

Maps of Maryland Employment Dynamics before, during, and after the Recession

Submitted by:

Ting Zhang

David Stevens

The Jacob France Institute, University of Baltimore

Submitted to:

Maryland Department of Labor, Licensing and Regulation

Office of Workforce Information and Performance

June 2011

Overview of Presentation

- The data sources are the Quarterly Census of Employment and Wages (QCEW) for all slides and Unemployment Insurance (UI) Wage Records for the last two slides. For this presentation, only private sector employment is presented.
- Two types of maps are presented:
 - Slides 7 through 20 present county disparities of employment gains and losses and employment level across three time periods—*before recession*, *during recession*, and *After recession*.
 - Slides 21 and 22 track locations of jobs before and after the recession started using Carroll County as an example.

How the Measures are Defined

- Within a county, each business *establishment* is the unit-of-analysis for all statistical calculations. If a business reports more than one place-of-business in Maryland each *establishment* is treated as a unit-of-analysis based on its reported location.
- All definitions of employment *gains* or *losses*, and all definitions of a business *expansion* or *contraction*, *opening* or *birth*, *closing* or *death*, and *predecessor* or *successor* are based on individual business *establishment* reports. The measurement and definitions of *expansions*, *contractions*, *openings*, *closings*, *births* and *deaths* are following Bureau of Labor Statistics Business and Employment Dynamics data definitions retrievable at <http://www.bls.gov/bdm/bdmfaq.htm>14.
- **Expansions.** These are establishments with positive employment in the third month in both the previous and current quarters, with a net increase in employment over this period.
- **Contractions.** These are establishments with positive employment in the third month in both the previous and current quarters, with a net decrease in employment over this period.
- **Openings.** These are either establishments with positive third month employment for the first time in the current quarter, with no links to the prior quarter, or with positive third month employment in the current quarter following zero employment in the previous quarter.

How the Measures are Defined (continued)

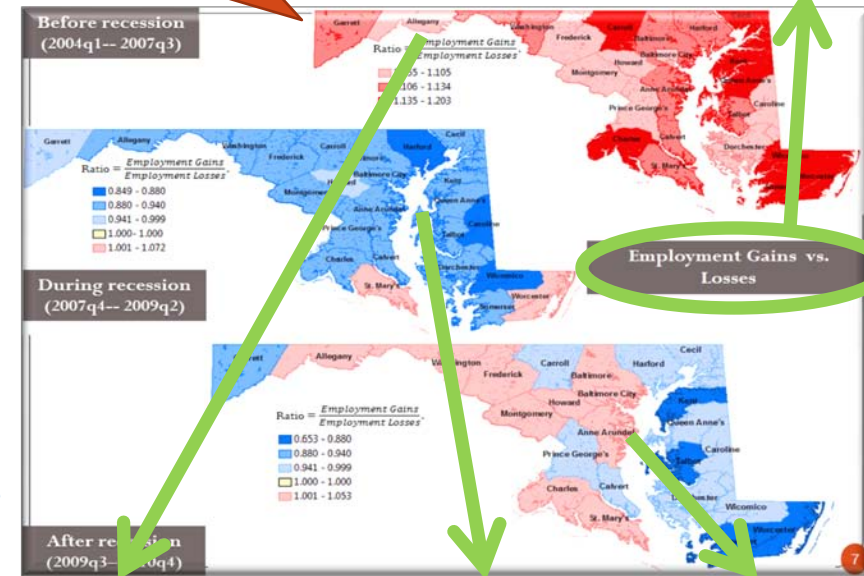
- **Closings.** These are either establishments with positive third month employment in the previous quarter, with no positive employment reported in the current quarter, or with positive third month employment in the previous quarter followed by zero employment in the current quarter.
- **Births.** A ‘birth’ is an establishment that had no reported employees in the third month of four consecutive quarters preceding the reference quarter.
- **Deaths.** A ‘death’ is an establishment that had no reported employees in the third month of four consecutive quarters.
- Both ‘birth’ and ‘death’ are intended to avoid inaccurate classification of seasonal businesses that often report positive employment in only one, or perhaps two, quarters annually. ‘Births’ differ from openings and ‘deaths’ differ from closings because the definitions of openings and closings require attention to only the reference quarter and one adjacent quarter—earlier for classification of openings and later for classification of closings.
- **Mergers** and **acquisitions** are defined according to QCEW data predecessor and successor linkage information across businesses.

The Format of Each Slide For Slides 7 through 20

- The title of each slide—a single defined measure. County-level calculations for this one measure appear on the slide.
- *Before recession* is defined as 2004 qtr 1 ~2007 qtr 3.
- *During recession* is defined as 2007 qtr 4 ~2009 qtr 2.
- *After recession* is defined as 2009 qtr 3 ~2010 qtr 4.
- Each statistical calculation is the **mean** quarterly value of a defined measure included in the time coverage described above—i.e., mean of 15 quarters in the *before recession* time span; mean of 7 quarters in the *during recession* time span; and mean of 6 quarters in the *After recession* time span.
- The geographic unit-of-analysis for each calculation is a Maryland county.
- Except for Slides 18 and 22, color coding of calculated ratio values is: shades of **red** if the numerator is larger than the denominator (i.e. positive net employment gains); shades of **blue** if the denominator value is larger than the numerator (i.e. positive net employment losses). Lighter shades of *red* or *blue* indicate lower net gains or losses respectively than darker shades. **Yellow** if numerator and denominator are the same, resulting in a ratio value of 1. Lack of yellow on the map means the ratio is never 1.

Sample Slide

Title of the Slide



“Before
recession”
map

“During
recession”
map

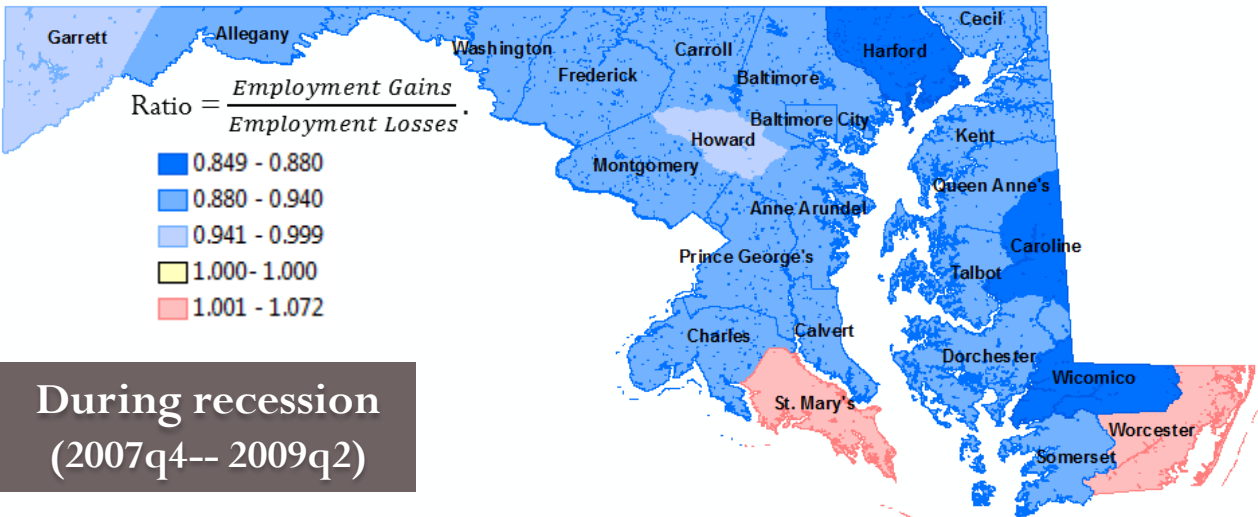
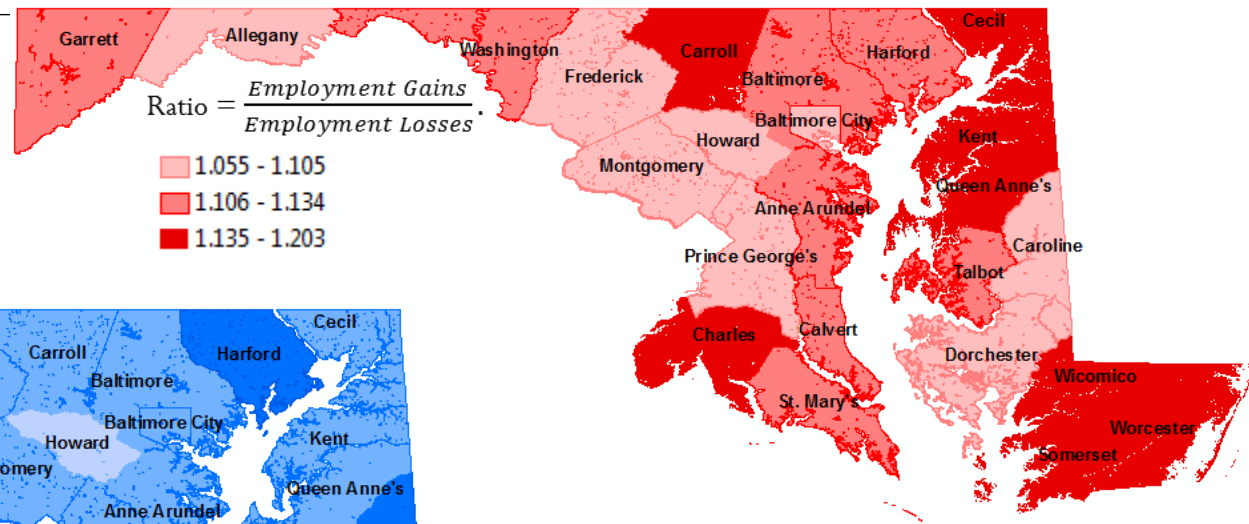
“After
recession”
map

Each slide includes 3 Maps

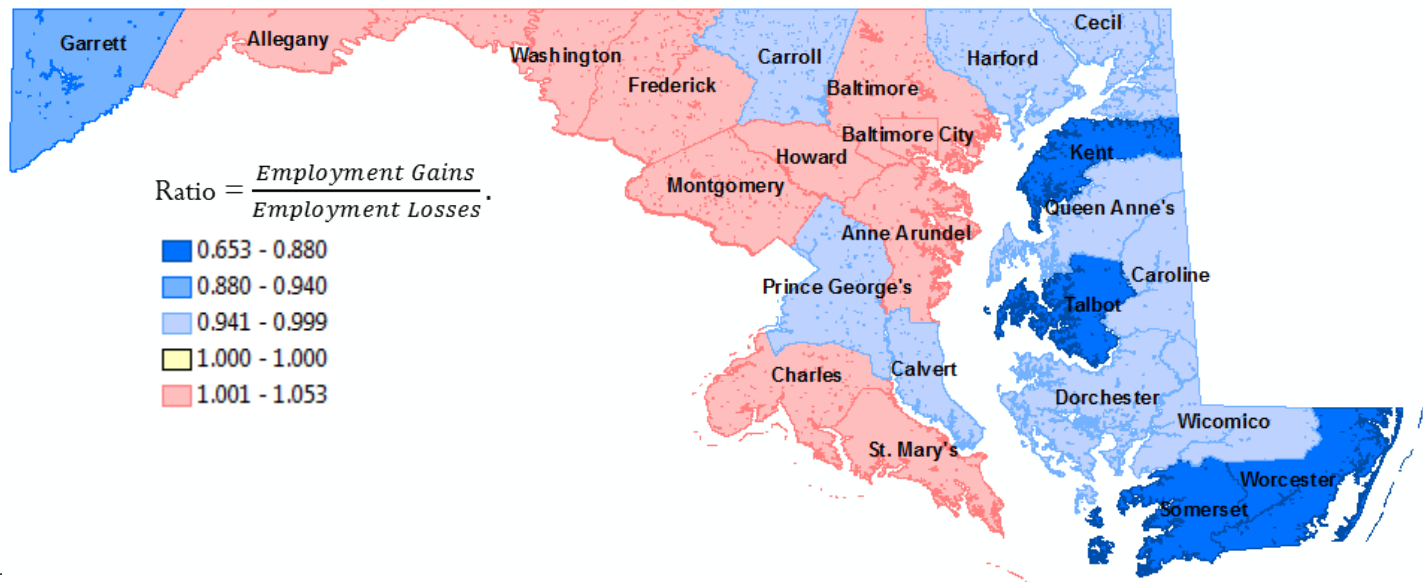
Summary of Findings to Date

- The overall *level* of county-specific employment has not changed much from the beginning of 2004 through the end of 2010. Note: These county-specific employment level changes are not mapped in this presentation because of no significant changes in county disparities.
- Shown in Slide 7, all 24 Maryland counties had positive mean quarterly net employment Gains—summed business establishment employment *gains* (numerator) exceeded business establishment employment *losses* (denominator)—during the defined **before recession** time span (2004 qtr 1—2007 qtr 3).
- Only 2 counties had positive mean quarterly net employment Gains in the **during recession** time span (2007 qtr 4—2009 qtr 2).
- Ten counties have shown positive mean quarterly net employment Gains in the **After recession** time span (2009 qtr 3—2010 qtr 4).

Before recession
(2004q1-- 2007q3)



Employment Gains vs.
Losses

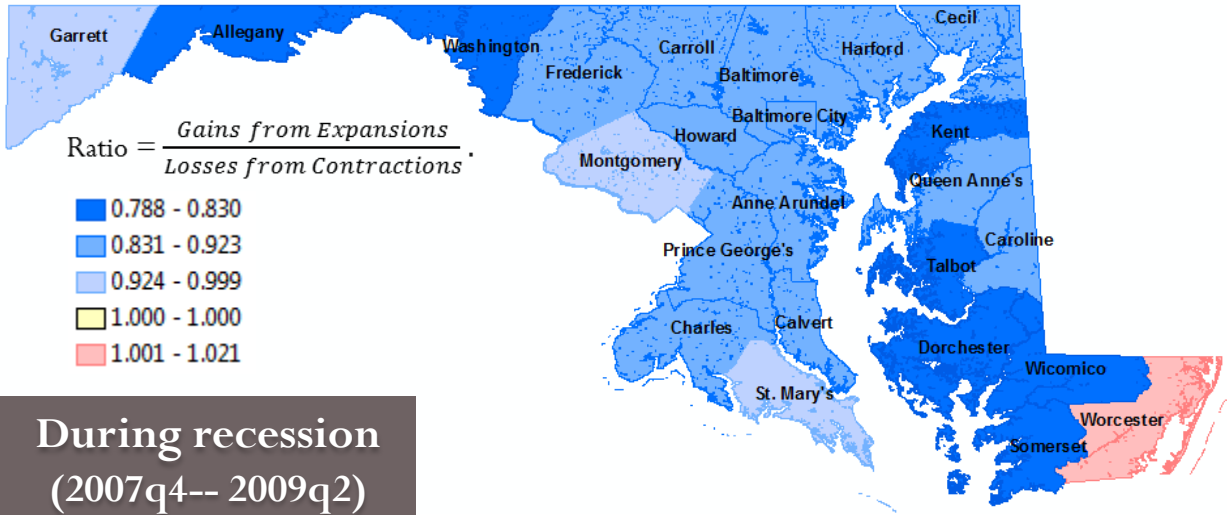
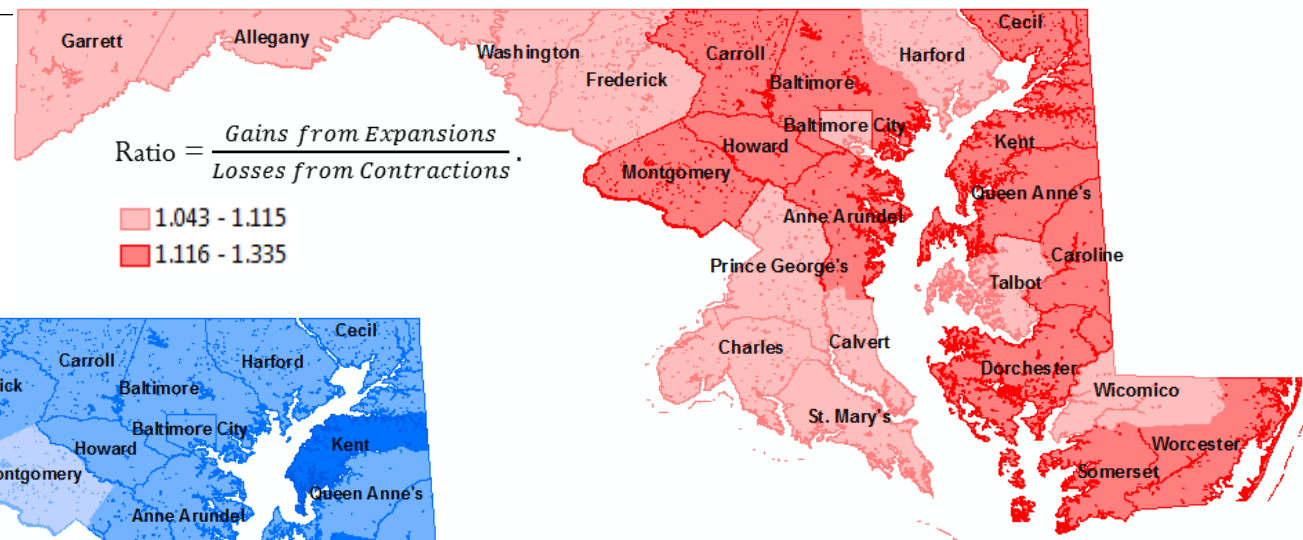


After recession
(2009q3-- 2010q4)

Components of Employment Dynamics

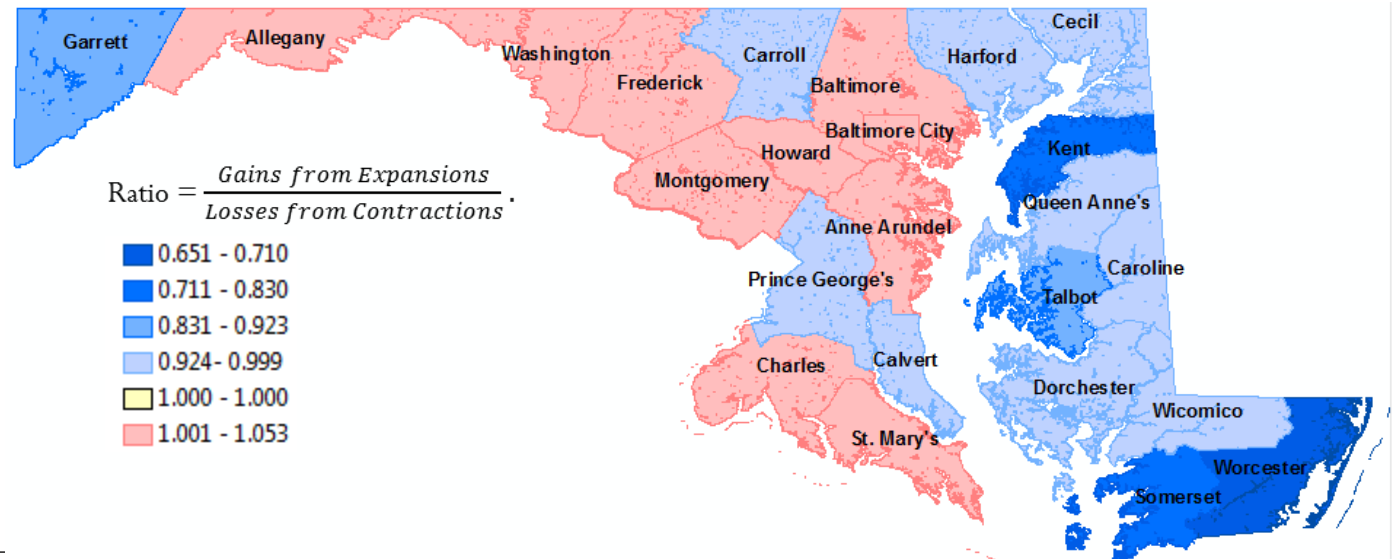
- Aggregate net employment *gain* or *loss* can be broken down to more specific measures to understand the composition of local business conditions and actions.
- The employment change components presented in the remainder of this presentation are (see definitions in Slides 3 and 4 of the presentation):
 - Business establishment *expansion vs. contraction* (see Slide 9)
 - Business establishment *opening vs. closing* (see Slide 10)
 - Business establishment *birth vs. death* (see Slide 11)
 - Business establishment *merger and acquisition* (see Slides 13-16), including
 - Business establishment *opening without predecessor vs. closing without successor*
 - Business establishment *opening with predecessor vs. closing with successor*
 - Business establishment *birth without predecessor vs. death without successor*
 - Business establishment *birth with predecessor vs. death with successor*

Before recession
(2004q1-- 2007q3)



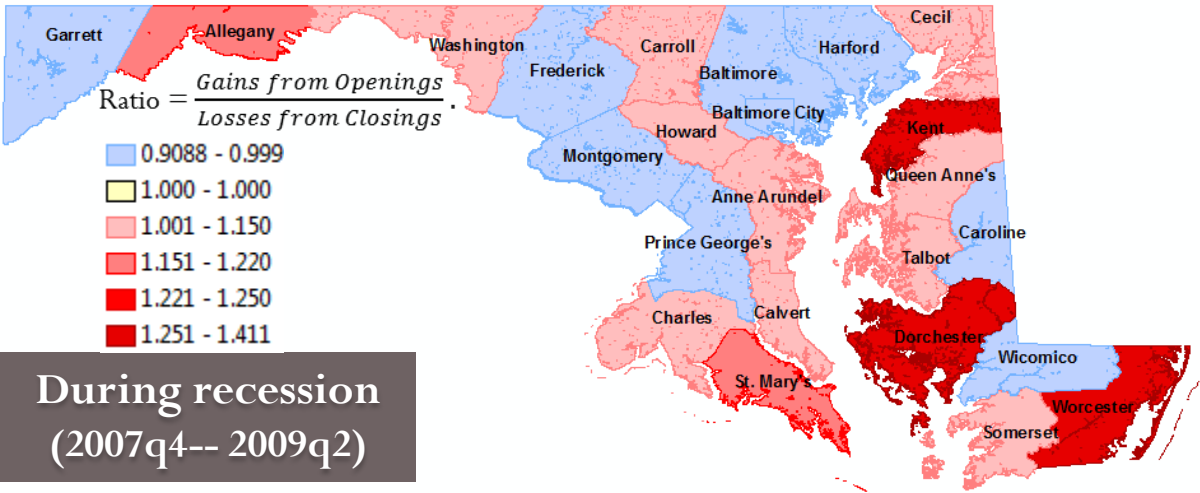
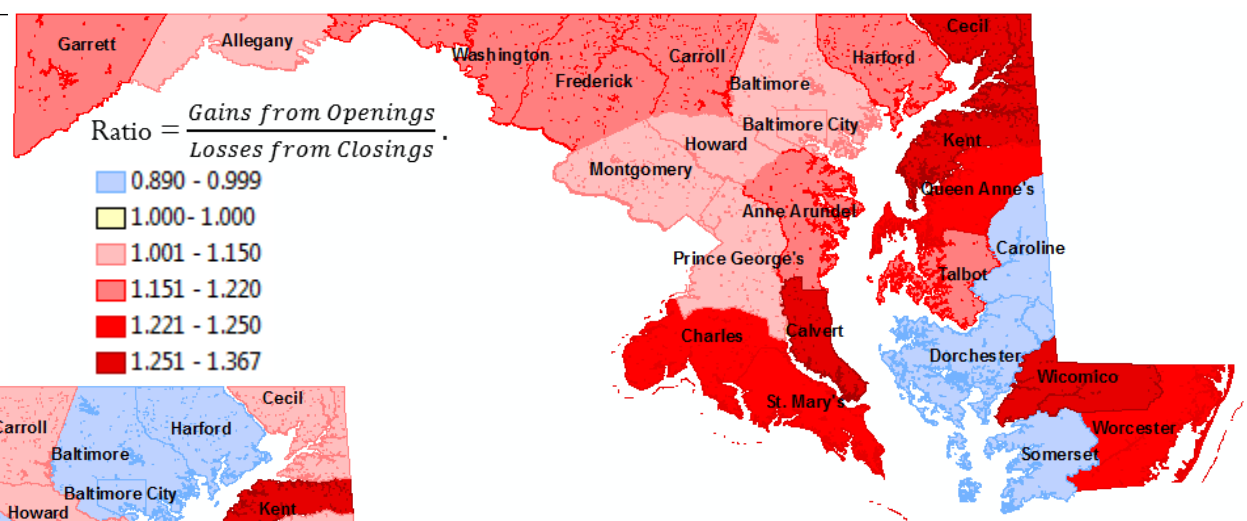
Employment Gains from
Expansions vs. Loss from
Contractions

During recession
(2007q4-- 2009q2)



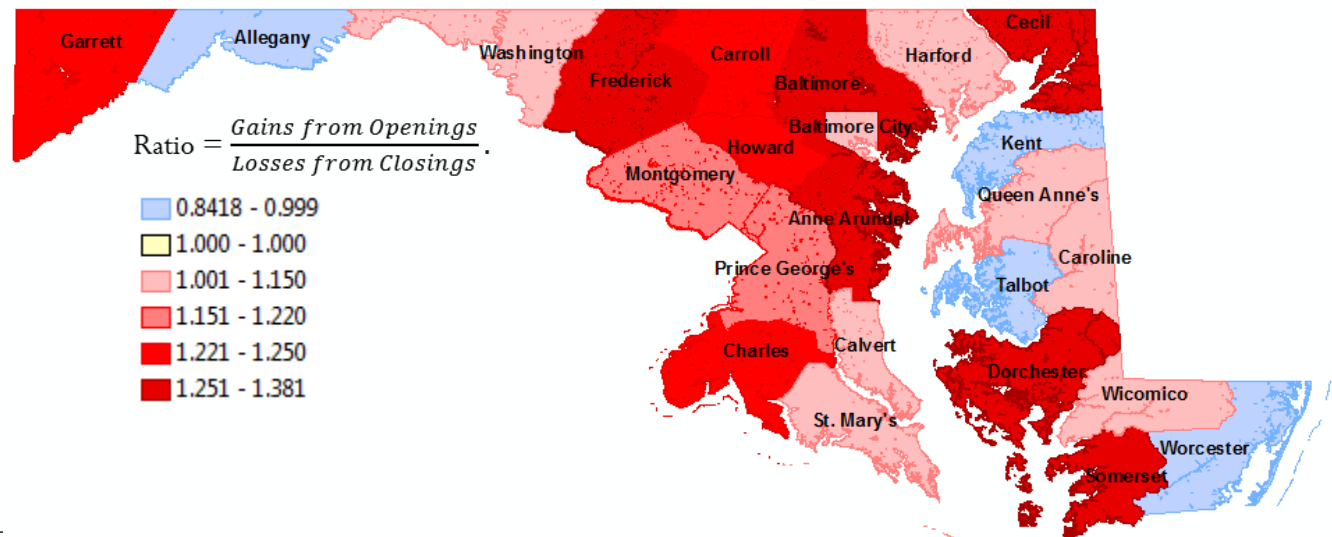
After recession
(2009q3-- 2010q4)

Before recession
(2004q1-- 2007q3)



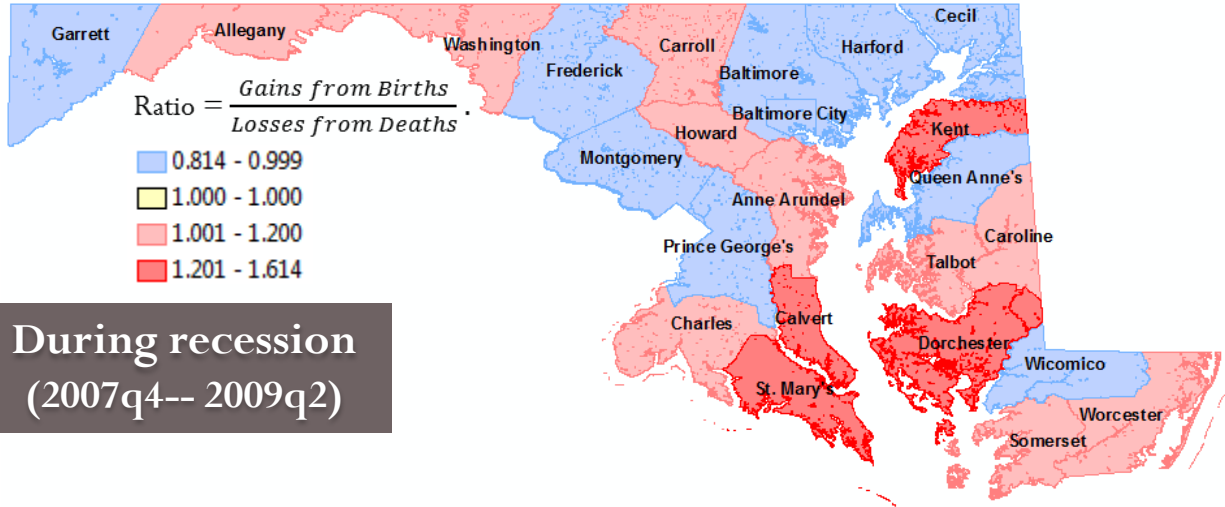
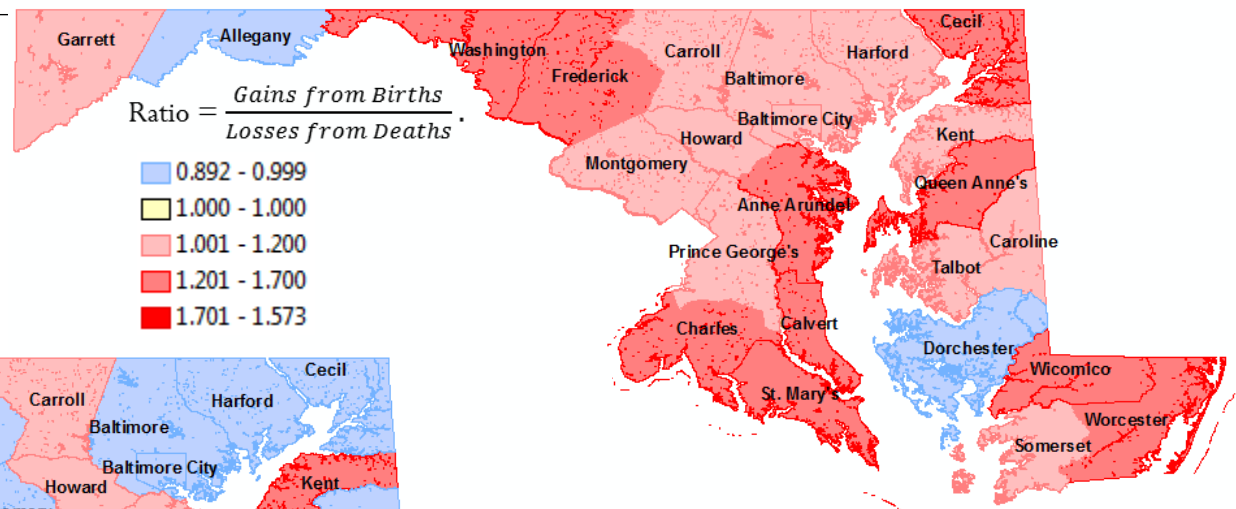
Employment Gains from
Openings vs.
Losses from Closings

During recession
(2007q4-- 2009q2)



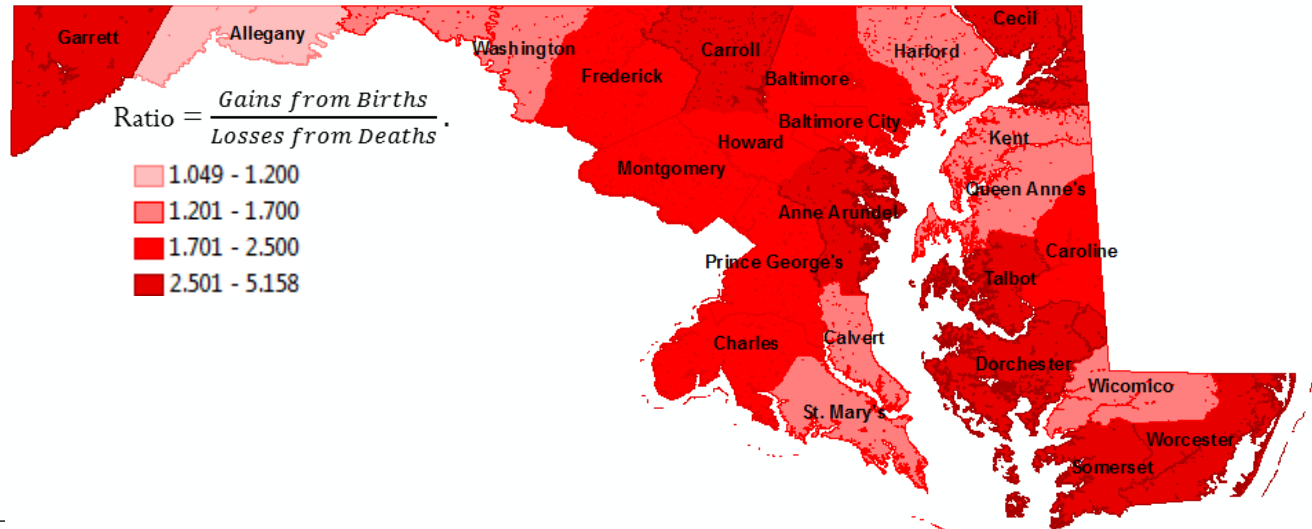
After recession
(2009q3-- 2010q4)

Before recession
(2004q1-- 2007q3)



During recession
(2007q4-- 2009q2)

Employment Gains from
Births vs.
Losses from Deaths



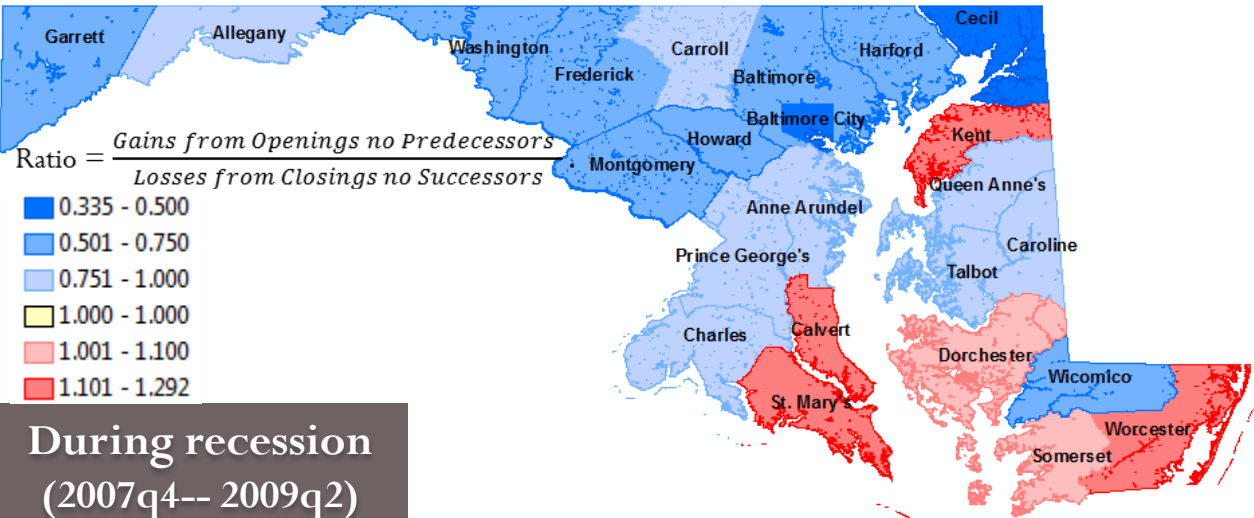
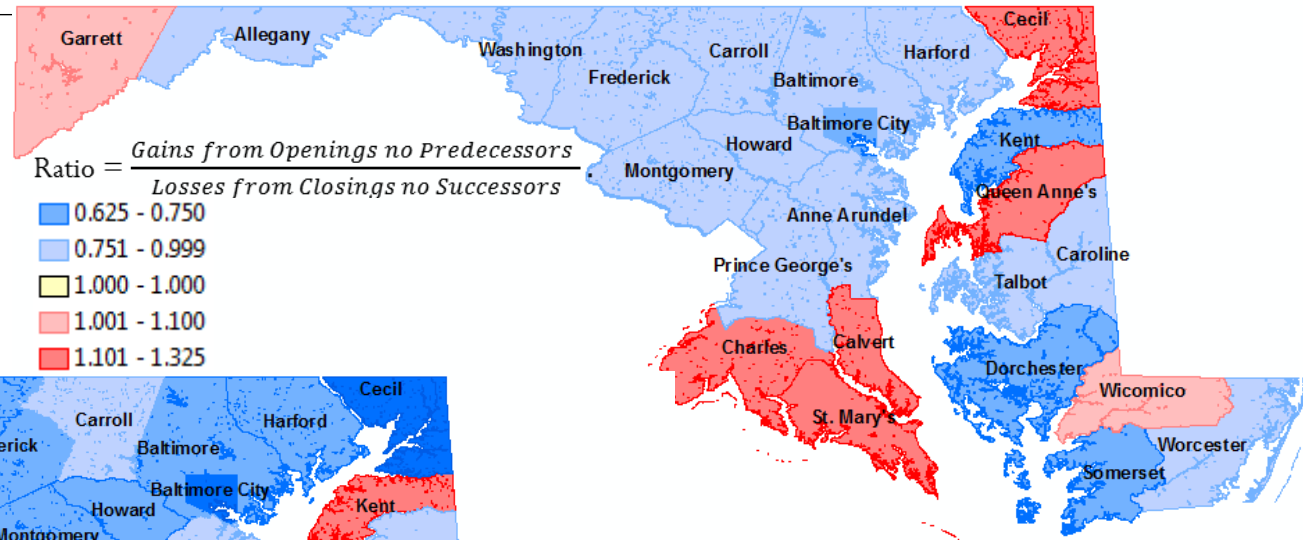
After recession
(2009q3-- 2010q4)

The Role of Mergers and Acquisitions

The following three slides show:

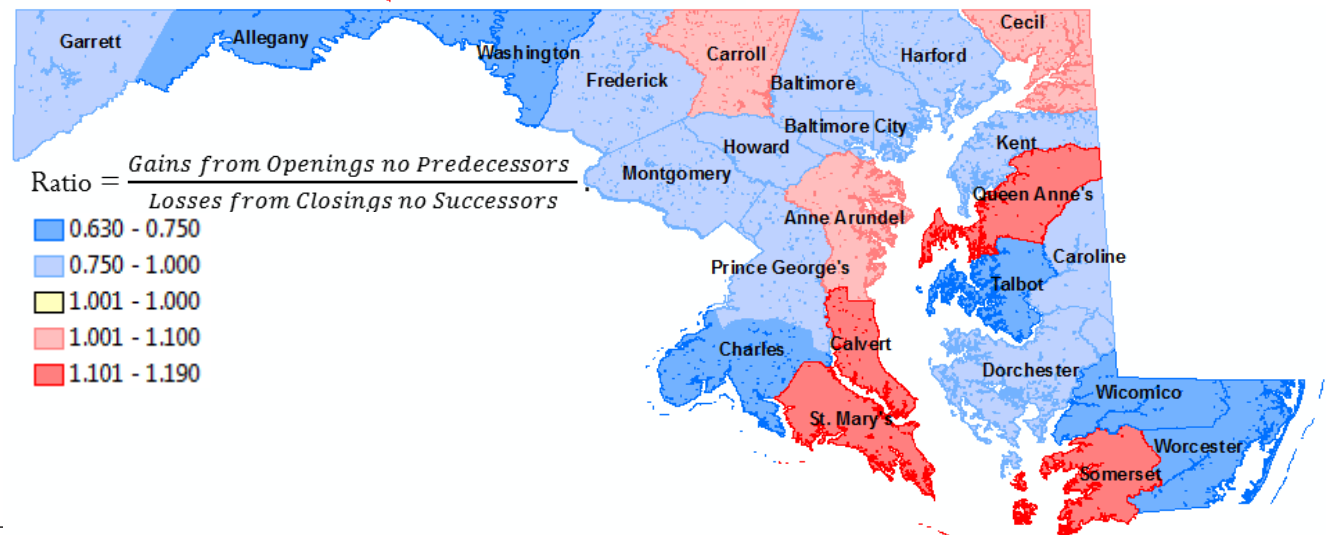
- Business *merger and acquisition* transactions result in positive net employment gains (showing in red on the maps of Slides 14 and 16) across most counties and across all the three economic periods; however, business *openings, closings, births, and deaths without merger and acquisition* transactions result in more negative net employment changes (showing more blues on the maps of Slides 13 and 15). Please note that the *merger and acquisition* transaction information is according to the QCEW data *predecessor or successor* linkages.
- Another source of positive mean quarterly net employment gains in the **after recession** time span (2009 qtr 3—2010 qtr 4) is employment reported for *new business establishments without merger and acquisition* links; that is, business *births without predecessors* as previously defined. This is shown in Slide 15.

Before recession
(2004q1-- 2007q3)



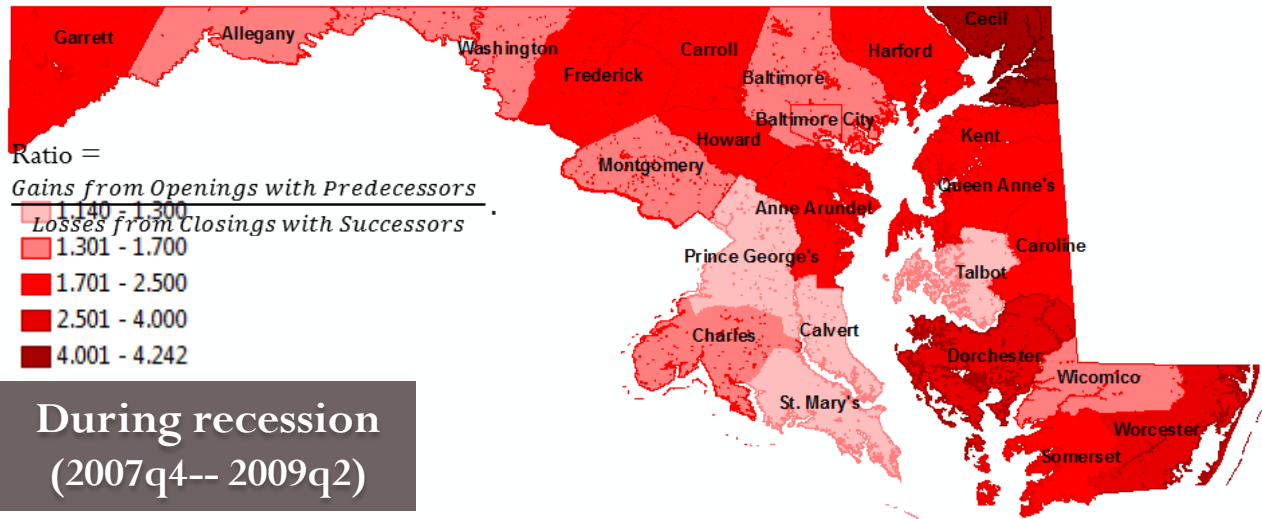
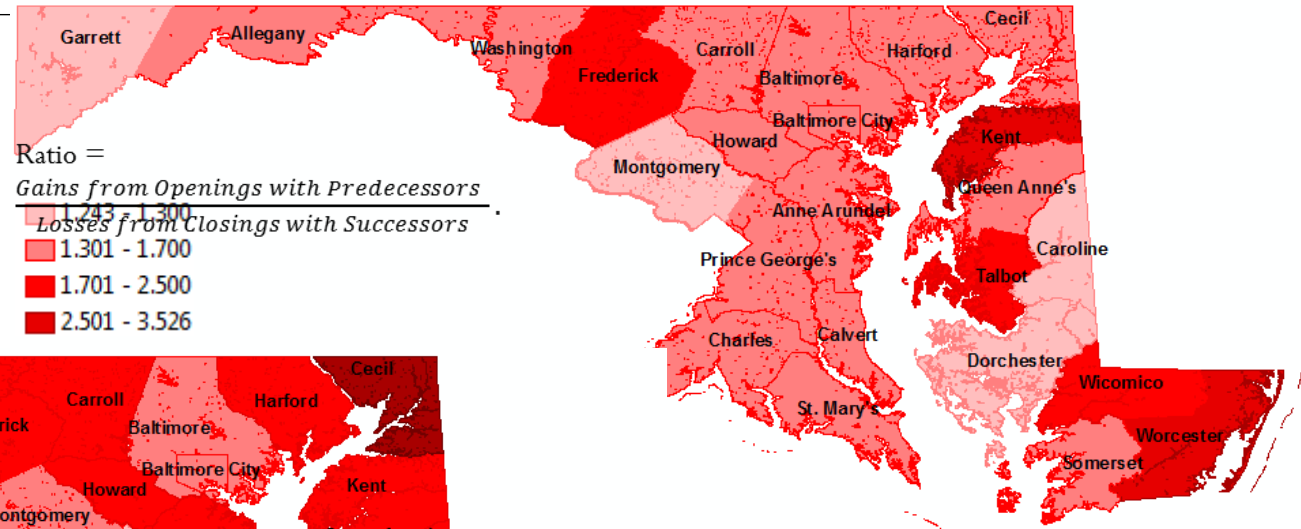
Employment Gains from
Openings without
Predecessors vs. Losses from
Closings without Successors

During recession
(2007q4-- 2009q2)



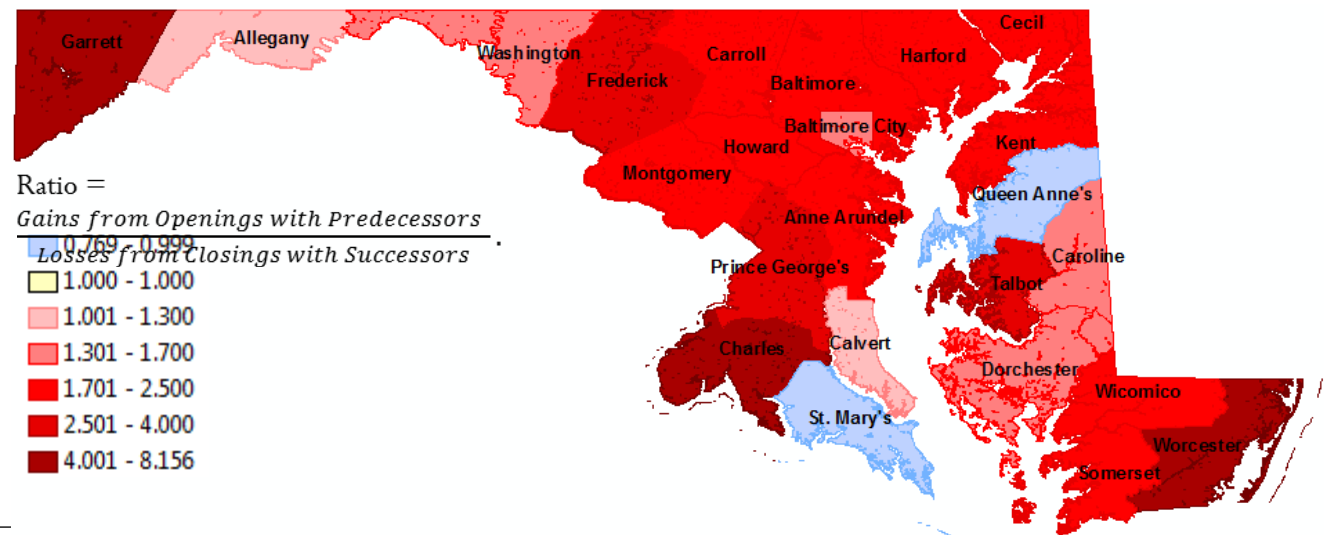
After recession
(2009q3-- 2010q4)

Before recession
(2004q1-- 2007q3)



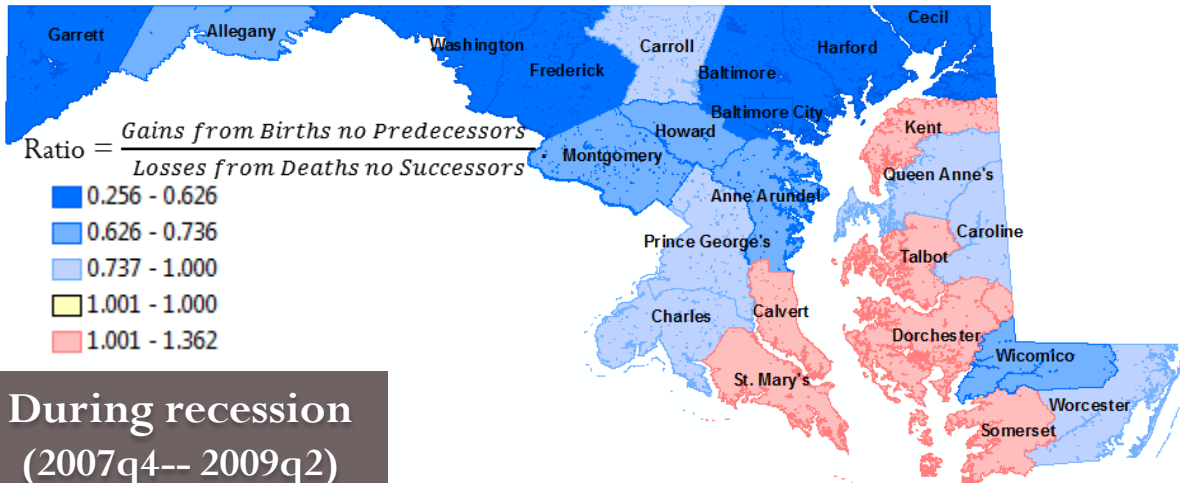
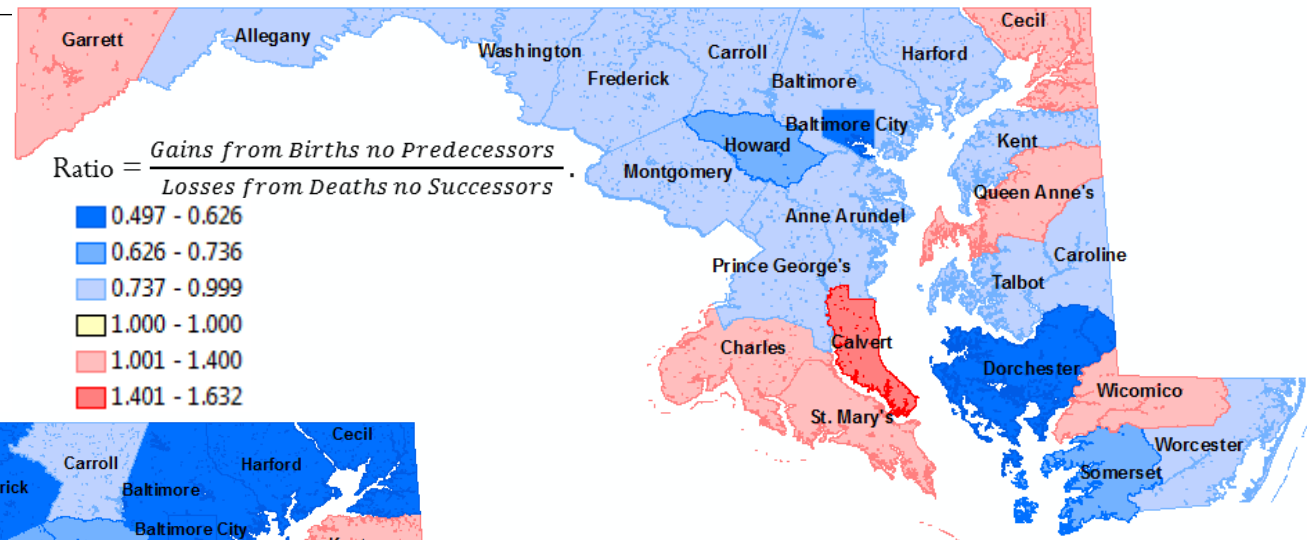
Employment Gains from
Openings with Predecessors
vs. Losses from Closings with
Successors

During recession
(2007q4-- 2009q2)



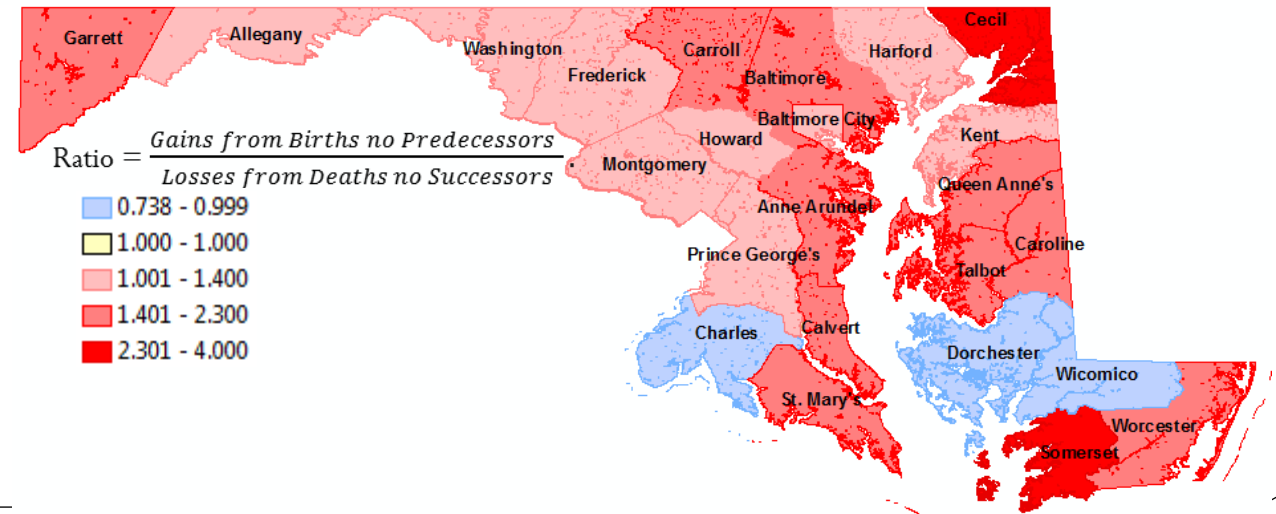
After recession
(2009q3-- 2010q4)

Before recession
(2004q1-- 2007q3)



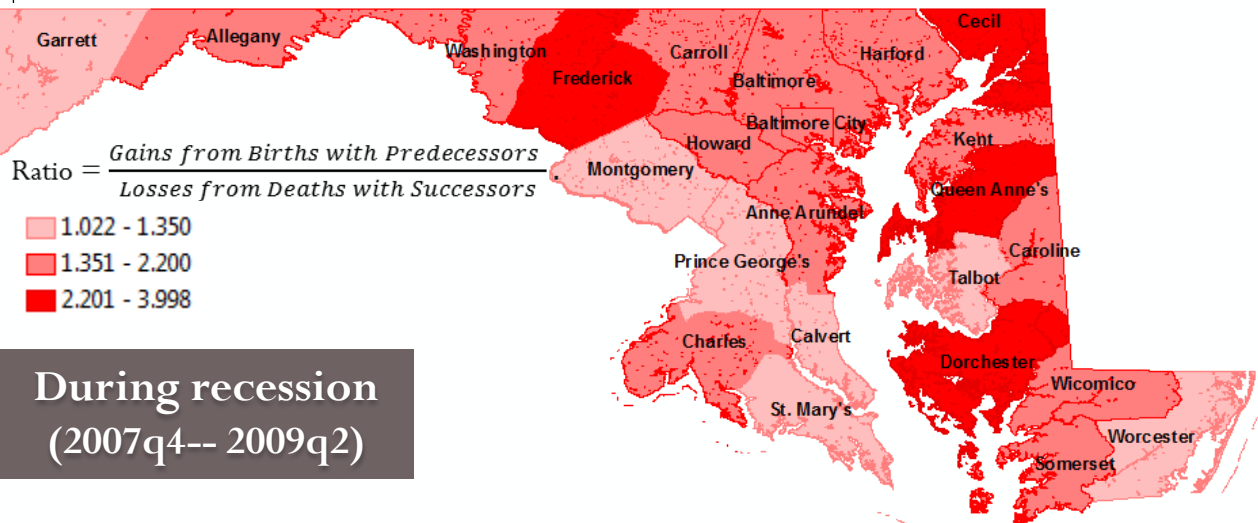
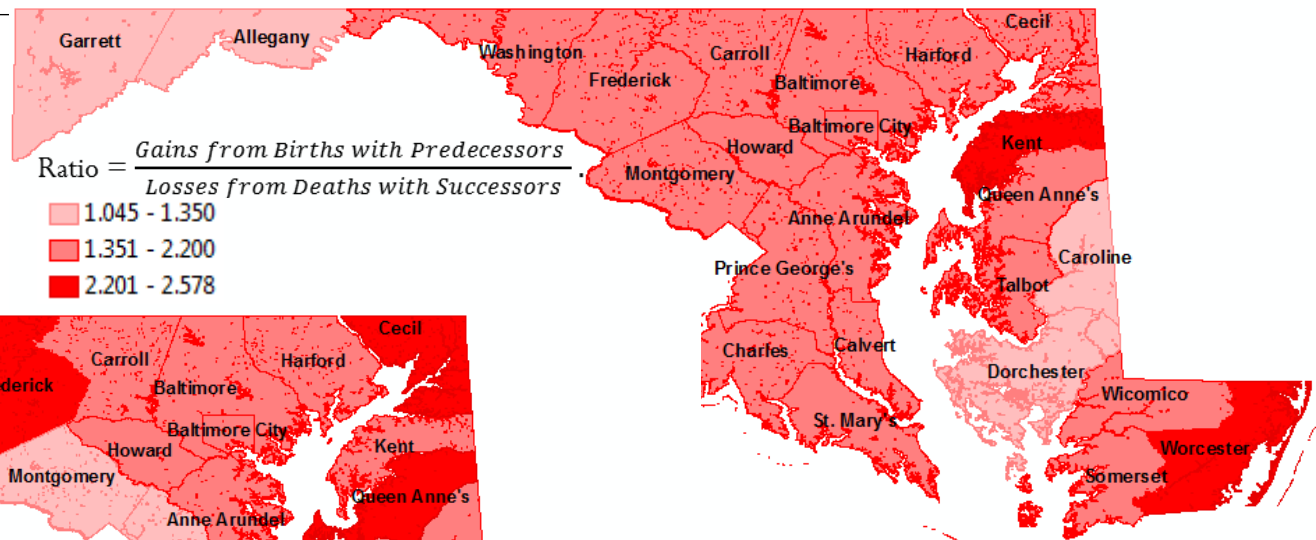
Employment Gains from
Births without Predecessors
vs. Loss from Deaths without
Successors

During recession
(2007q4-- 2009q2)



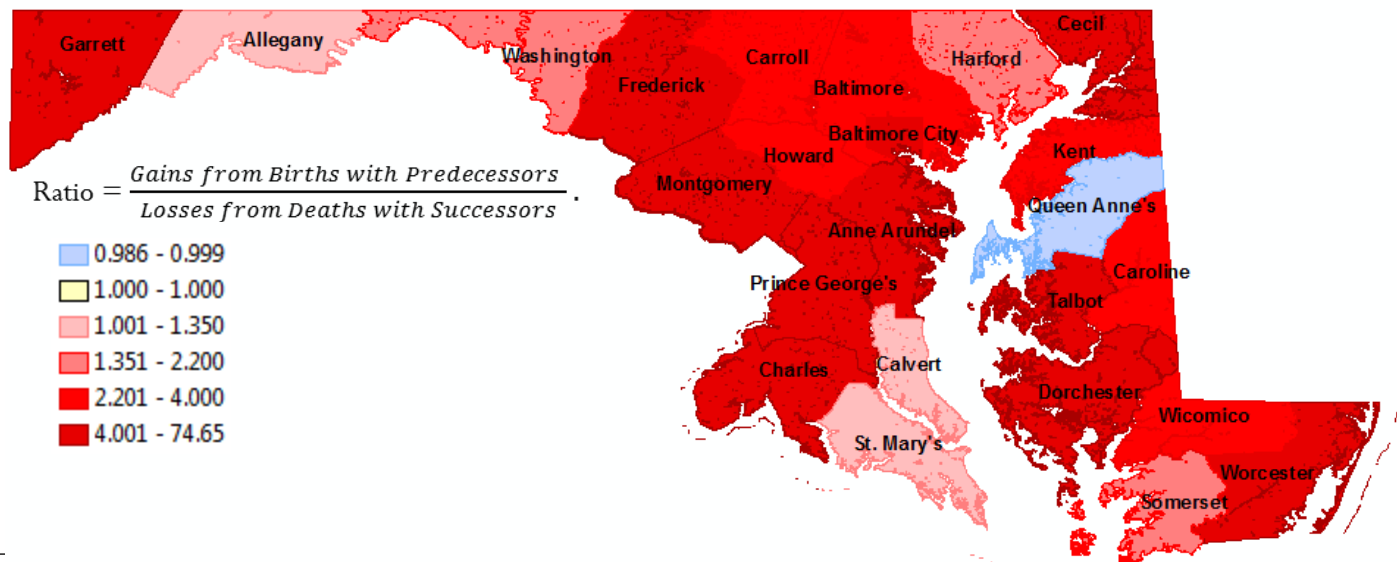
After recession
(2009q3-- 2010q4)

Before recession
(2004q1-- 2007q3)



During recession
(2007q4-- 2009q2)

Employment Gains from
Births with Predecessors vs.
Losses from Deaths with
Successors

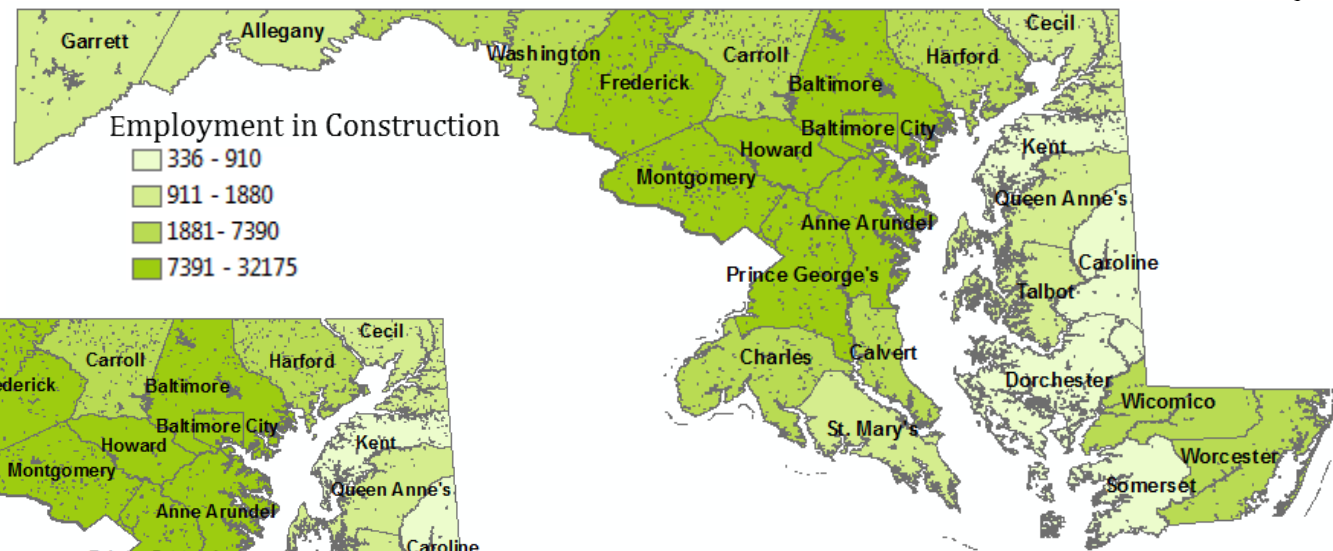


After recession
(2009q3-- 2010q4)

An Industry Level Example: The Construction Sector for the next Three Slides (NAICS code 23)

- In each of the three defined time spans, including the **during recession** time coverage (2007 qtr 4—2009 qtr 2), mean quarterly employment in *construction* (see Slide 18) was higher in the counties in the center of the state.
- In the **After recession** stage (2009 qtr 3-2010 qtr 4), net employment gains stand out as a result of business *birth* and *death* dynamics (comparing Slide 20 to Slide 19).

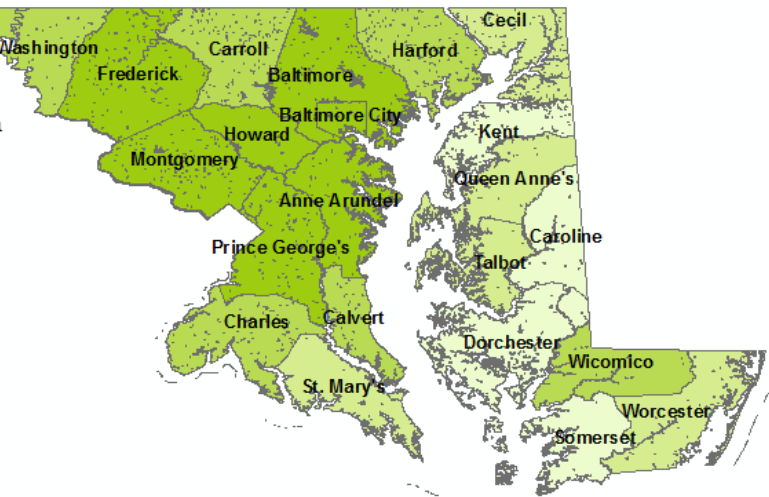
Before recession
(2004q1-- 2007q3)



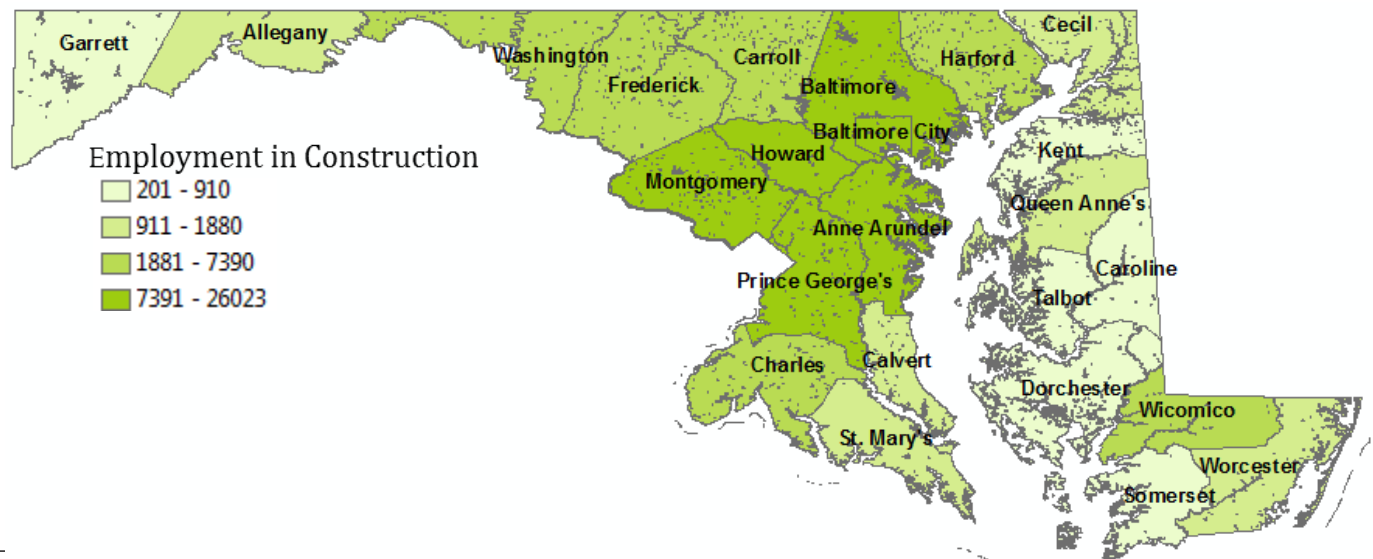
Employment in Construction

- 268 - 910
- 911 - 1880
- 1881 - 7390
- 7391 - 30940

During recession
(2007q4-- 2009q2)

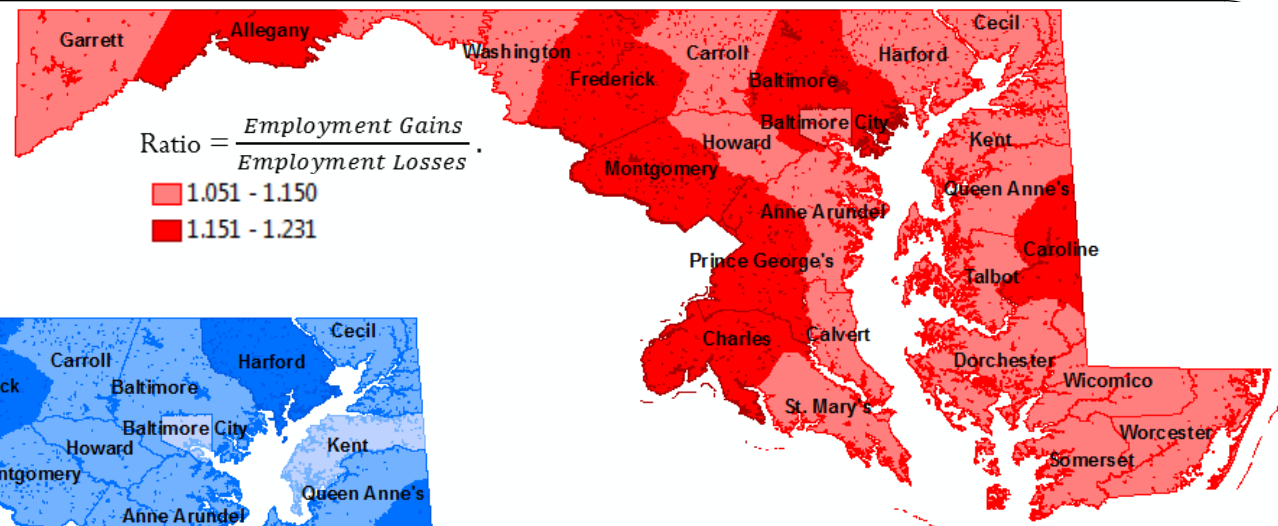


Employment



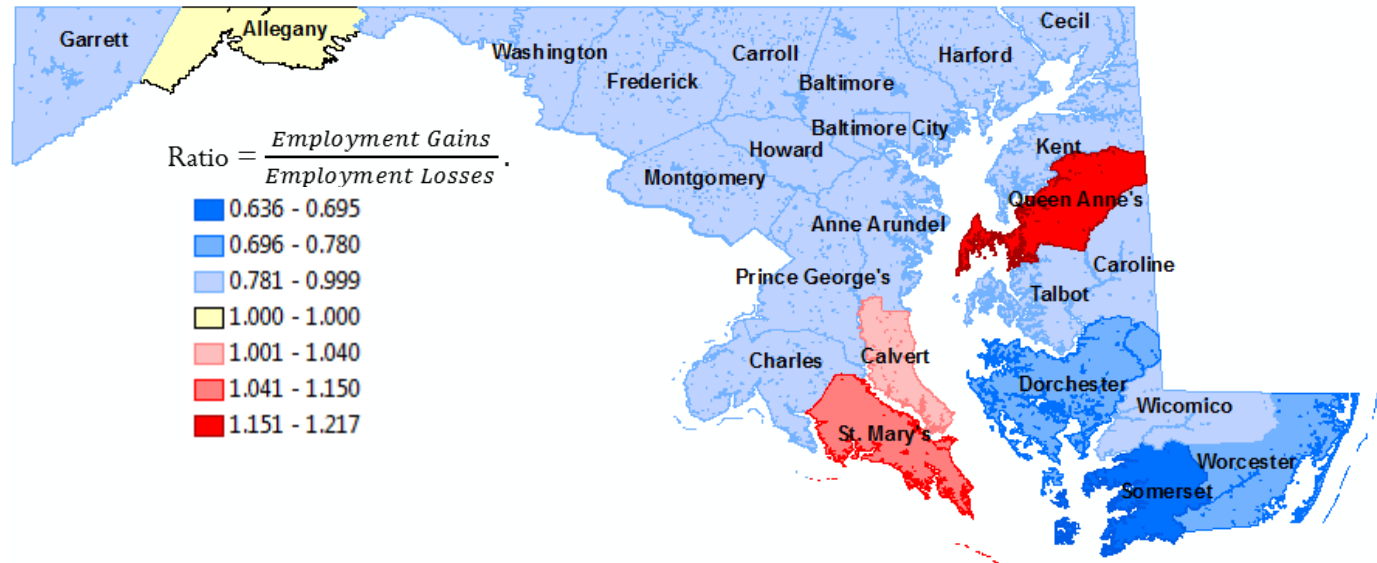
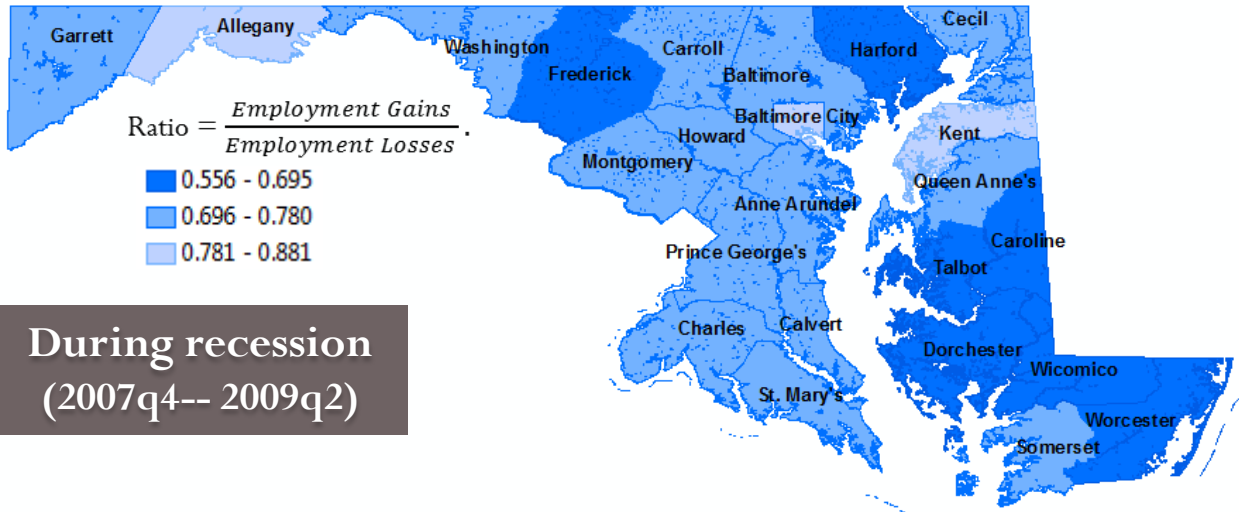
After recession
(2009q3-- 2010q4)

Before recession
(2004q1-- 2007q3)



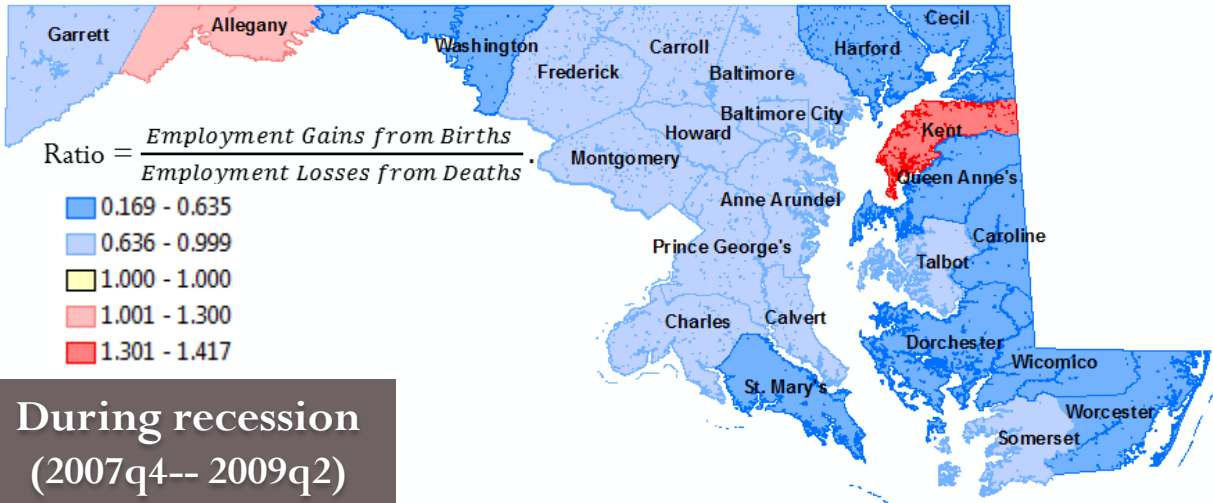
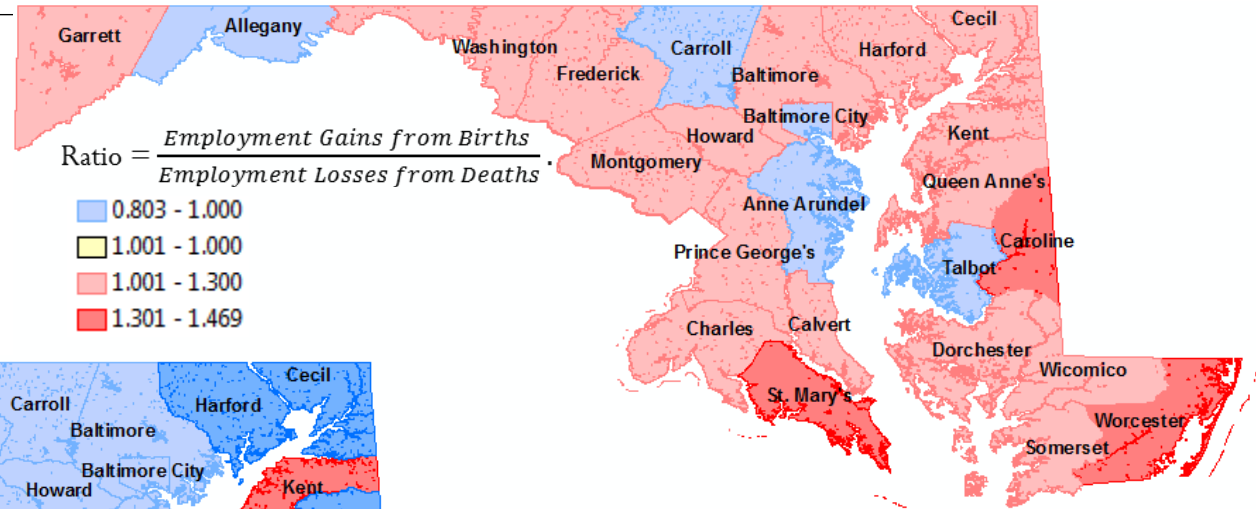
Employment Gains vs. Losses

During recession
(2007q4-- 2009q2)



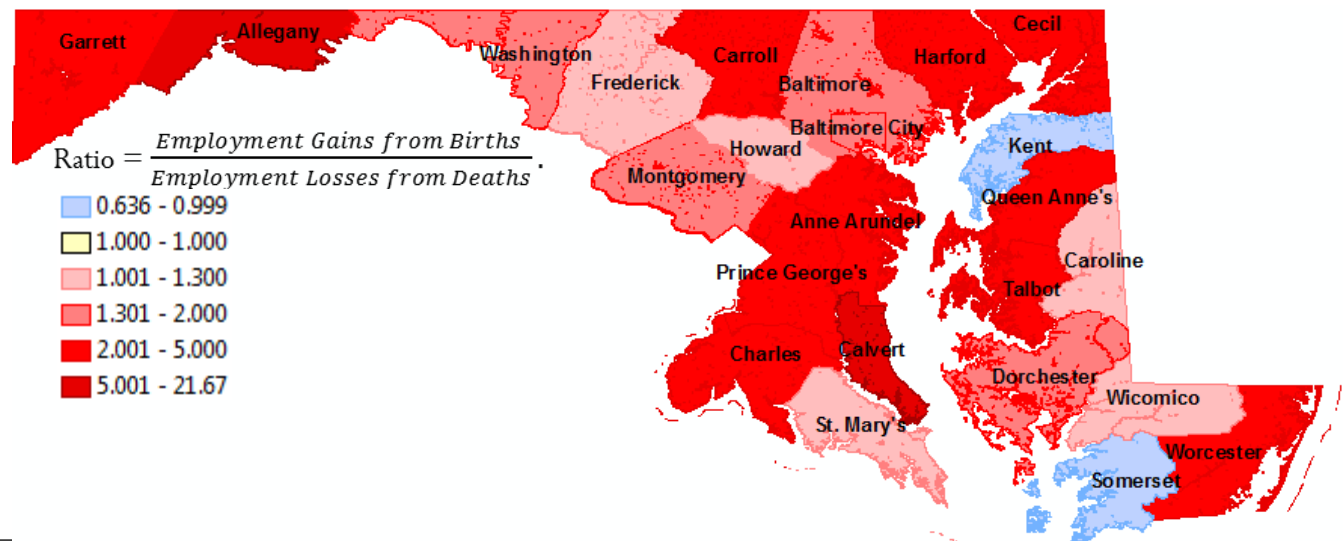
After recession
(2009q3-- 2010q4)

Before recession
(2004q1-- 2007q3)



Employment Gains from
Births vs. Losses from Deaths

During recession
(2007q4-- 2009q2)



After recession
(2009q3-- 2010q4)

Where Are Dislocated Workers' New Jobs after the Recession?

- Maps shown in Slide 22 differ from maps shown previously. Maps in Slide 22 track locations of jobs after the recession started, comparing to before the recession and using Carroll County as an example.
- In Slide 22, the contrasting two periods, “before the recession” and “after the recession started”, both cover three years or 12 quarters to make the fair comparison. “Before the recession” refers to 2004 qtr 4-2007 qtr 3 and “after the recession started” refers to 2007 qtr 4 to 2010 qtr 3.
- Both QCEW data and UI Wage Records are used to generate an integrate dataset for maps in Slide 22.
- After businesses in Carroll County died, some of their employees (who became dislocated workers) found new jobs, but not necessarily in the same county; in fact, most of them found elsewhere—Baltimore, Washington DC, etc.
- Job locations differ between before and after the recession started.

Locations of Lost Jobs in the Quarter ($q=0$) When Businesses Died

Before the Recession

- 1.000000 - 7.000000
- 7.000001 - 23.000000
- 23.000001 - 51.000000

After the Recession Started

- 1.000000 - 16.000000
- 16.000001 - 69.000000
- 69.000001 - 198.000000

4 Quarters Later ($q=4$), Locations of New Jobs Found by Workers Who Lost Jobs in Businesses that Died 1 Year Ago

Before the Recession

- 1.000000 - 2.000000
- 2.000001 - 7.000000
- 7.000001 - 23.000000

After the Recession Started

- 1.000000 - 21.000000
- 21.000001 - 60.000000
- 60.000001 - 150.000000