

# Oregon Population Forecast Program

## Regional Forecast Meeting - September 19, 2014

**Presentation by**

**Population Forecast Program Team**

**CROOK COUNTY**

# Oregon Population Forecast Program Project Team

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# Agenda

- Population Research Center (PRC)
- Forecast Program overview
  - Forecast regions
  - Schedule
  - Deliverables
  - Forecasting methods and data sources
  - Process for local input
- Demographic and economic trends

## PRC Research areas:

- **Oregon Population Forecast Program**
- Oregon Population Estimates Program
- Oregon State Data Center (SDC)
- Demographic Research and Advisory Services
- Applied Demography Instruction



# Forecast Program Overview

PRC Website:

<http://www.pdx.edu/prc>

Click here for —————→  
more information on OPFP

## PRC Statewide Programs

- Oregon Census State Data Center
- Annual Population Estimates
- Oregon Population Forecast Program

The Population Research Center (PRC) is an interdisciplinary public service, research, and training unit for population-related data and research for the State of Oregon. The mission of PRC is to provide population data, information, and research analysis for Oregon and its communities. Center staff engage in a variety of demographic activities, including the Oregon State Data Center, the Oregon Population Estimates Program, and a variety of commissioned population projects. PRC staff also teach in the Nohad A. Toulan School of Urban Studies and Planning, supporting a graduate concentration in applied demography and a graduate certificate program in applied demography.



POPULATION RESEARCH CENTER



New at PRC:

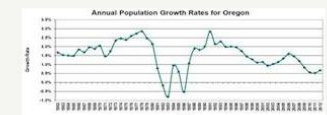
### Estimates questionnaire goes online:

We are converting to an electronic process of data collection beginning in summer of 2013.

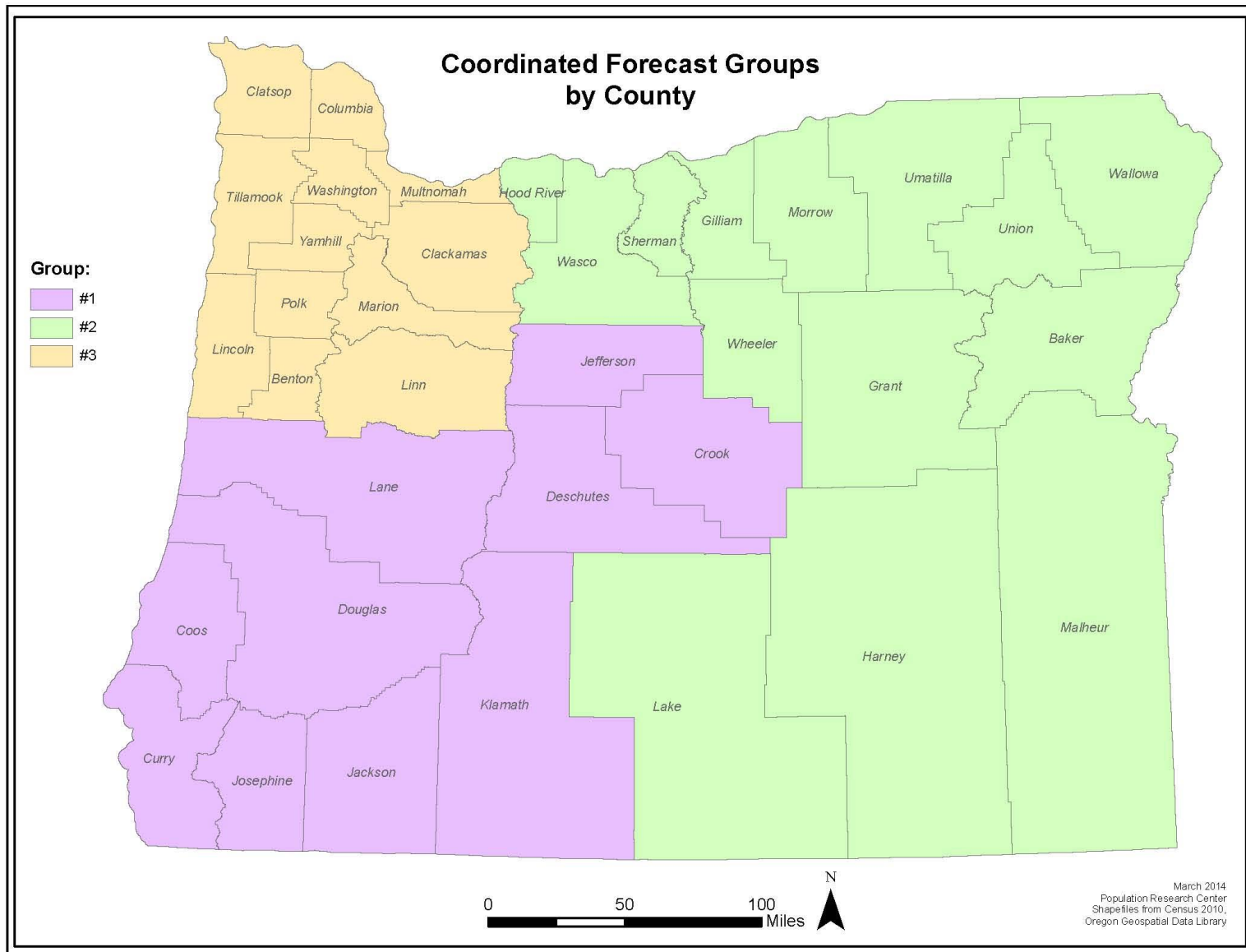
The link to the web-based annual questionnaire will be emailed to the contact person we have on file from previous completed forms.

If you are the estimates contact person for your city or county, watch your email for the 2013 Annual Housing Unit and Population Questionnaire. Instructions will be provided with the email and questionnaire.

How we grow: see the **new annual population tables** for 2012!

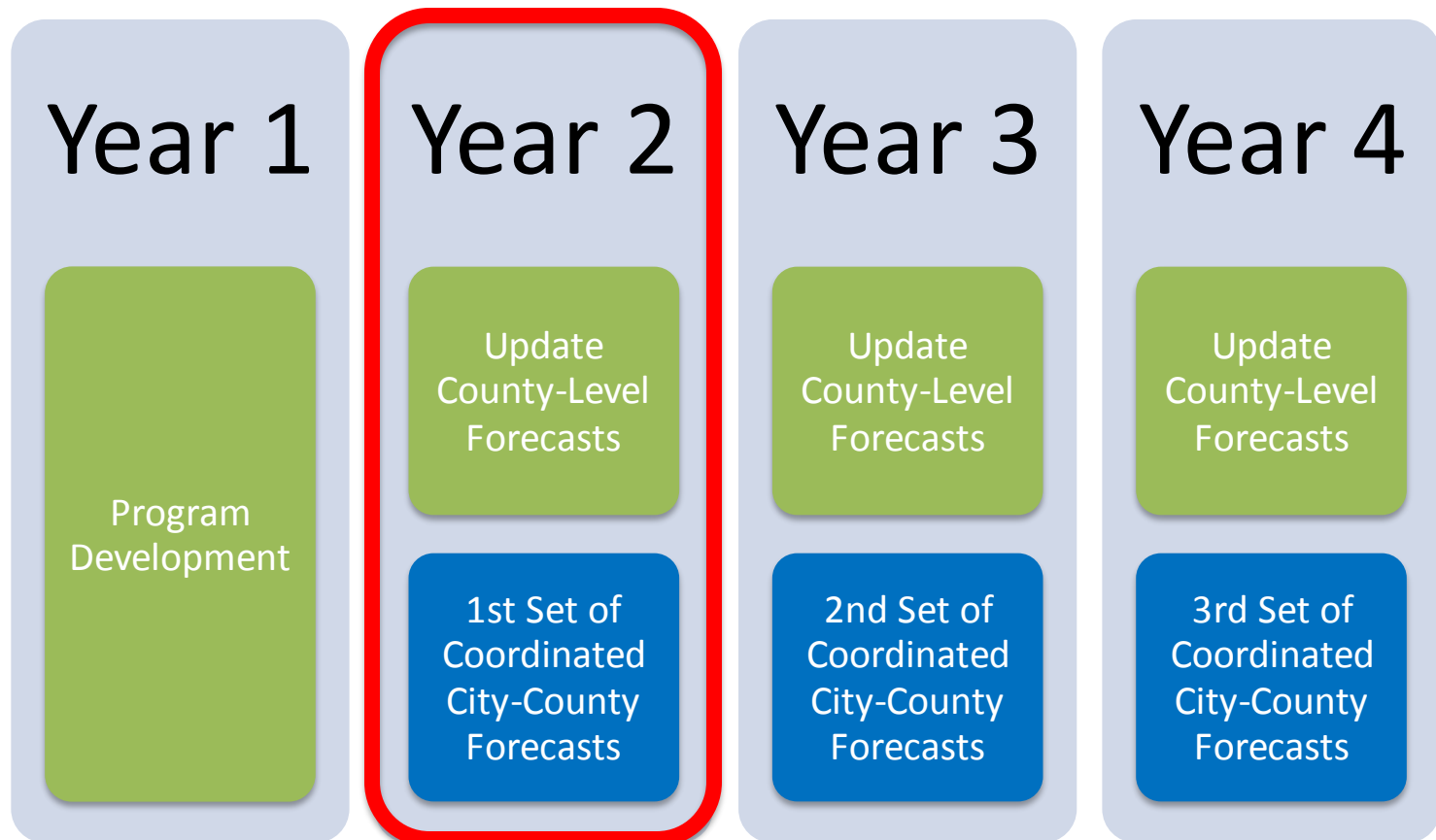


# Forecast Program Overview

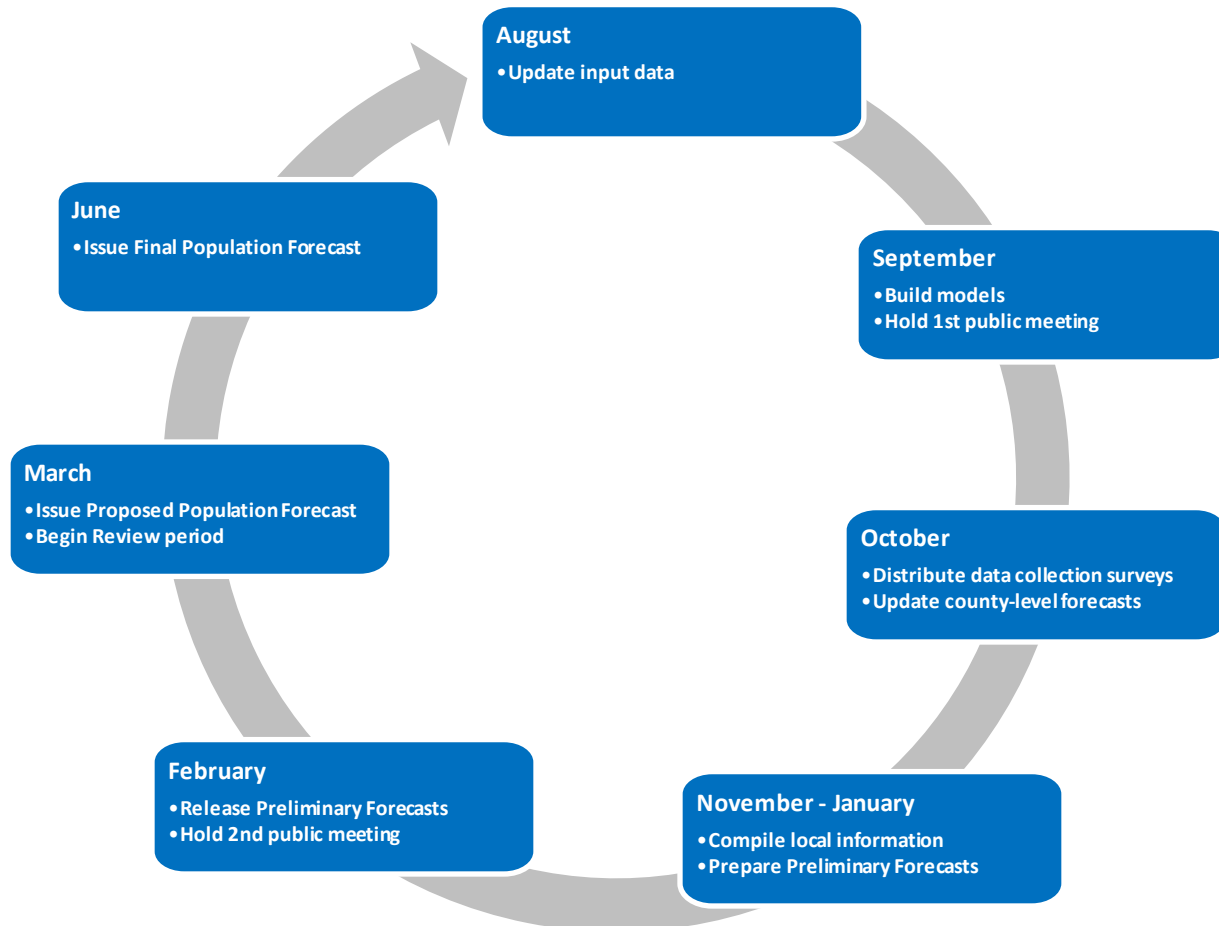




## Forecast Program: 4-Year Schedule



## Coordinated Forecast: Annual Schedule





## Deliverables

- County-level forecasts
  - 50 year horizon
  - 5-year age cohorts by sex
- Coordinated city-level forecasts
  - UGB forecasts
  - Total population
- Report containing:
  - Information for all incorporated cities and counties
  - Summaries of historic and future demographic trends, assumptions about future growth, and a compilation of information collected from city and county officials and the public
  - Short technical description of methods employed to produce the forecast

## Process for Population Forecasts

- Develop demographic models using historic and recent data
- Analyze past and current population trends
  - Reasons for change, continuous or short-term?
- Gather information about existing and planned future housing, and about population change
  - Housing developments
  - Construction of new GQ facilities
  - New employers
- Make assumptions about future housing and population change
- Revise forecasts on a regular basis

## Population Forecast Methods

### Primary Models for this Forecast

- Cohort-Component Method
  - Relies on Age-Sex Schedules of demographic behavior
  - Population pyramid displays age structure
  - Mortality - Fairly constant over time
  - Fertility - Decreased teen fertility, older mothers and Latino births
  - Migration Rates - Subject to greater fluctuation than mortality and fertility and more unpredictable
  - Generally used for areas with larger populations

## Population Forecast Methods

### Primary Models for this Forecast

- Housing Unit Method
  - For smaller cities and unincorporated areas, outside of UGBs
    - Housing unit growth - Trend actual, trend county shares
    - Housing unit type (single-/multi-family)
    - Household composition
    - Persons Per Household (PPH)
    - Occupancy Rates
    - Add Group Quarters Population
  - Controlled to Cohort-Component Model results for county

## Population Forecast Methods

### Primary Models for this Forecast

- Housing Unit Method, con't.
  - Fluctuations in housing unit growth follow economic trends with exceptions
  - Persons Per Household (PPH)
    - Factors that influence PPH: Race/Ethnicity, Age (fertility), Economy
    - Generally decreasing in U.S.
  - Occupancy Rates - Seasonal Housing

## Population Forecast Methods

### Other Models/Methods to Consider

- For comparison and to serve as a check
- Shift-Share and other Ratio Methods
- Trend Extrapolation
- Simple Economic/Employment Model
- Additional Housing Unit Models (in addition to CC models)

## Population Forecast Data Sources

### **Primary Sources:**

- U.S. Census Bureau, Decennial Censuses
- Population Research Center (PRC), Oregon Population Estimates Program
- Oregon Health Authority, Center for Health Statistics
- Incorporated counties, Assessors Office
- Incorporated cities, Community Development/Planning Department
- Oregon Geospatial Enterprise Office (GEO), Spatial Data Library

### **Secondary Sources:**

- State of Oregon, Office of Economic Analysis
- U.S. Census Bureau, American Community Survey (ACS)
- U.S., Internal Revenue Service
- State of Oregon, Department of Revenue
- Oregon Department of Education
- U.S., Centers for Medicare and Medicaid Services
- State of Oregon, Employment Department

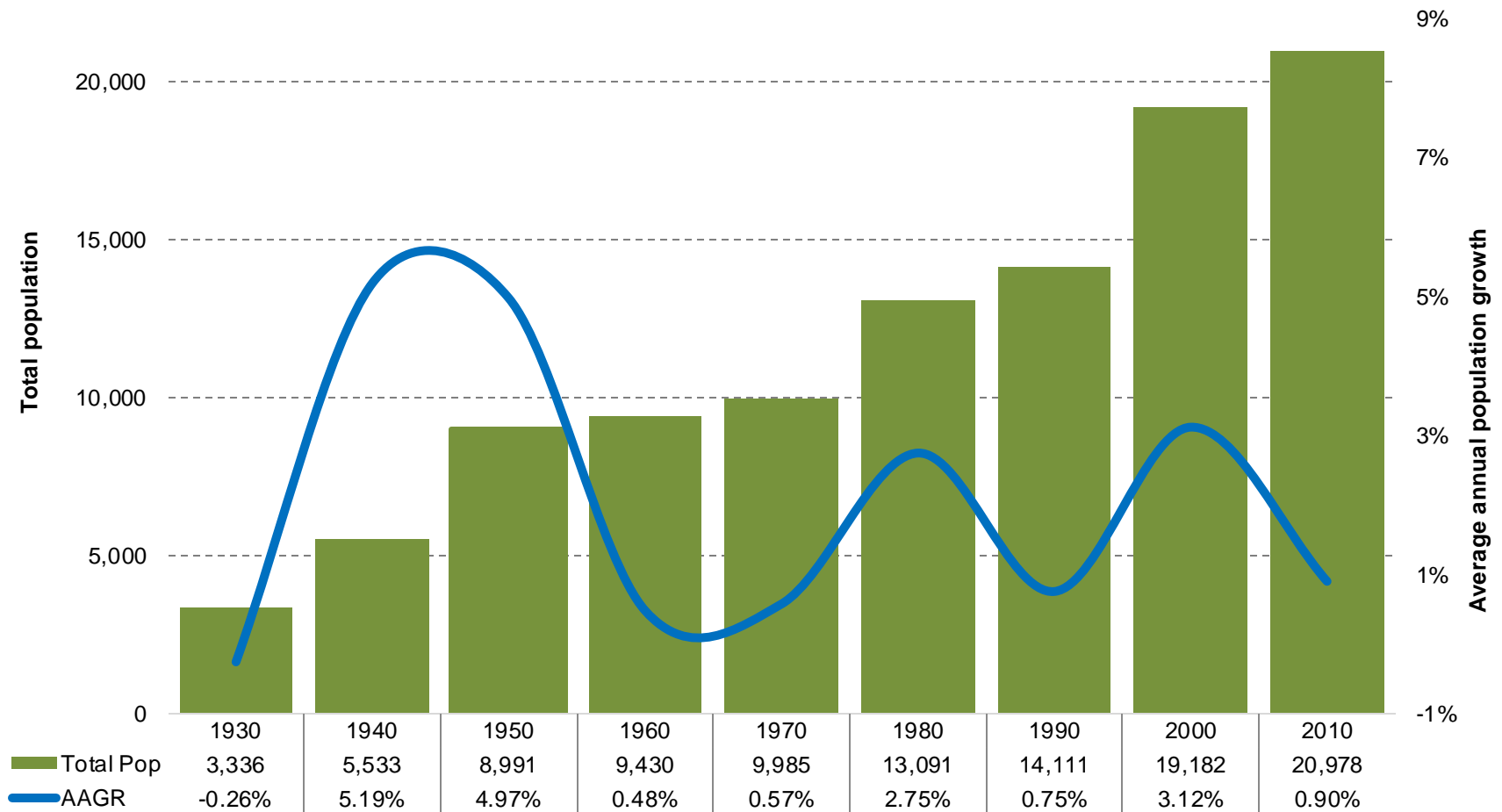


## Process for Local Input

- Hold regional meetings
  - Receive feed back on:
    - Historical and current demographic and economic trends
    - Local land use and growth management planning
- Local survey
  - Collect local observations
    - Population composition; recent change
    - Planned housing development plus group quarters facilities
    - Future employers
    - Infrastructure
      - Existing capacity
      - Planned expansion
    - Anything that might promote or hinder population growth
  - Survey will be posted on website and emailed to each jurisdiction
  - Issued in October, 2014

## Crook County

## Crook County – Historical Census Population

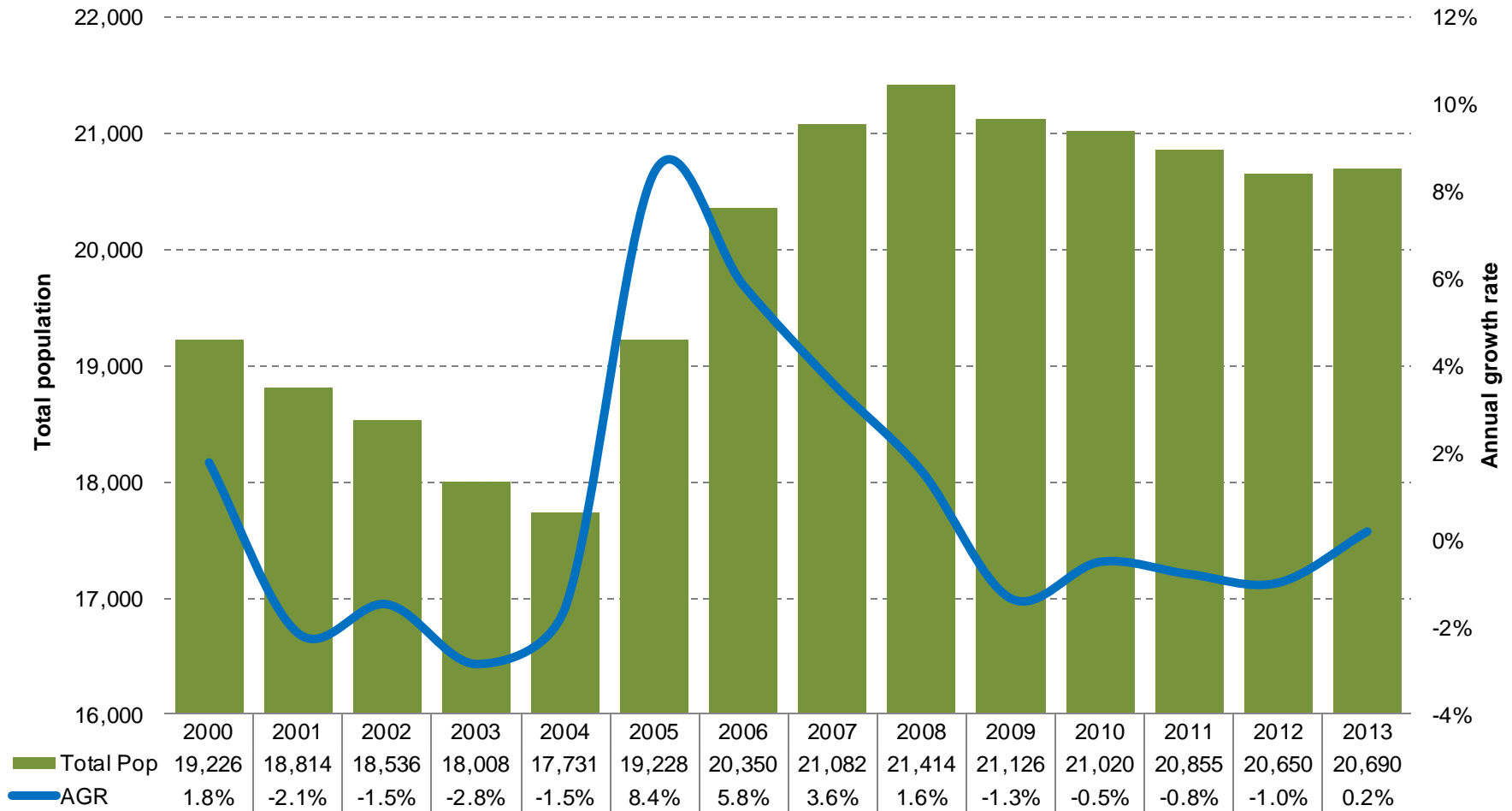


Source: U.S. Census Bureau, 1930 to 2010 Decennial Censuses. Calculated by Population Research Center (PRC).

Note 1: Average annual growth rate is used for simplicity. In actuality the rate is an annualized rate calculated with this formula =  $[(\text{Year1}/\text{Year2})^{(1/10)}] - 1$

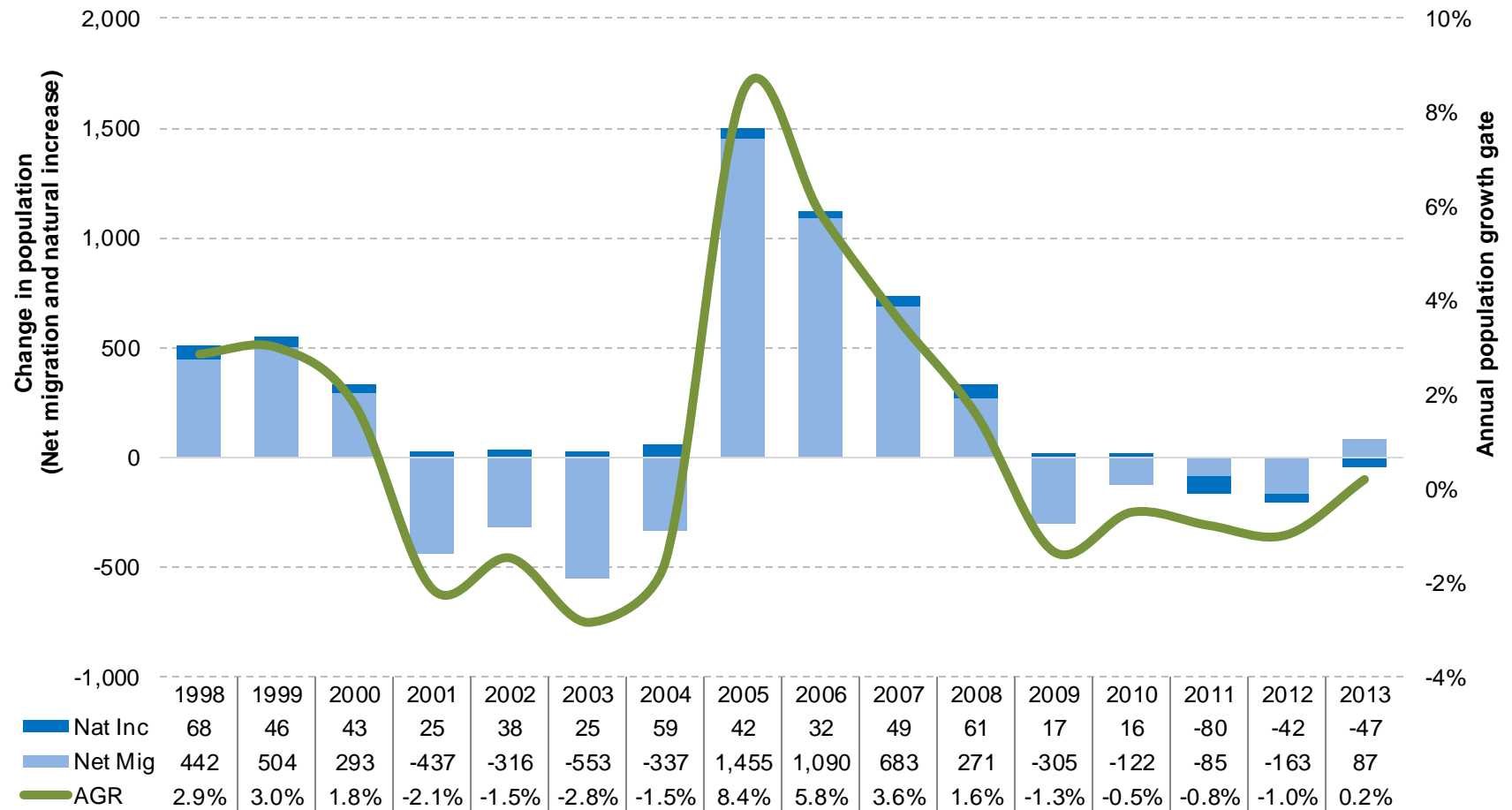
Note 2: The 2000 total population does not reflect Count Question Resolution (CQR) revisions made by the U.S. Census Bureau. Revised total population numbers are used for the "Crook County and Incorporated City Population" table.

## Crook County – Recent Annual Population Trend – July 1<sup>st</sup> Estimate



Source: Population Research Center Annual Estimates 2000-2013. Calculated by Population Research Center (PRC).

## Crook County - Natural Increase and Net Migration



Source: Population Research Center, July 1st Annual Estimates 1998-2013. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

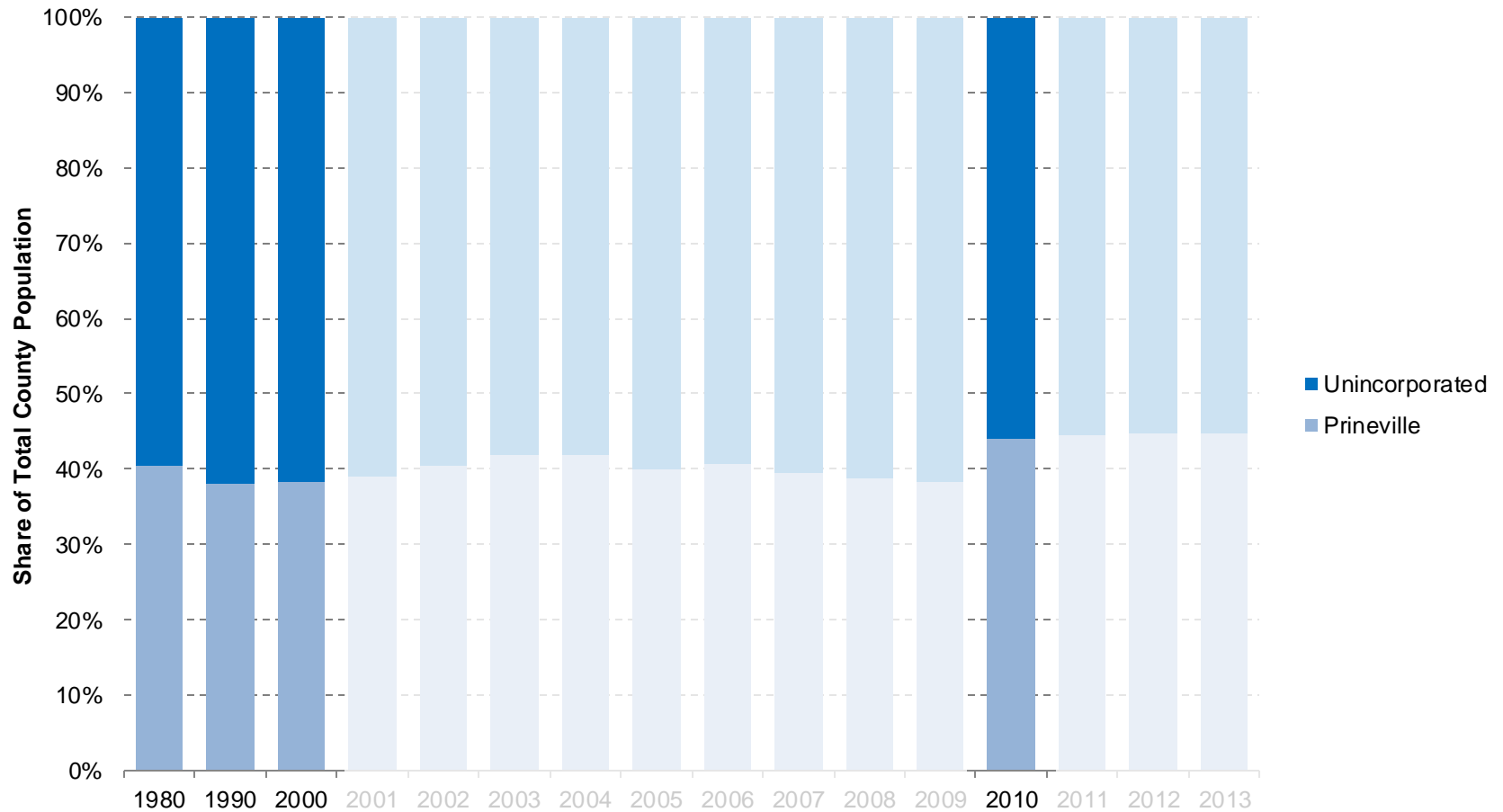
## Crook County and Incorporated City Population

	Total Population			Share of County Population			Average Annual Growth Rate	
	2000	2010	2013	2000	2010	2013	2000-2010	2010-2013
Crook County	19,184	20,978	20,690	100%	100%	100%	0.90%	-0.46%
<i>Prineville</i>	7,358	9,253	9,270	38%	44%	45%	2.32%	0.06%
<i>Unincorporated</i>	11,826	11,725	11,420	62%	56%	55%	-0.09%	-0.87%

Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Population Research Center, July 1, 2013 Annual Intercensal Estimate. Calculated by Population Research Center (PRC).

Note: The 2000 total population reflects Count Question Resolution (CQR) revisions made by the U.S. Census Bureau.

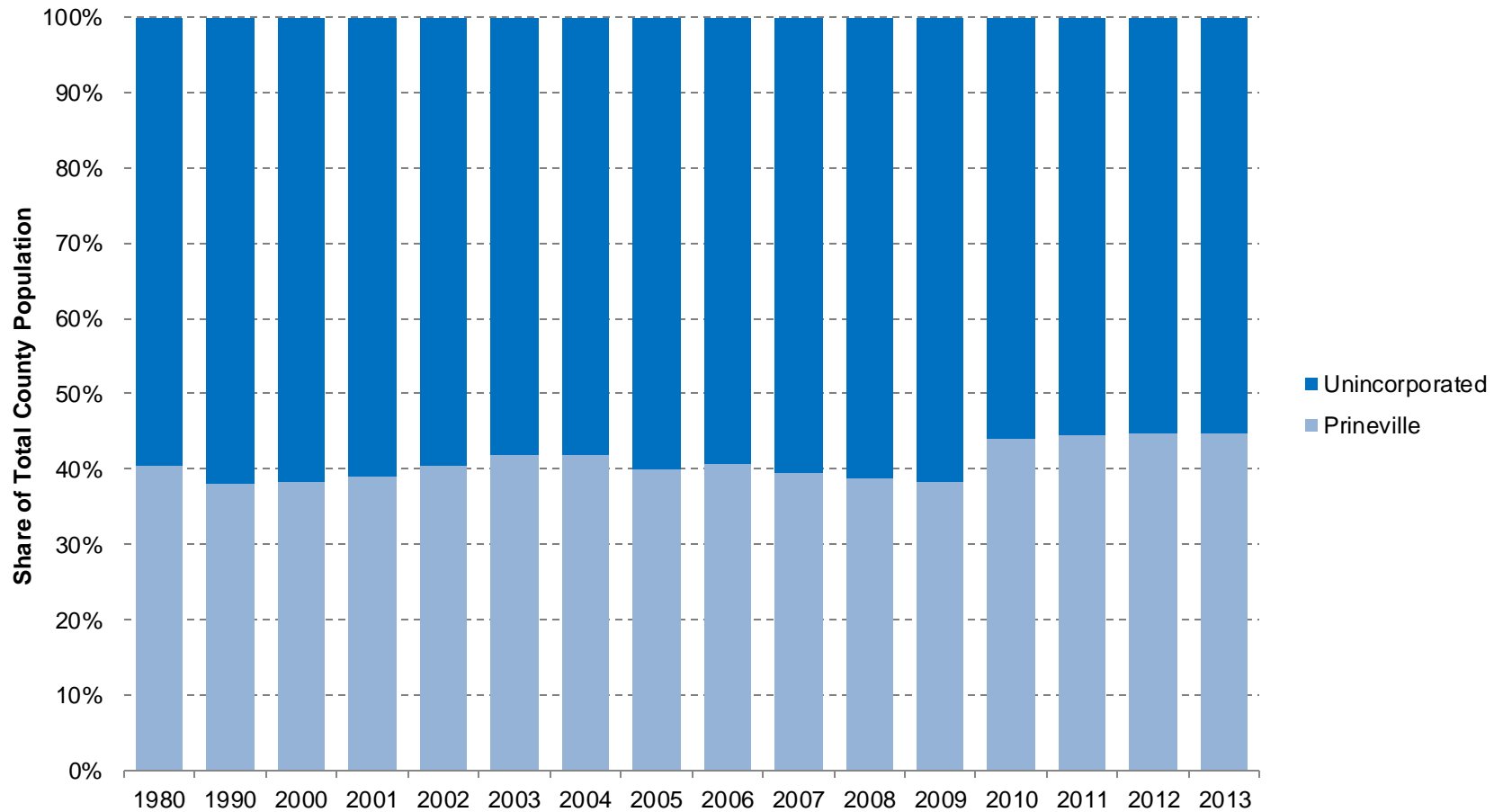
## Crook County - City Share of Population



Source: U.S. Census Bureau. 1980, 1990, 2000 and 2010 Decennial Census. Population Research Center, July 1st Annual Estimates 2001-2009 and 2011-2013. Calculated by Population Research Center (PRC).

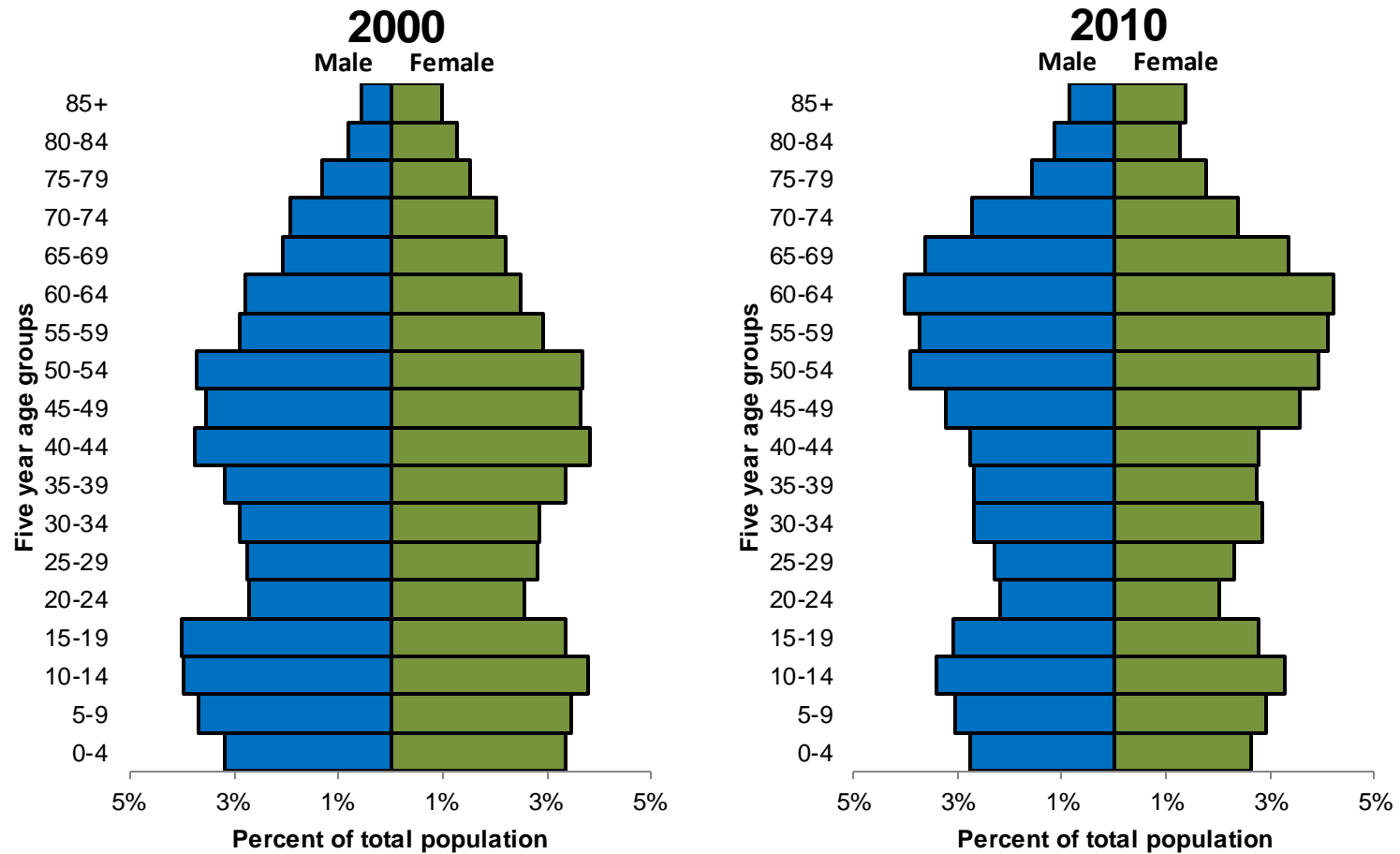


## Crook County - City Share of Population



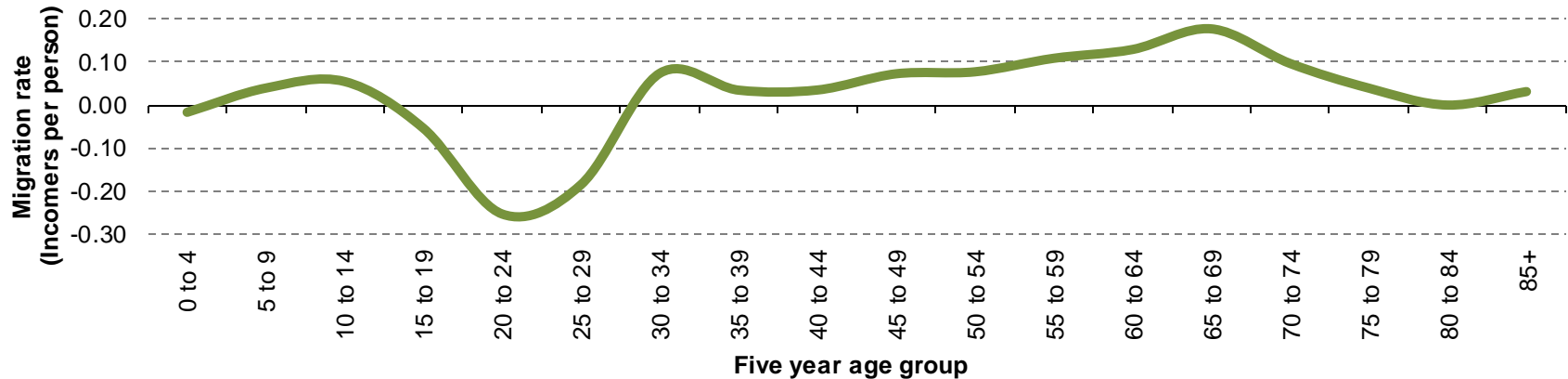
Source: U.S. Census Bureau. 1980, 1990, 2000 and 2010 Decennial Census. Population Research Center, July 1st Annual Estimates 2001-2009 and 2011-2013. Calculated by Population Research Center (PRC).

## Crook County – Distribution by Age of Total Population

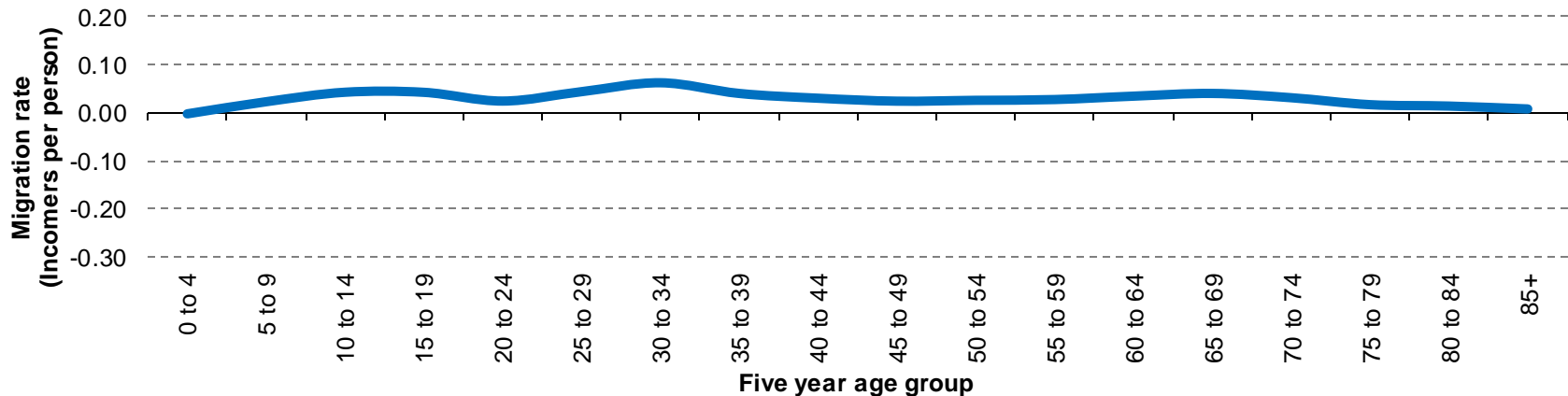


Source: U.S. Census Bureau. 2000 and 2010 Decennial Census.

## Crook County – 5yr Migration Rates for Total Population, 2000-2010

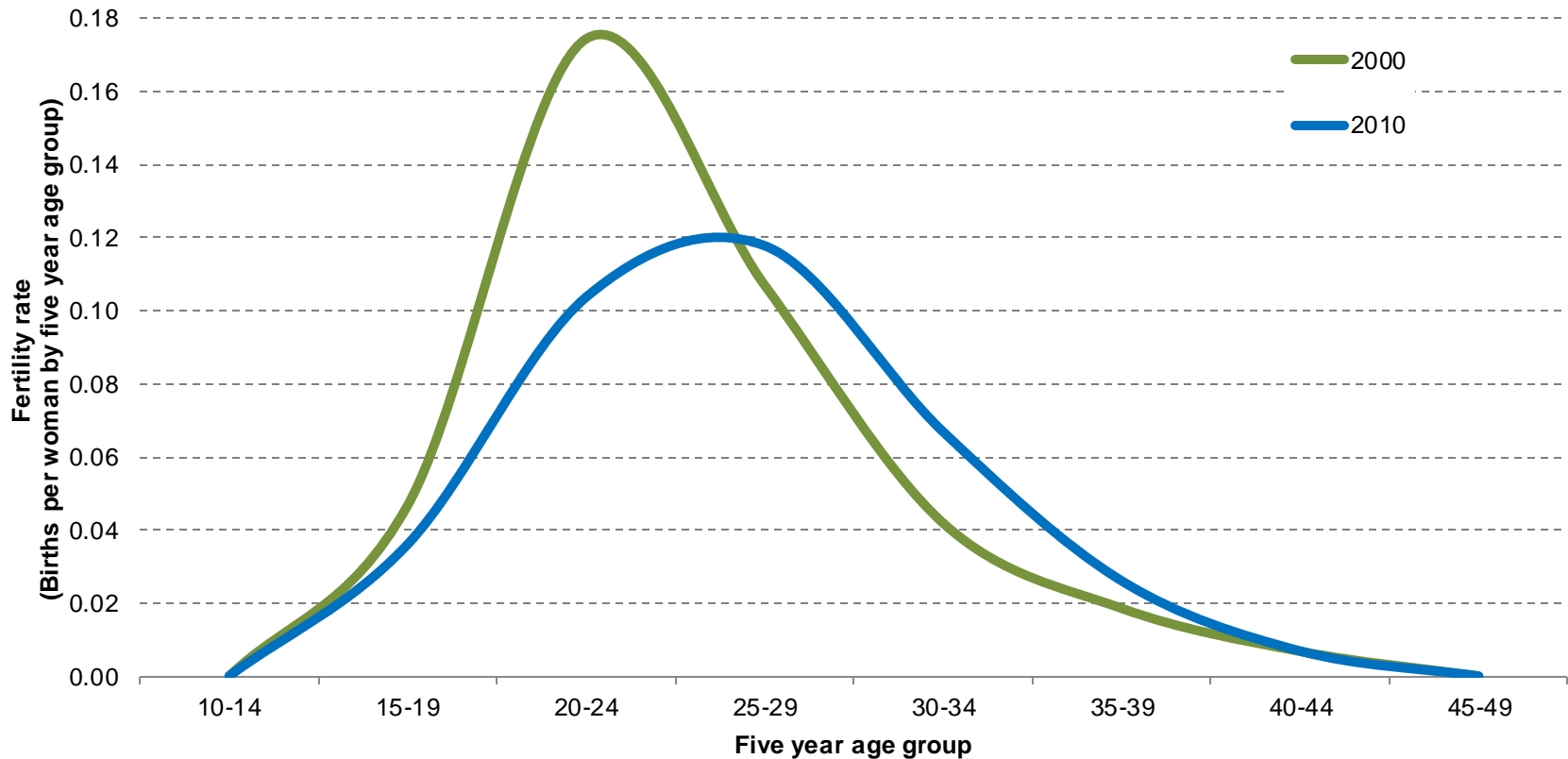


## Oregon – 5yr Migration Rates for Total Population, 2000-2010



Source: U.S. Census Bureau. 2000 and 2010 Decennial Census. Calculated by Population Research Center (PRC).

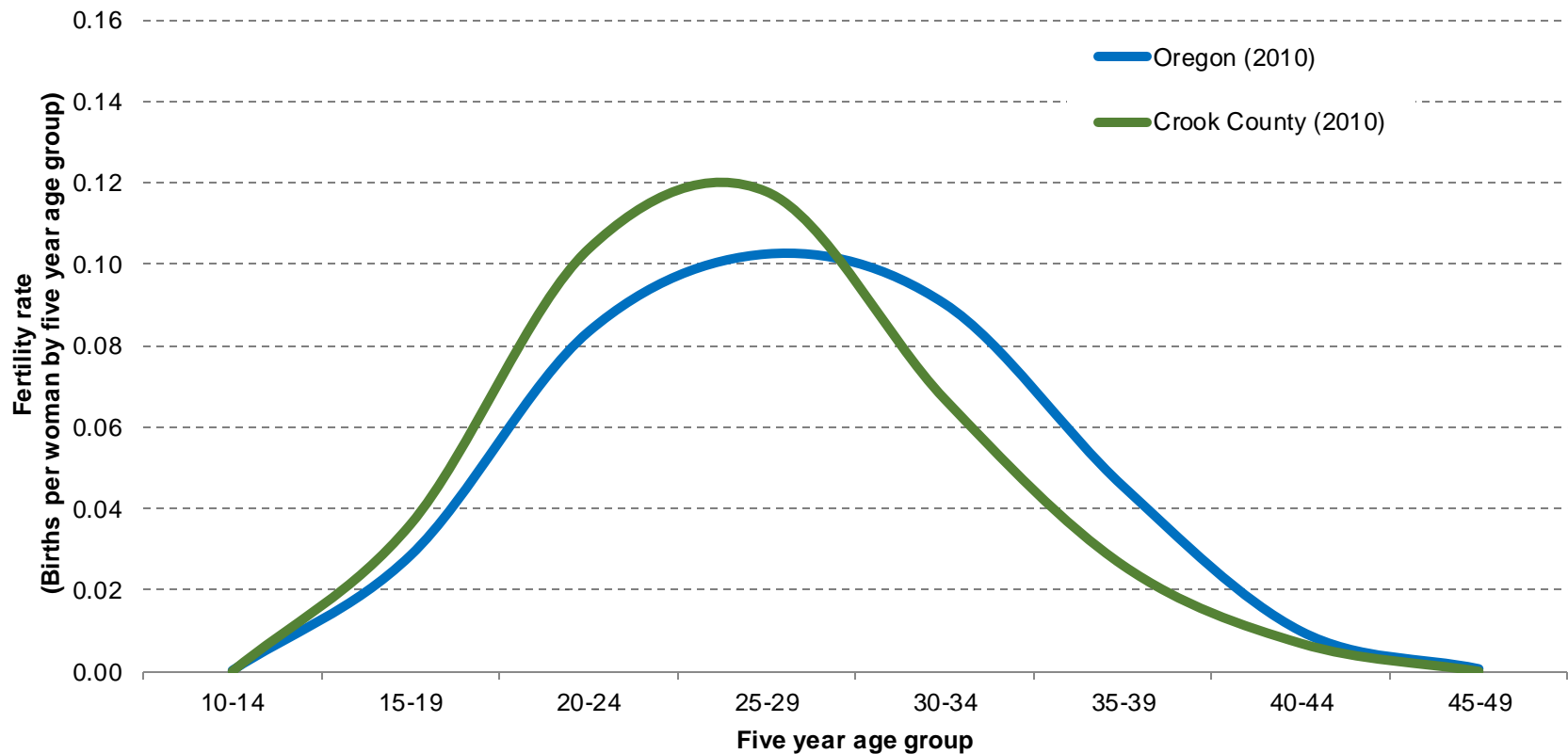
## Crook County – Age Specific Fertility Rates



	2000	2010
Total fertility rate	1.977	1.787

Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

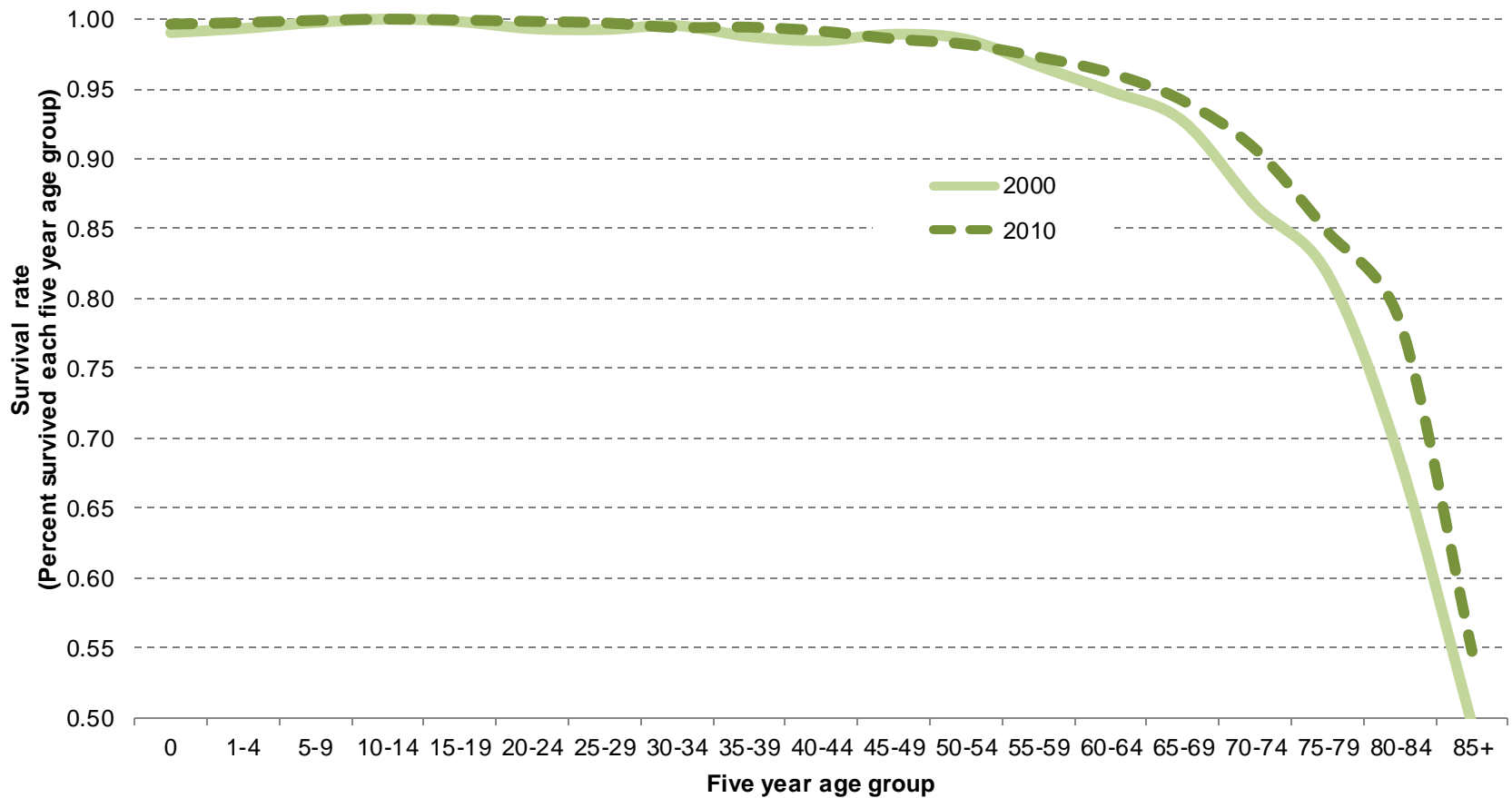
## Crook County and Oregon – Age Specific Fertility Rates (2010)



	Crook County	Oregon
Total fertility rate	1.787	1.805

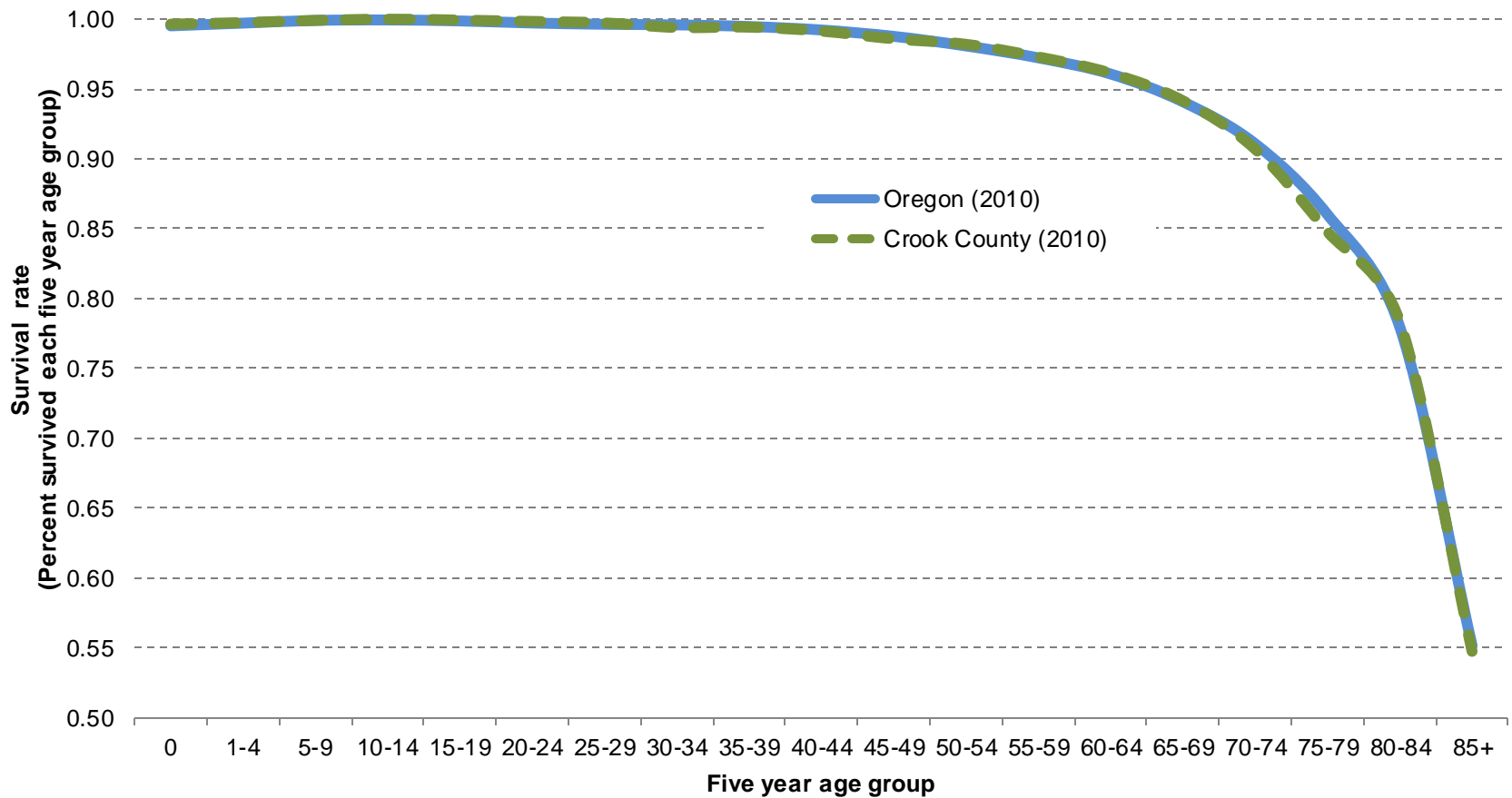
Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

## Crook County – Age Specific Survival Rates



Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

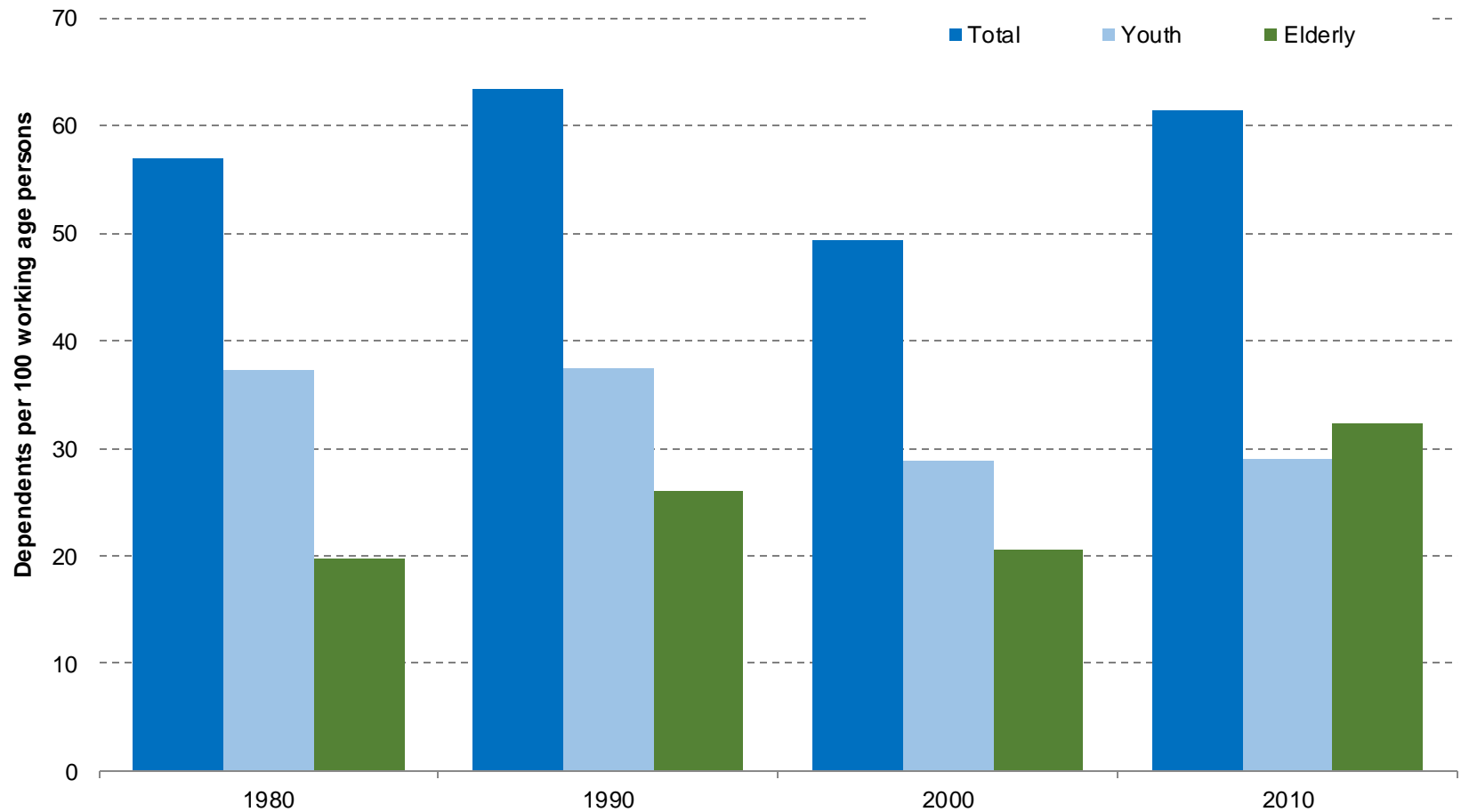
## Crook County and Oregon – Age Specific Survival Rates



Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).



## Crook County - Dependency Ratio



Source: U.S. Census Bureau, 1980, 1990, 2000, and 2010 Decennial Census. Calculated by Population Research Center (PRC).

Note: Dependency Ratio =  $\{[(\text{Population Age 0-14}) + (\text{Population Age 65 or older})] / (\text{Population Age 15-64})\} \times 100$

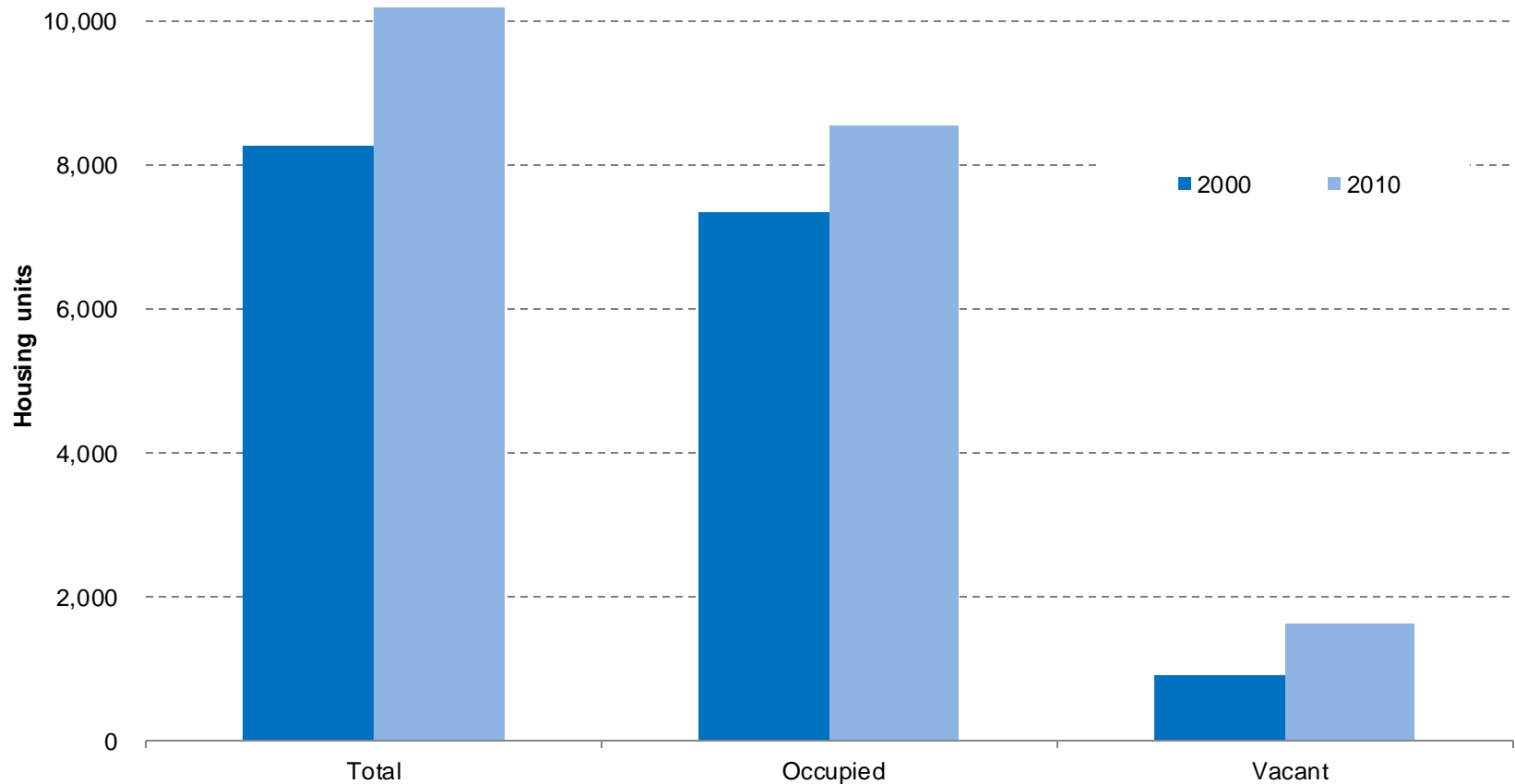
## Crook County

Hispanic or Latino and race	2000		2010		Change	
Total population	19,182	100.0%	20,978	100.0%	1,796	9.4%
Hispanic or Latino	1,082	5.6%	1,463	7.0%	381	35.2%
Not Hispanic or Latino	18,100	94.4%	19,515	93.0%	1,415	7.8%
White alone	17,532	91.4%	18,758	89.4%	1,226	7.0%
Black or African American alone	6	0.0%	30	0.1%	24	400.0%
American Indian and Alaska Native alone	235	1.2%	273	1.3%	38	16.2%
Asian alone	82	0.4%	96	0.5%	14	17.1%
Native Hawaiian and Other Pacific Islander alone	6	0.0%	11	0.1%	5	83.3%
Some Other Race alone	12	0.1%	12	0.1%	0	0.0%
Two or More Races	227	1.2%	335	1.6%	108	47.6%

Source: U.S. Census Bureau. 2000 and 2010 Decennial Census.

Note: The 2000 total population does not reflect Count Question Resolution (CQR) revisions made by the U.S. Census Bureau. Revised total population numbers are used for the "Crook County and Incorporated City Population" table.

## Crook County - Housing Units



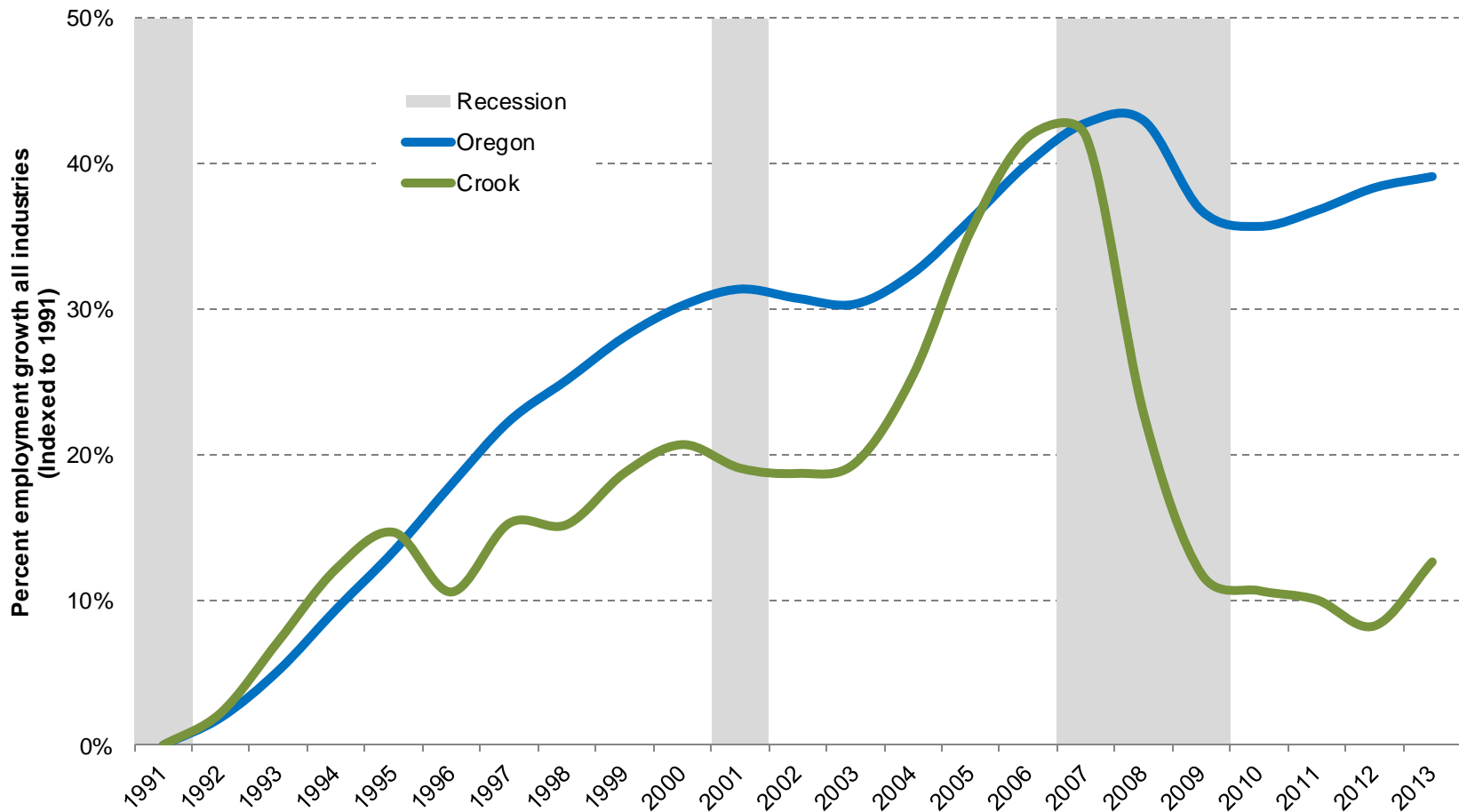
Source: U.S. Census Bureau. 2000 and 2010 Decennial Census.

	Persons Per Household (PPH)		Occupancy Rate		Percent Group Quarters		Percent Seasonal Housing*
	2000	2010	2000	2010	2000	2010	2010
Oregon	2.51	2.47	91.8%	90.7%	2.3%	2.3%	3.31%
Crook County	2.57	2.42	89.0%	83.9%	1.4%	1.2%	6.93%
Prineville	2.55	2.44	93.2%	88.3%	2.5%	2.6%	0.84%
Unincorporated	2.59	2.41	86.6%	80.8%	0.8%	0.1%	NA

Source: U.S. Census Bureau. 2000 and 2010 Decennial Census. Calculated by Population Research Center (PRC).

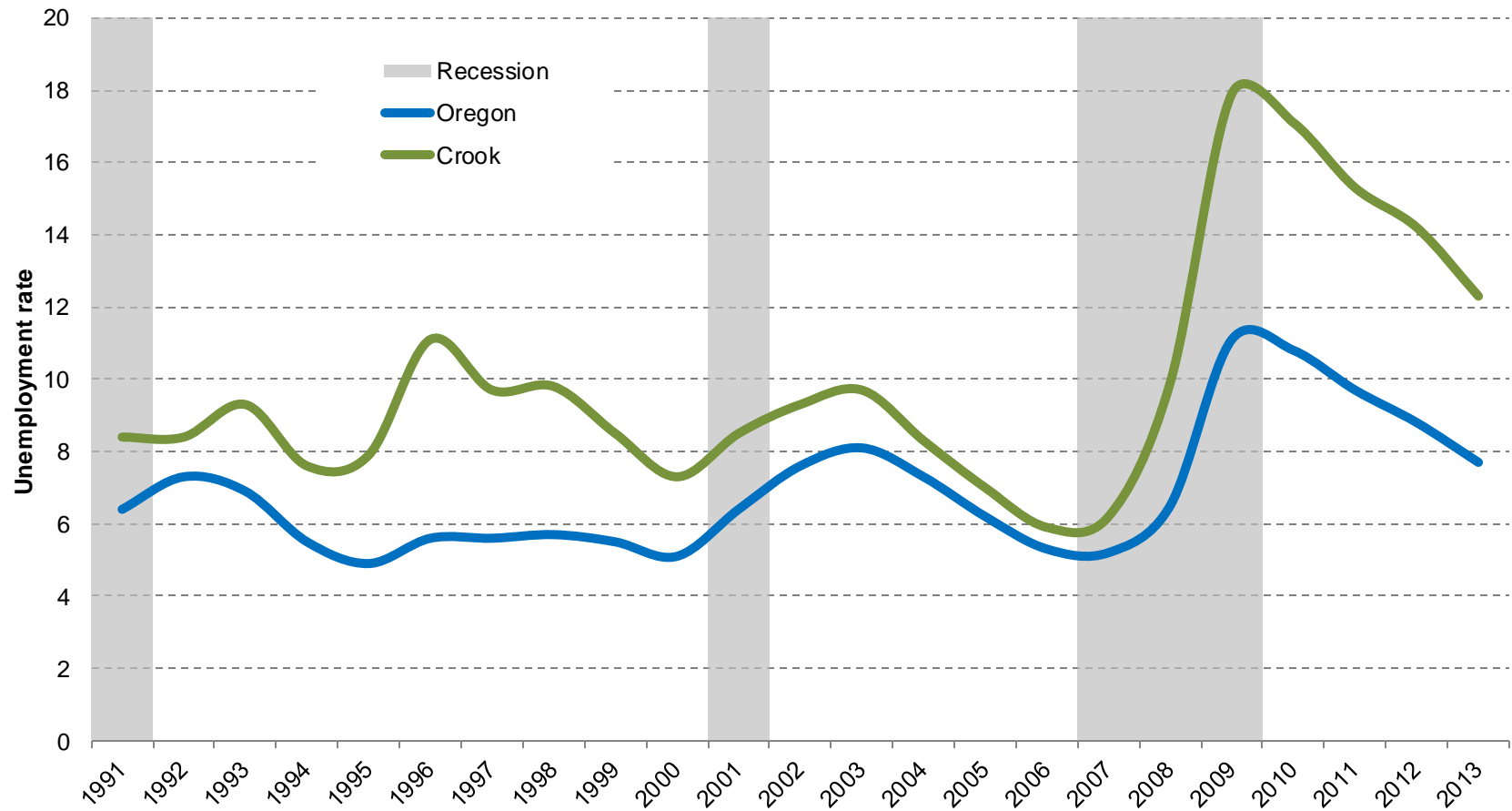
\*Note: Percent Seasonal Housing is the proportion of total housing units in 2010 that are identified as vacant "for seasonal, recreational, or occasional use."

## Crook County - Employment Growth since 1991



Source: U.S. Census Bureau. 2013. Quarterly Workforce Indicators Data. Longitudinal-Employer Household Dynamics Program. <http://ledextract.ces.census.gov/>.  
Calculated by Population Research Center (PRC).

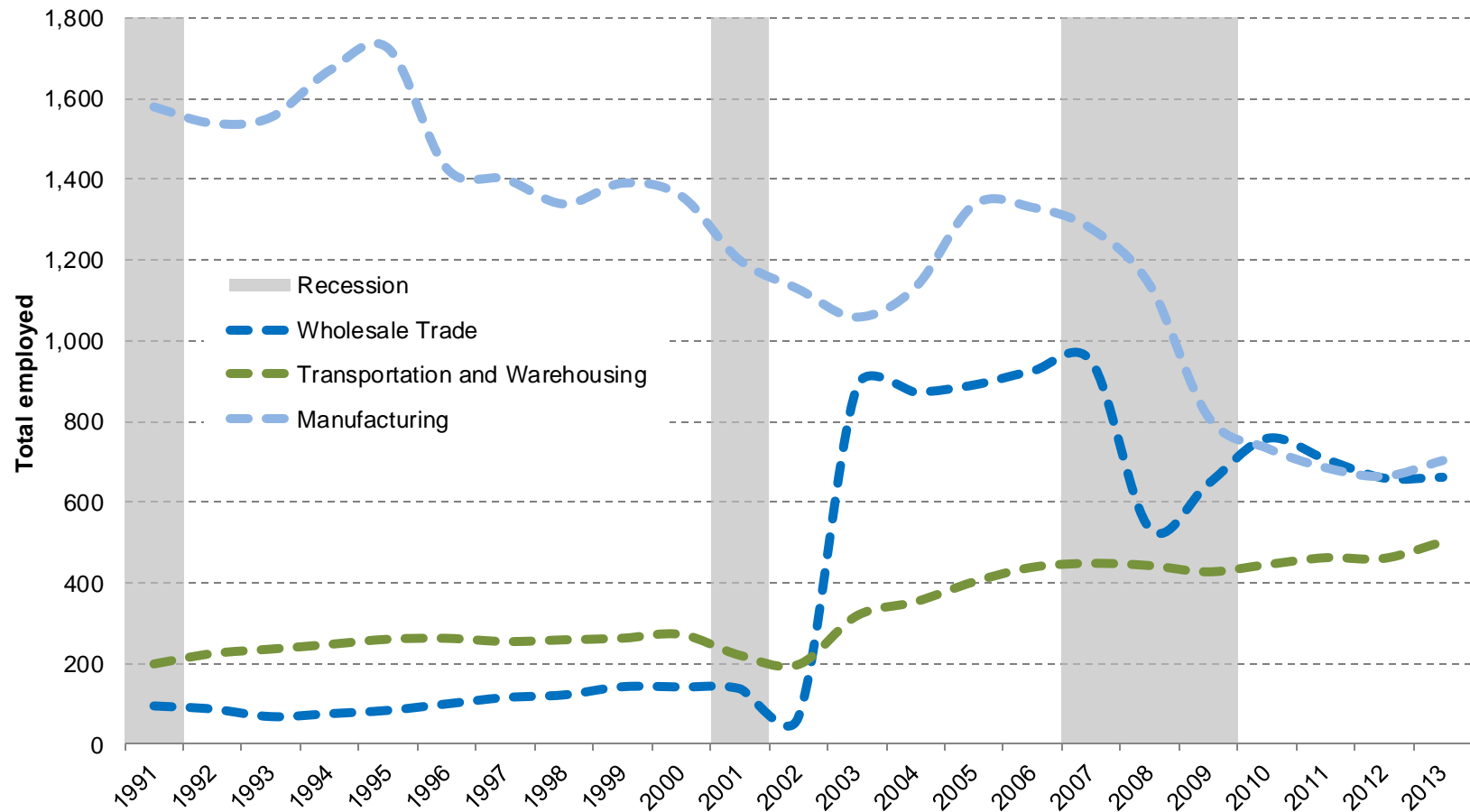
## Crook County and Oregon - Unemployment Rate



Source: Oregon Employment Department. Local Area Employment Statistics. Oregon Labor Market Information System. <http://www.qualityinfo.org/olmis/labforce>.

Note: The rate represents the percent of the labor force seeking work but not employed.

## Crook County - Top Three Industries by Average Quarterly Employment in 2013



Source: U.S. Census Bureau. 2013. Quarterly Workforce Indicators Data. Longitudinal-Employer Household Dynamics Program. <http://ledextract.ces.census.gov/>.

Calculated by Population Research Center (PRC).

Note: The quarterly employment data used in this chart is not seasonally adjusted.



# Local Input and Additional Information

- Questions?
- Discussion time