time revenue
- Step 10: Calculate the Net-fiscal impacts
  - Revenues - costs

Potential Issues

- Property Tax Abatements
  - Could pose an issue for the period where any taxes are abated.
- As if first "fully" occupied.
- The outputs are only as good as the inputs.
- Critical data for estimating impacts.

FIA Data Needs

Timeliness

Specific geographical coverage

Relevant housing configurations

Data Needs

- At a minimum a good FIA requires:
  - Description of the development
  - Local revenue and expenditure data
  - Local property value data and tax rates
  - Number of estimated future residents and workers

Critical Information & Multipliers

Occupants

- Age
- School-Age Children
- Public School Attendees
- Household Income
- Number of Cars Available
- Year of Moving In
- Other Information

Housing Units

- Structure Types
- Number of Bedrooms
- Rental or Owned
- Year Structure Built
- Other information

School

Traffic

Possible Data Sources

- Census (Summary 1 File) X
- American Community Survey X
- American Housing Survey X
- Customized Survey X
- Administrative Records X
- Public Use Microdata Sample ✓

2006 Fannie Mae Demographic Multiplier Series

- 2000 PUMS, i.e. survey data in the 1990s
- State level data
- Occupied units built between 1990 and 1999
- Average number of occupants
- Average number of School-Age Children (SAC)

Issues of the 2000 Multipliers

- Statewide averages cannot reflect local characteristics
- Took 3 to 4 years to prepare
- Not updated afterward
- Drastic demographic changes
- Estimation biases
- Insufficient data

2000 to 2016

Many Changes

Between 2000 and 2010, the average household size remained constant or declined in **every state.**

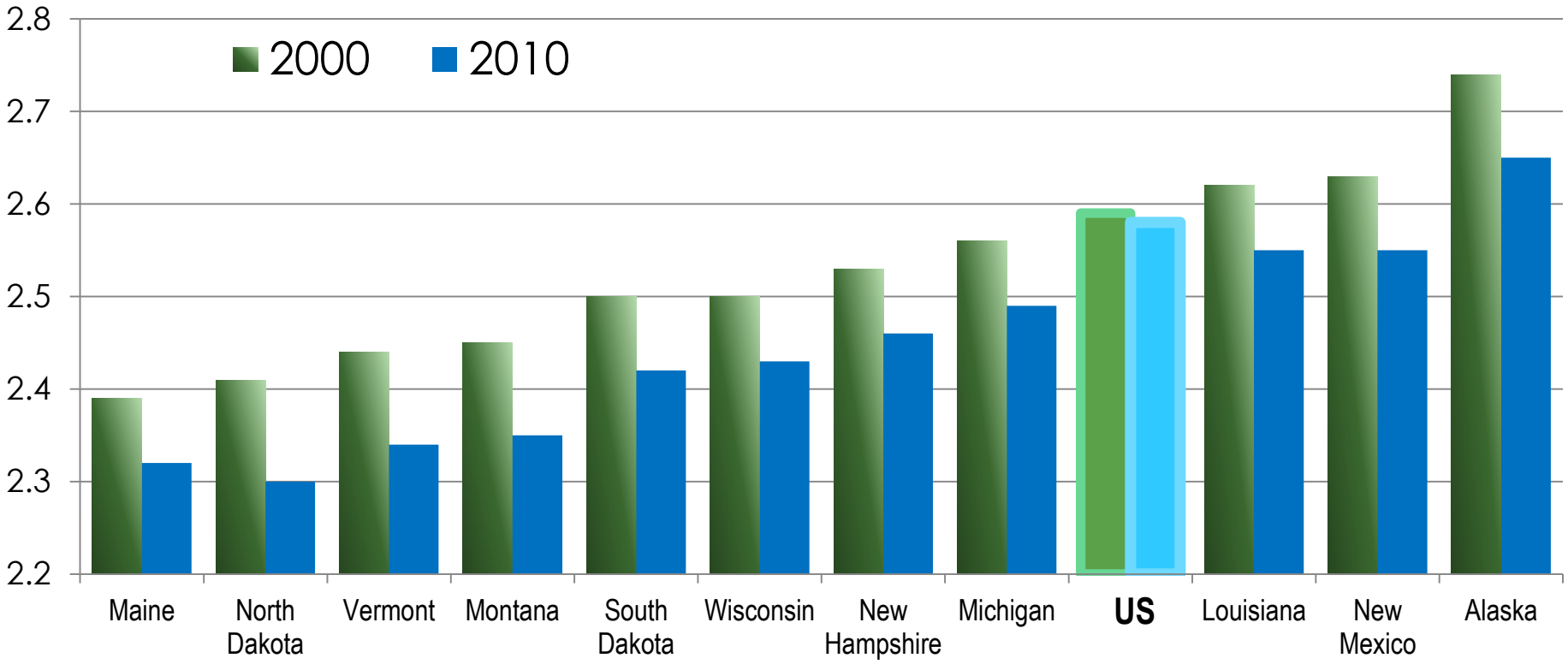
Only in five states the average household size grew

Texas, Delaware, Florida, California, Nevada (2.62 to 2.65)

Pennsylvania: 2.48 to 2.45

Average Household Size

11 States with Largest Absolute Decline in the 2000s



Sources: Table H12, 2000 and 2010 Census SF1

Public Use Microdata Sample

Viable, robust and workable

but not so easy to use

Public Use Microdata Sample (PUMS)

- ACS raw data: Un-tabulated records about individuals, households, and housing units.
- Released every year.
- 1-year, 3-year, and 5-year samples.
- 1-percent per year.
- Most recent: 2010-2014 5-Year ACS PUMS.
- Geographic Areas:
  Region, Division, State, and PUMA.

Public Use Microdata Areas (PUMAs)

- A PUMA represents at least 100,000 residents, but can up to 190,000 (example: Pittsburgh north).
- Boundaries depends on population density.
- Revised after each decennial census.
- 92 PUMAs in Pennsylvania, the 5-Year sample represents 12.7 million persons.
- 11 PUMAs in Philadelphia, 2 in Pittsburgh.

CDA Research of the 2014 PUMS

- PUMA level analysis using 5-Year Sample
- Demographic Multipliers and Planning Ratios
  - Number of persons or Average Household Size
  - School-Age Children
  - Public school attendees
  - Cars available
  - Average household income

CDA Research of the 2014 PUMS

Samples

- All occupied units
- Movers (new residents) vs. new units
- Householders 55+
- Transit-commuter households
- Condominium households
- Low & moderate income households
- Housing and rental values
- Others

CDA Research of the 2014 PUMS

Housing Configurations

- Number of bedrooms:
  studio & 1, 2, 3, etc.
- Housing structure:
  Single family detached, single family attached, multifamily
- Tenure:
  rental or owned
- A combination of the above and crosstab with the samples

Current Demographic Multipliers and Planning Ratios

Changes between 2000 and 2014

Local Variations

COMMUNITYDATAANALYTICS

ECONSULT SOLUTIONS
economics | policy | strategy

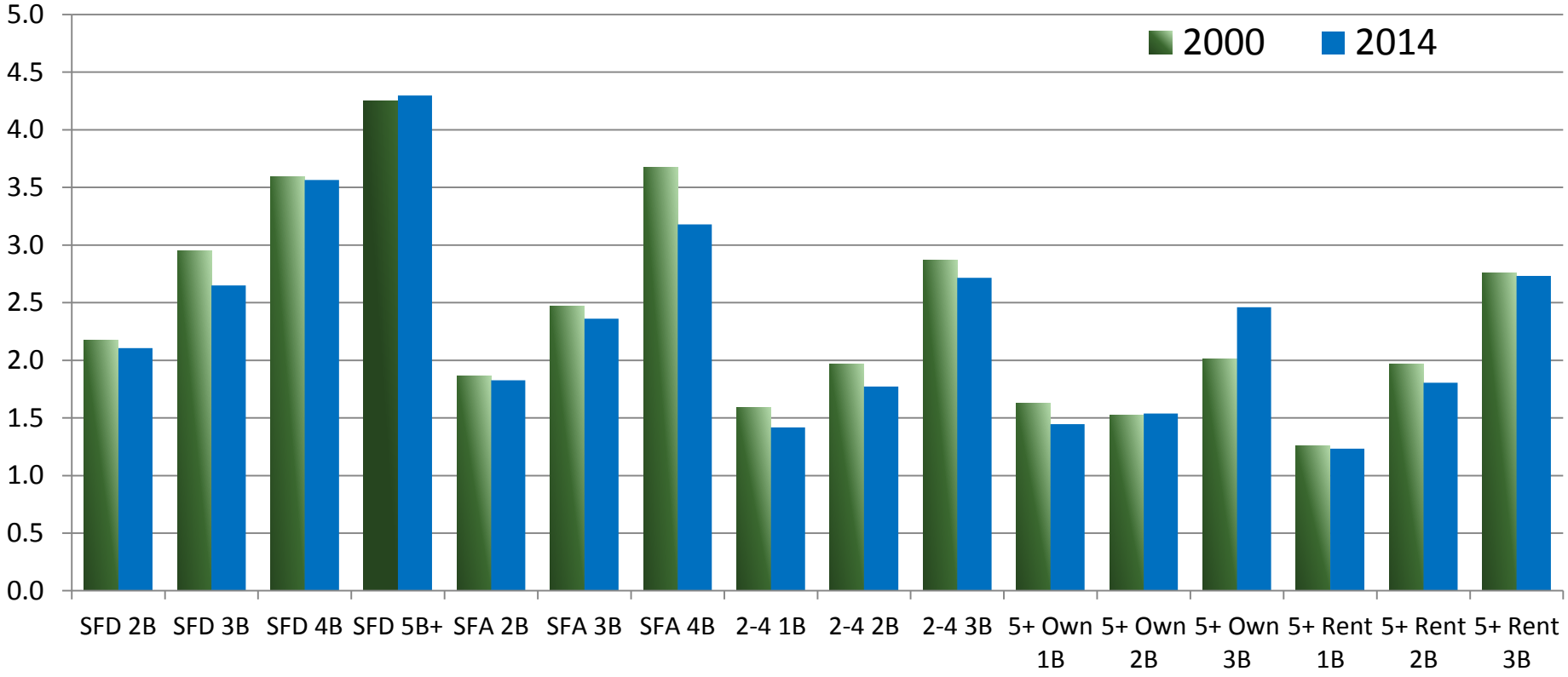
PA-APA, October 2016
New Methods, New Data and Best Practices

Findings of the Pennsylvania Multipliers

1. Changes between 2000 and 2014
2. Correlation between New Residents New Units Samples
3. Local Variations
4. Location-Specific Data Needed

Changes between 2000 and 2014: Average Household Size

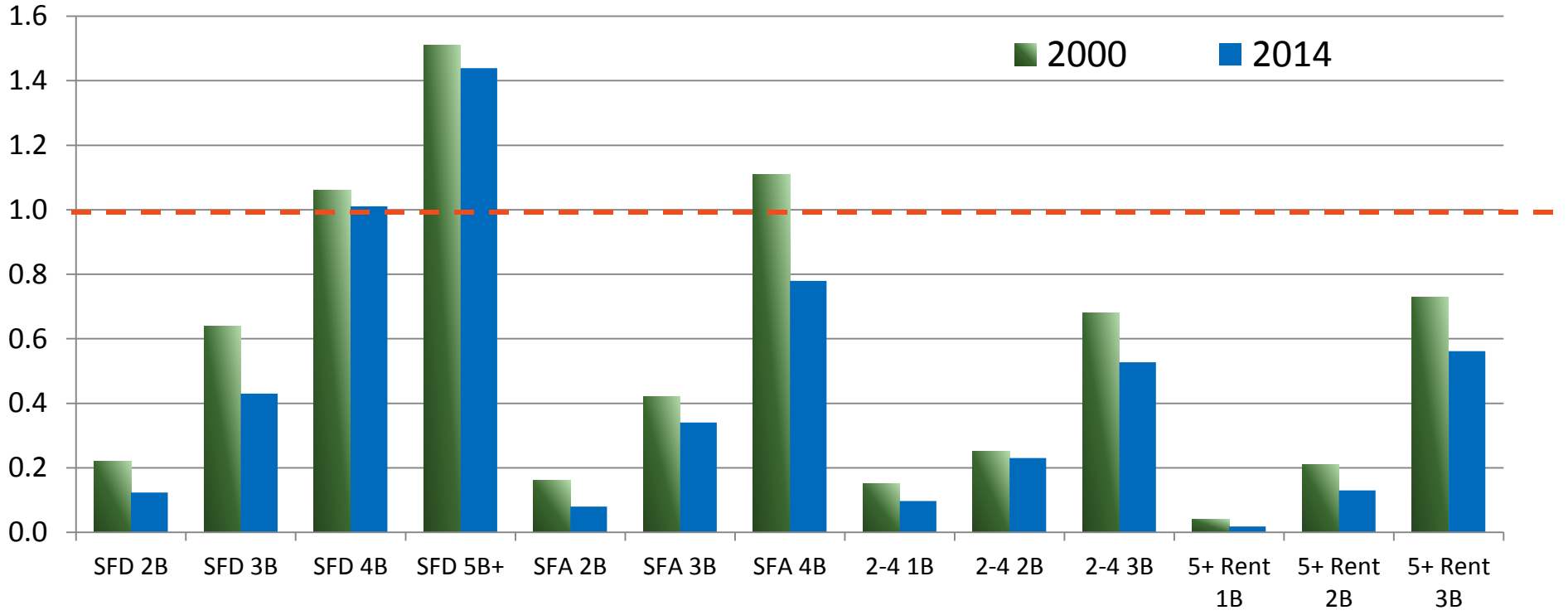
Pennsylvania State Level, New Units Sample



Sources: Community Data Analytics (2016), based on 2000 Census and 2010-2014 5-Year ACS-PUMS
Fannie Mae Foundation (2006), Residential Demographic Multipliers, Pennsylvania Table 1

Changes between 2000 and 2014: School-Age Children

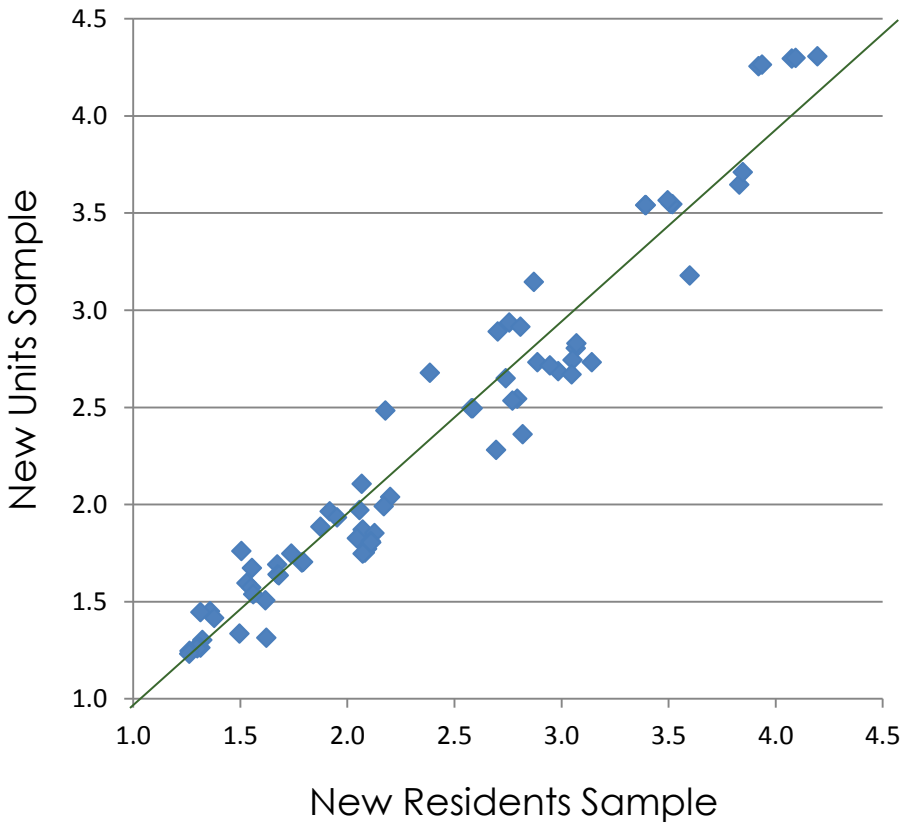
Pennsylvania State Level, New Units Sample



Sources: Community Data Analytics (2016), based on 2000 Census and 2010-2014 5-Year ACS-PUMS
Fannie Mae Foundation (2006), Residential Demographic Multipliers, Pennsylvania Table 2

New Residents vs New Units: Average Household Size

2014 Pennsylvania State Level Scatterplot

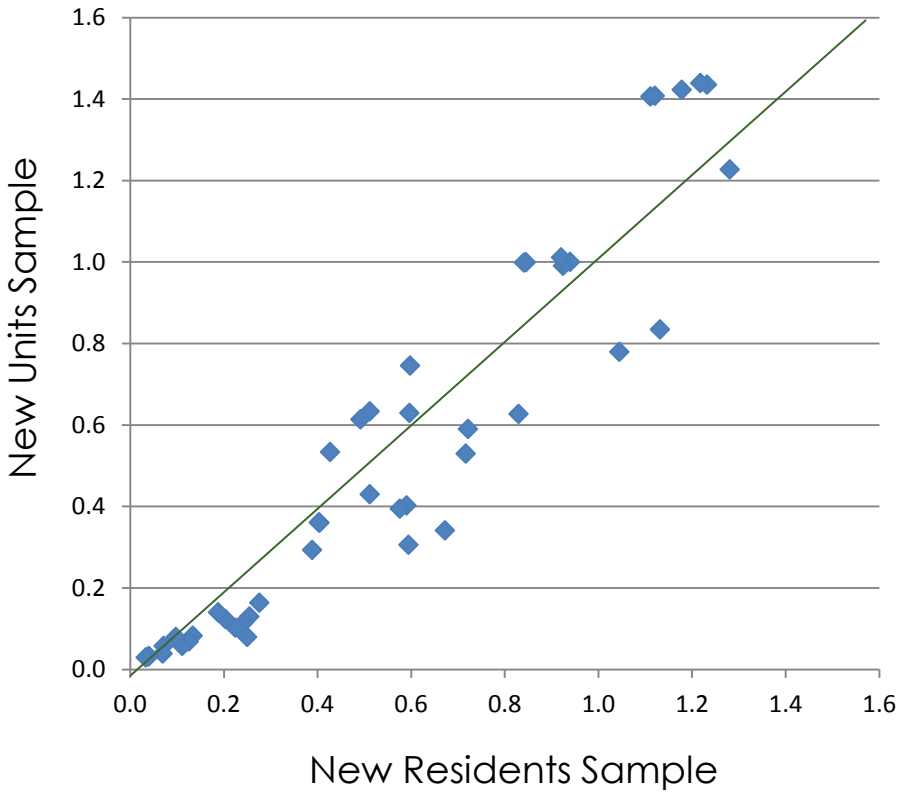


- New units sample is a subset of new residents sample (1 to 3 or much less).
- New units sample commonly does not have sufficient sample size.
- New residents sample has less variability, so more reliable.
- New residents sample reflects longer-term effects.
- New residents sample has slightly larger value for rental, multifamily, and 1 to 3 bedroom units.
- Pearson R = 0.9733

Source: Community Data Analytics (2016), based on 2010-2014 5-Year ACS-PUMS

New Residents vs New Units: School-Age Children

2014 Pennsylvania State Level Scatterplot



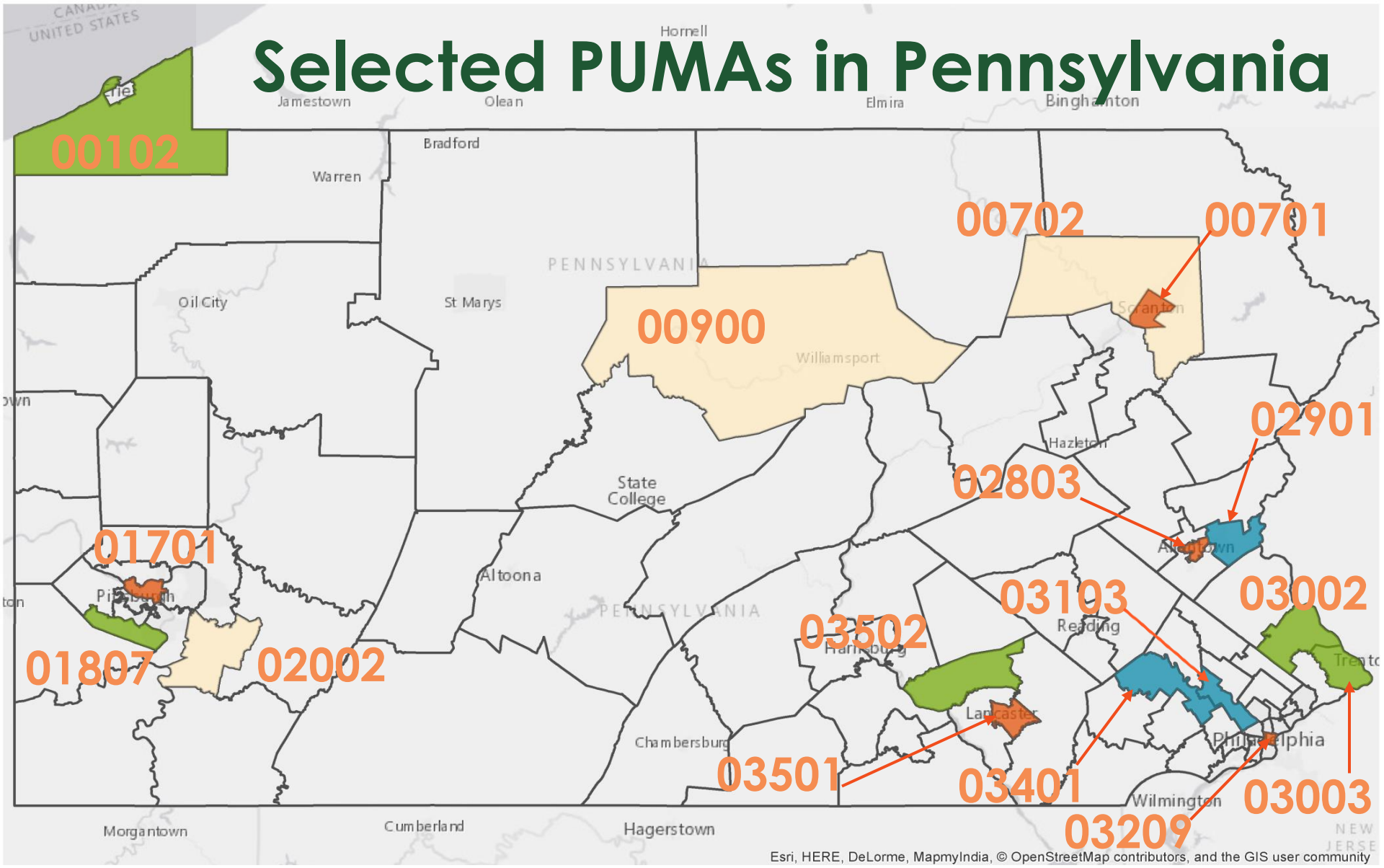
- Estimations for SAC has larger variability than those for household size.
- New residents sample is more reliable.
- New residents sample reflects longer-term effects.
- New residents sample has slightly larger value for rental, single-family attached, multifamily, and 1 to 3 bedroom units.
- Pearson R = 0.946

Source: Community Data Analytics (2016), based on 2010-2014 5-Year ACS-PUMS

Selected PUMAs in Pennsylvania

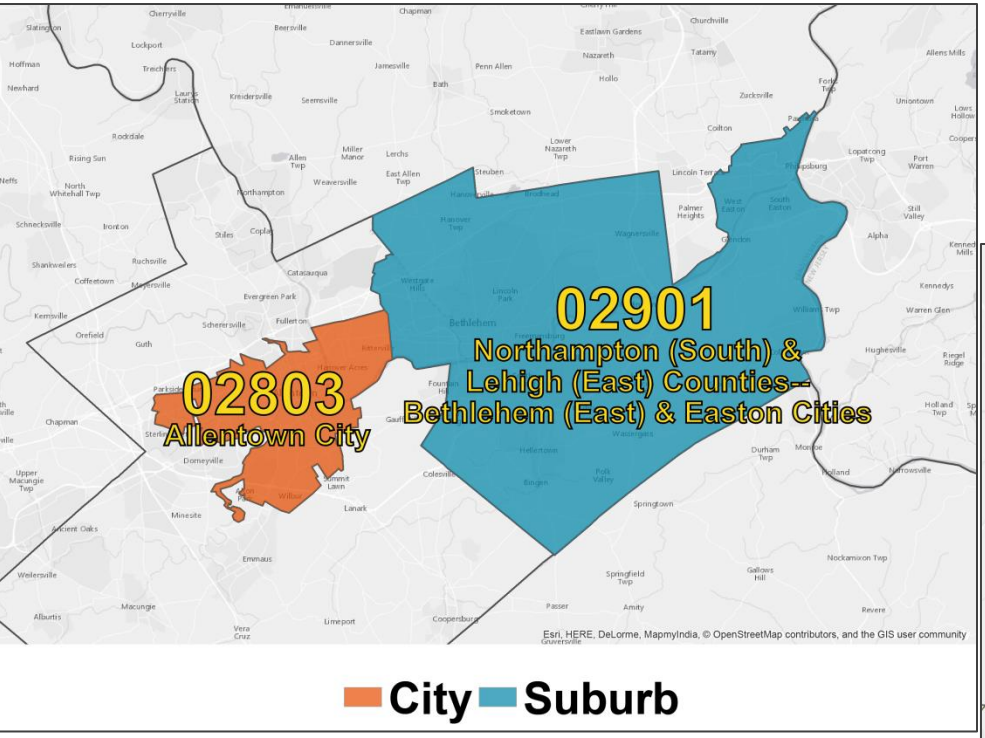
- Geography: From different parts of the state
- Counties: 16 PUMAs from 13 counties
- Development density: City, suburb and exurb, rural
- These 16 PUMAs represent a population of 2.25 million (2010)
- Population ranges from 106,600 (Lancaster County central) to 195,600 (Pittsburg South)

Selected PUMAs in Pennsylvania



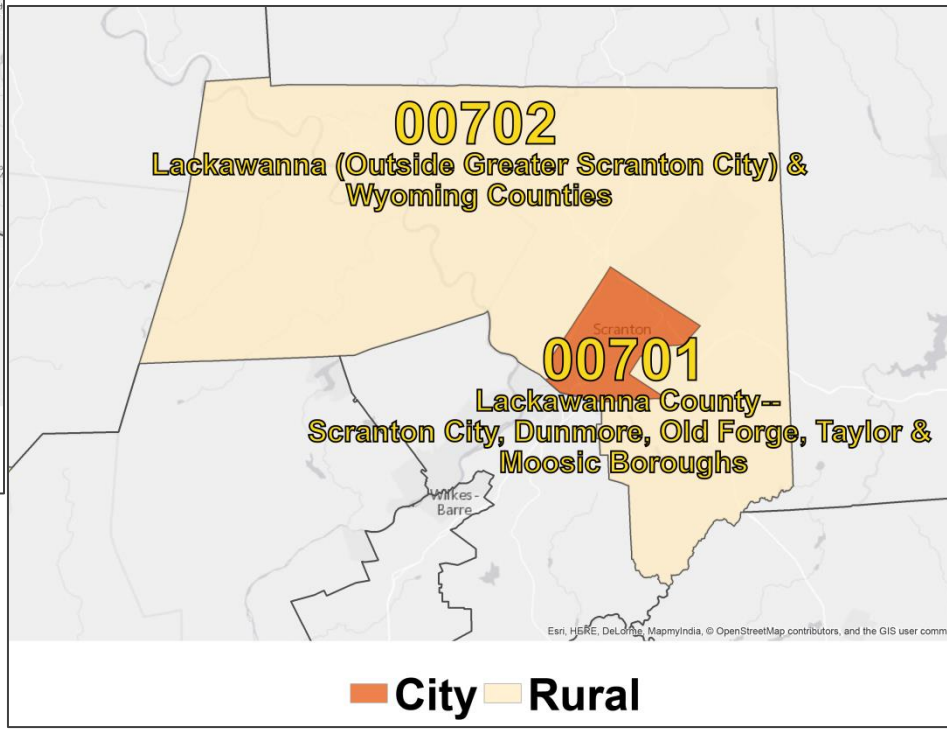
City Suburb Exurb Rural

Selected PUMAs in Pennsylvania

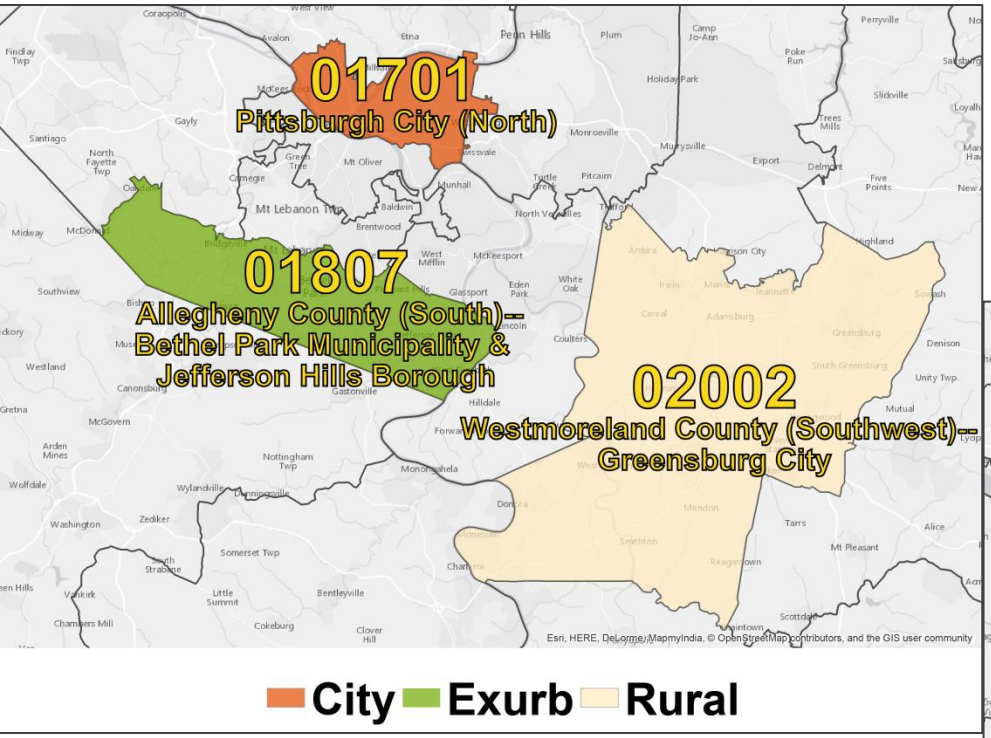


Allentown and Lehigh Valley

Scranton and Lackawanna

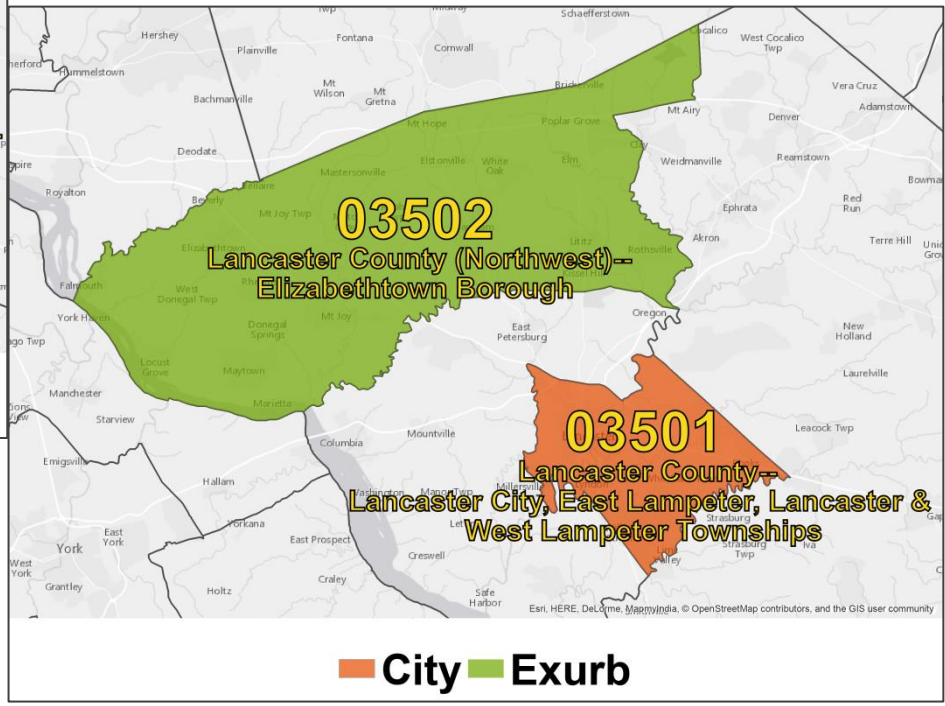


Selected PUMAs in Pennsylvania

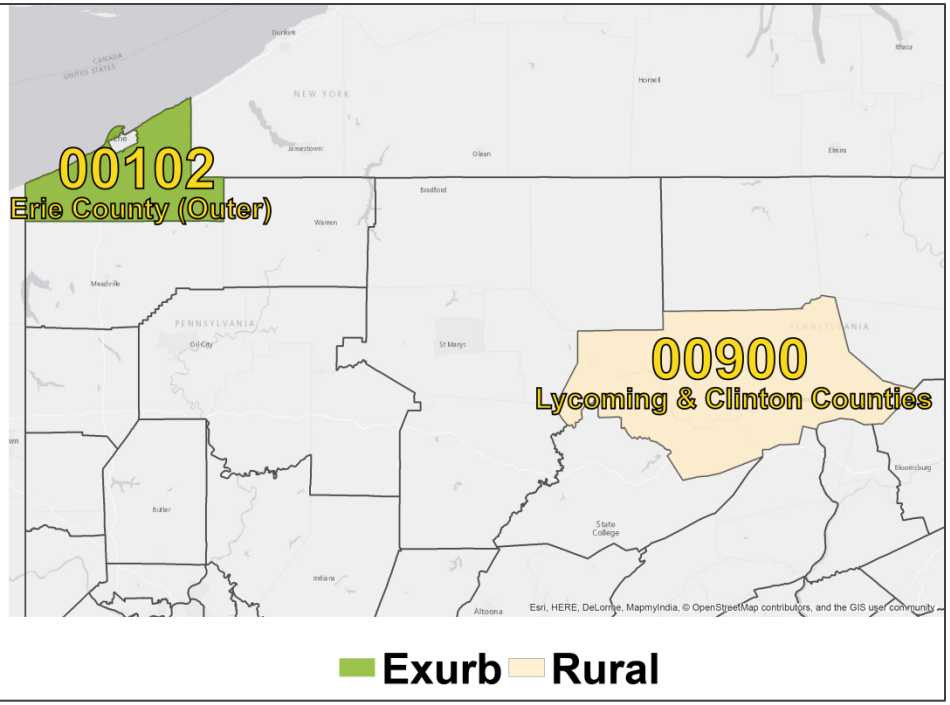


Allegheny and Westmoreland

Lancaster Region

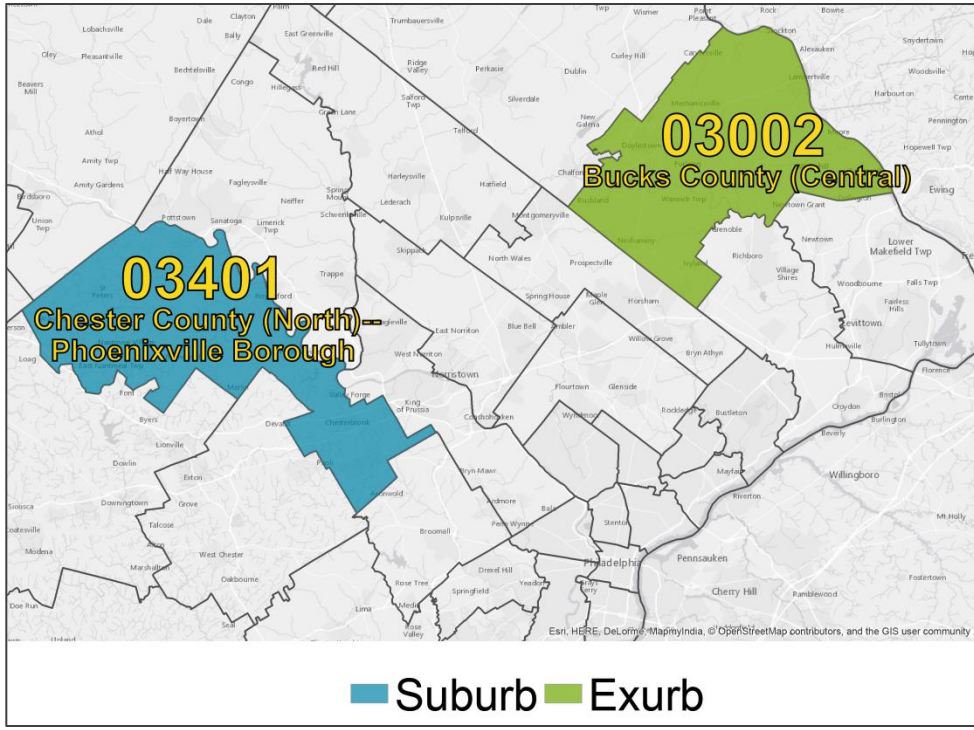


Selected PUMAs in Pennsylvania

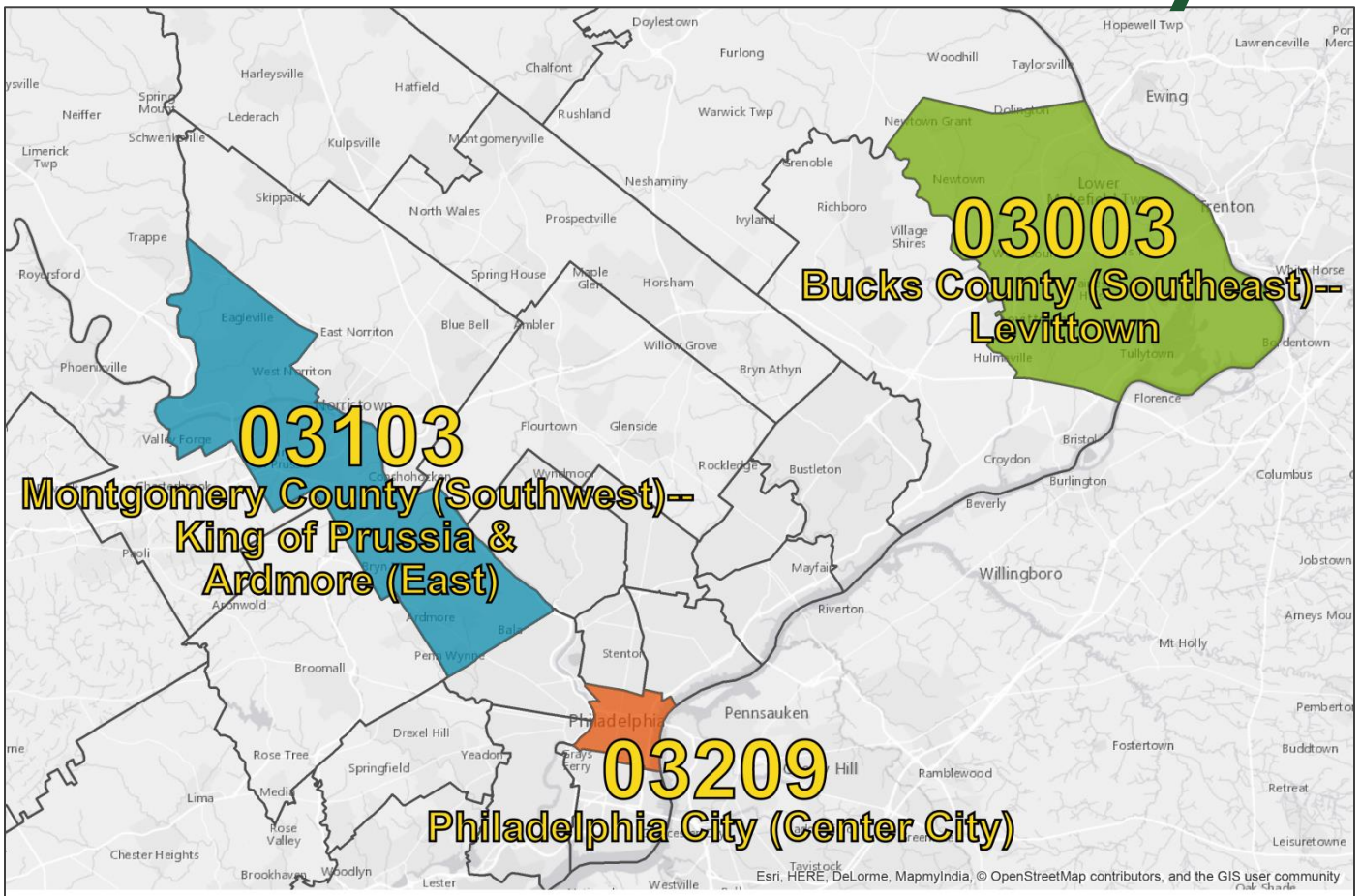


Northwest and Central PA

202 Corridor



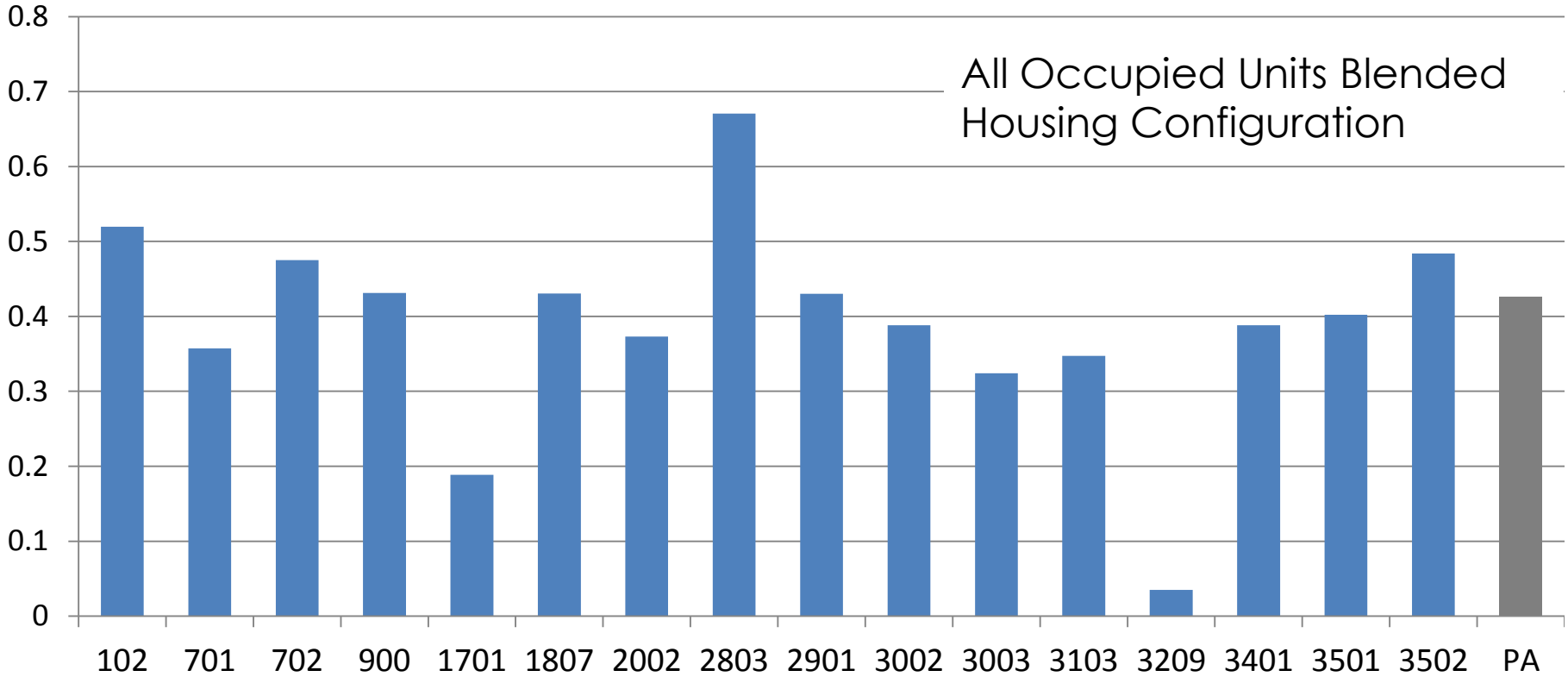
Selected PUMAs in Pennsylvania



Southeastern Pennsylvania

Pennsylvania Local Variations: School-Age Children

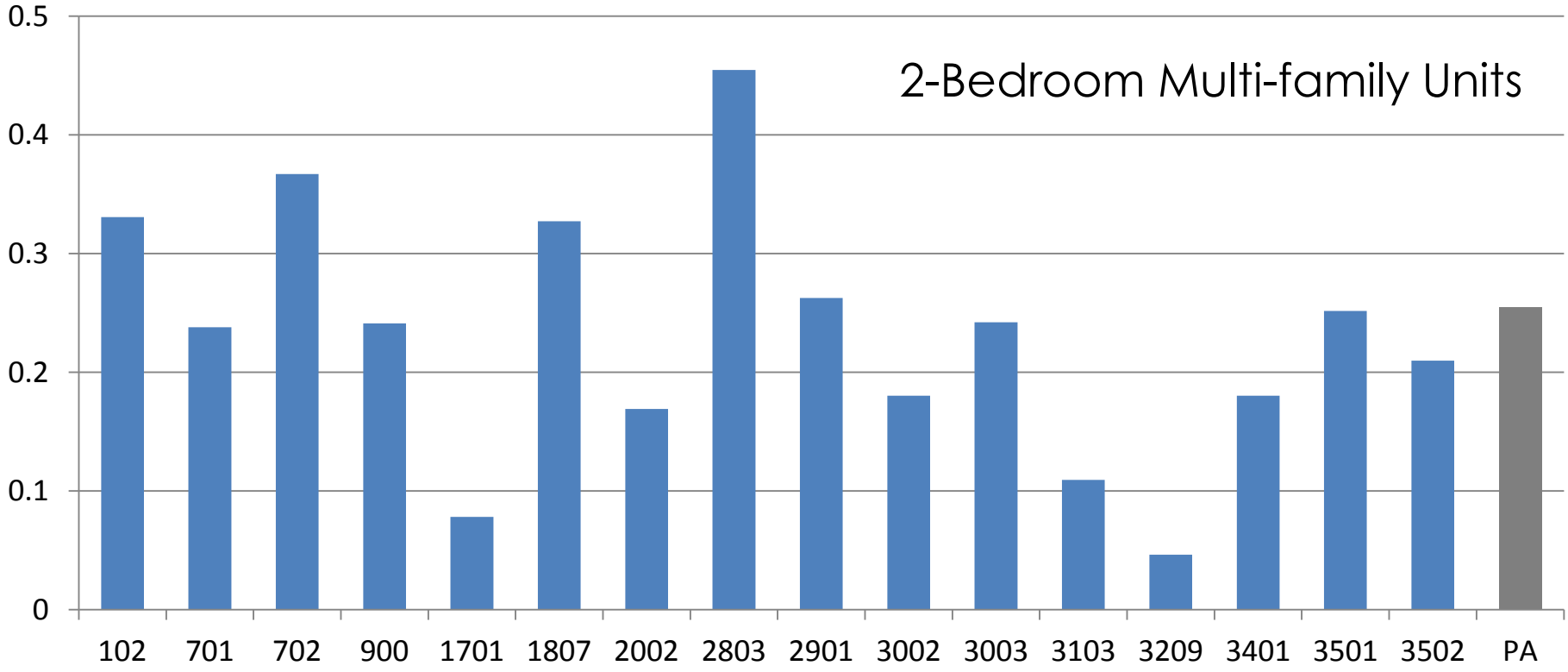
2014 PUMA Level, New Residents Sample



Source: Community Data Analytics (2016), based on 2010-2014 5-Year ACS-PUMS

Pennsylvania Local Variations: School-Age Children

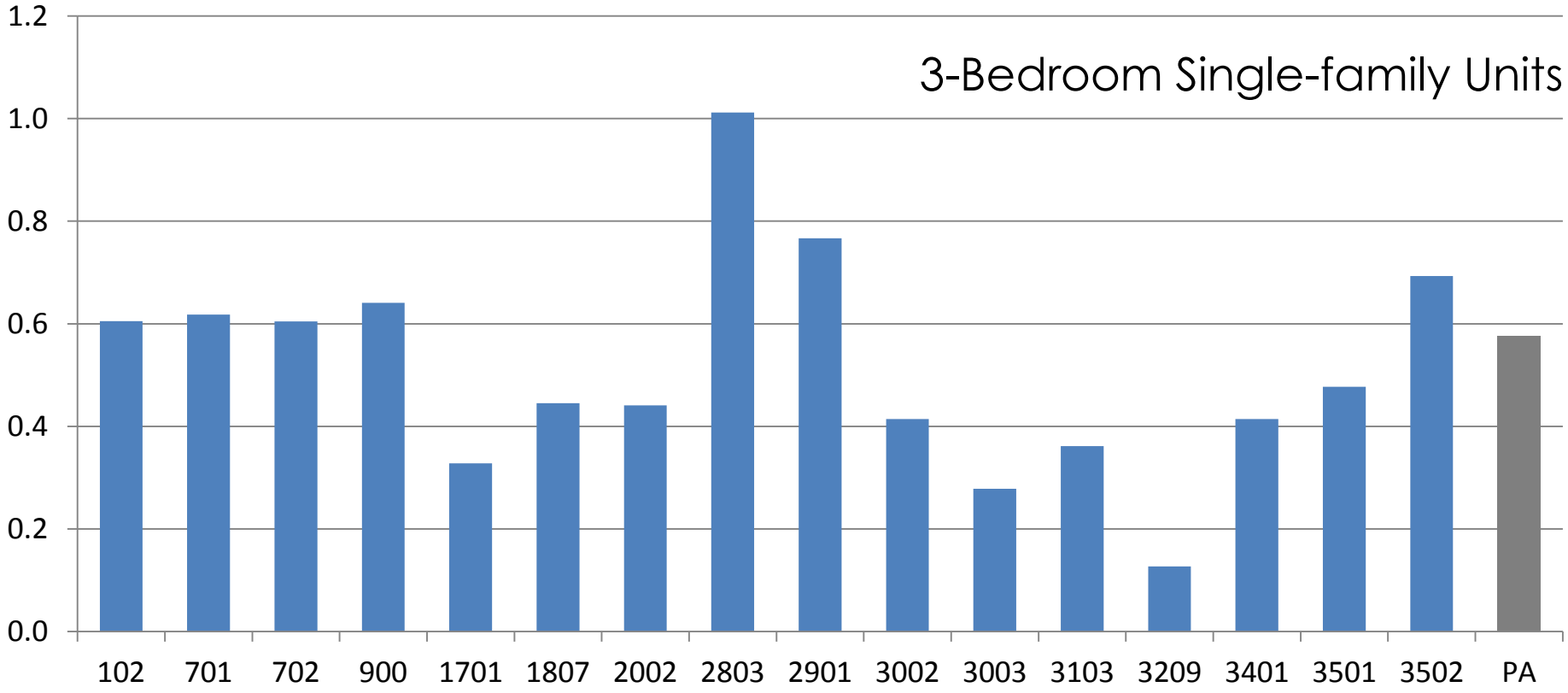
2014 PUMA Level, New Residents Sample



Source: Community Data Analytics (2016), based on 2010-2014 5-Year ACS-PUMS

Pennsylvania Local Variations: School-Age Children

2014 PUMA Level, New Residents Sample



Source: Community Data Analytics (2016), based on 2010-2014 5-Year ACS-PUMS

Reverse Fiscal Impact Analysis

- Innovative tool in property buy-outs and acquisition proposals
- Disaster prone areas

Reverse Fiscal Impact Analysis

- Reverse FIA is tool for decision-makers.
- "Retreat" option
- Targeted tool for targeted audience
- Excludes public safety/health considerations

Reverse Fiscal Impact Analysis

- Buyouts for high-cost flood-prone properties
- NFIP deficit = $19B
- New Jersey = $5.32B in payouts

Reverse FIA Framework

- FIA estimates new construction & development
- Reverse FIA estimates loss of development & "de-construction."
- Does not include "induced impacts."
- Does not include acquisition & demo costs.
- Uses real data.
- Reduced population = reduced demand for services
- Typically uses avg. cost method

Reverse FIA Framework

Traditional

- Revenue (taxes, fees, non-local)
- Costs (municipal services, education, debt service)

Reverse FIA

- Costs (revenue lost)
- Revenue (cost savings)

Reverse Fiscal Impact Methodology

1. Determine geographic area.
2. Determine type of properties & values.
3. Estimate costs by type of property/# of residents/workers/school children.
4. Project losses due to buyouts.
5. Project revenue loss due to buyouts.
6. Project cost savings.
7. Apply sensitivity analysis.

Example of Estimating Lost Revenue

Projected pop. loss:

10 units x 3 (AVHH) = 30 persons

Projected school children loss:

10 x 0.2 = 2 children

Municipal revenue loss:

10 homes x $100,000 x 0.005 + 1 commercial property x $500,000 x 0.005
= $5,000 + $2,500 = $7,500

School District revenue loss:

10 homes x $100,000 x 0.1 + 1 commercial property x $500,000 x 0.01
= $5,000 + $10,000 = $15,000

Example of Estimating Cost Savings

Municipal:

30 persons x $1000 x .9 + 5 workers x $1000 x 0.1 = $27,000 + $500 = $27,500

School District:

2 children x $13000 x .5 = $13,000

Potential Fiscal Impact & Sensitivity Analysis

Potential impact (savings – loss)

Muni: $27,500 - $7,500 = $20,000 potential savings

If muni can save 50% of potential cost savings = $6,250

If muni can save 10% of potential savings = -$4,750

School District: $13,000 - $15,000 = -$2,000

Example of Reverse FIA

Sea Bright Borough

- 198 residential units, 21 commercial properties, municipal impact only.
- $85,000 (savings) (50% of savings realized)
- -$208,000 (cost) (25% of savings realized)

2050 Sea Level Rise

Example of Reverse FIA

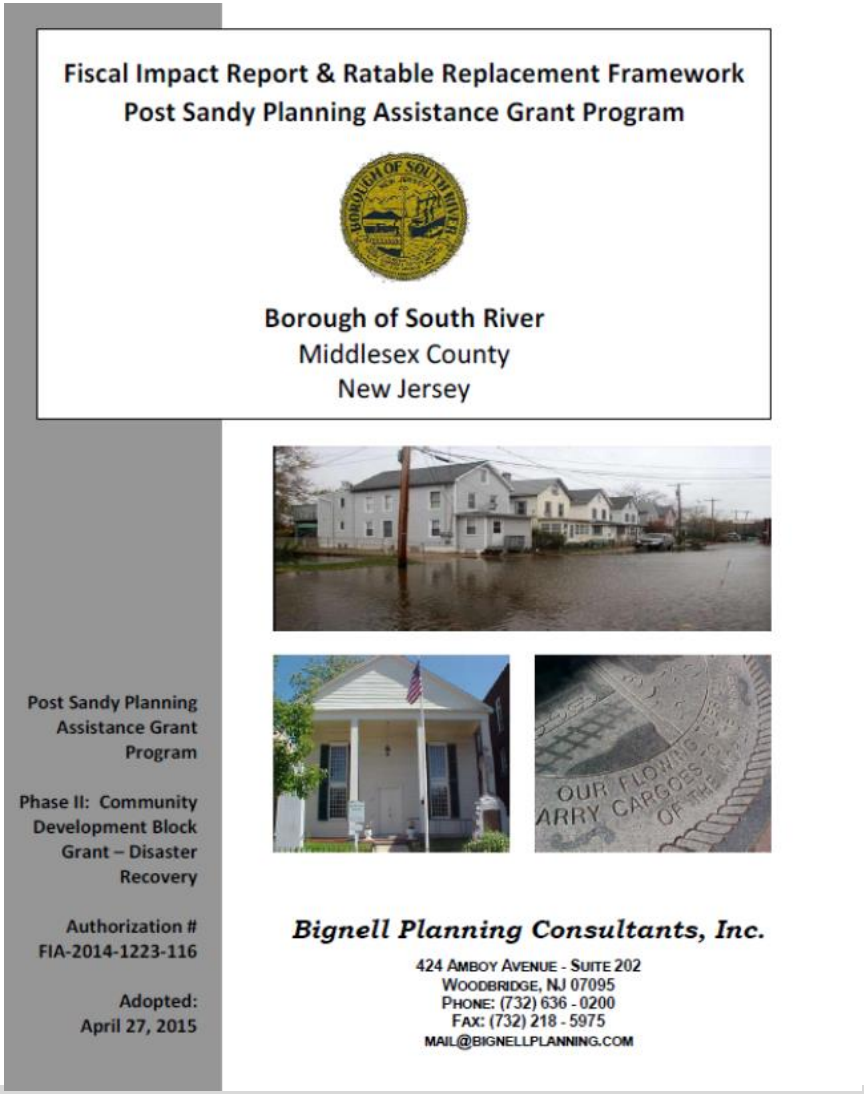
Mystic Island

- 100 to 500 residential properties, municipal and primary school impact only.
- Municipal impact:
  - 70,000 to -$515,000 (cost)
- Primary School District impact:
  - $37,000 to - $363,000 (cost)

Example of Reverse FIA

South River

- 54 to 126 residential properties, municipal and school district impacts.
- Municipal impact: -$3,700 to -$6,500 (cost)
- School District impact: -$26,500 to -$53,000 (cost)



Reverse Fiscal Impact Analysis

Conclusions

- Very limited number of examples, varied results.
- South River example probably overestimates municipal cost impact.
- Characteristics of different towns result in significant differences in results.
- Need to perform more analyses.

SESSION E1 CONCLUSIONS

- Fiscal Impact Analysis remains one of the important tools.
- Hybrid approach should be used.
- Current and geographically specific demographic multipliers & planning ratios from PUMS should be used.
- FIA can be used to evaluate property buy-outs and acquisition proposals.

Discussion

Small group or open?