Usability Research - Statistical Issues and Interpretation of the Multi-Year Estimates

Multi-Year Estimates Study Research Meeting - November 15, 2007

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Examples From the Multi-Year Estimates Study

- Data collected from 1999 to 2005 for 34 test counties.

San Francisco Percent Employed

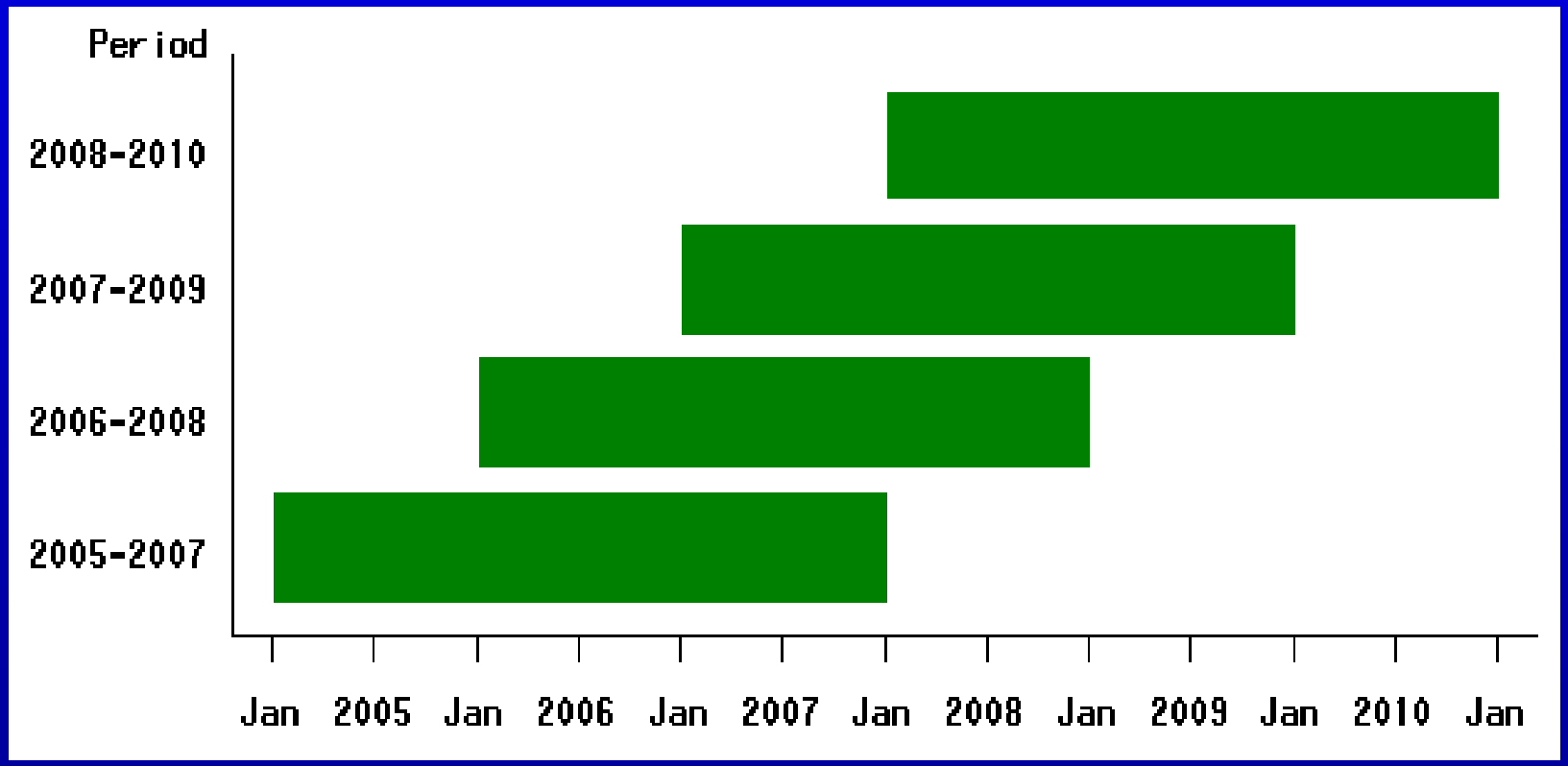
Is a MYE an Estimate of the Middle Year of the Estimation Period?

- For example, is 1999-2003 MYE an estimate of 2001?
- No.
- Multi-Year Estimate not an Estimate of any Single Year
- It’s an estimate of a period.

What if 1-year estimate is not available?

- And the interest is in a single-year or in a historical time series.
- Which MYE to use?

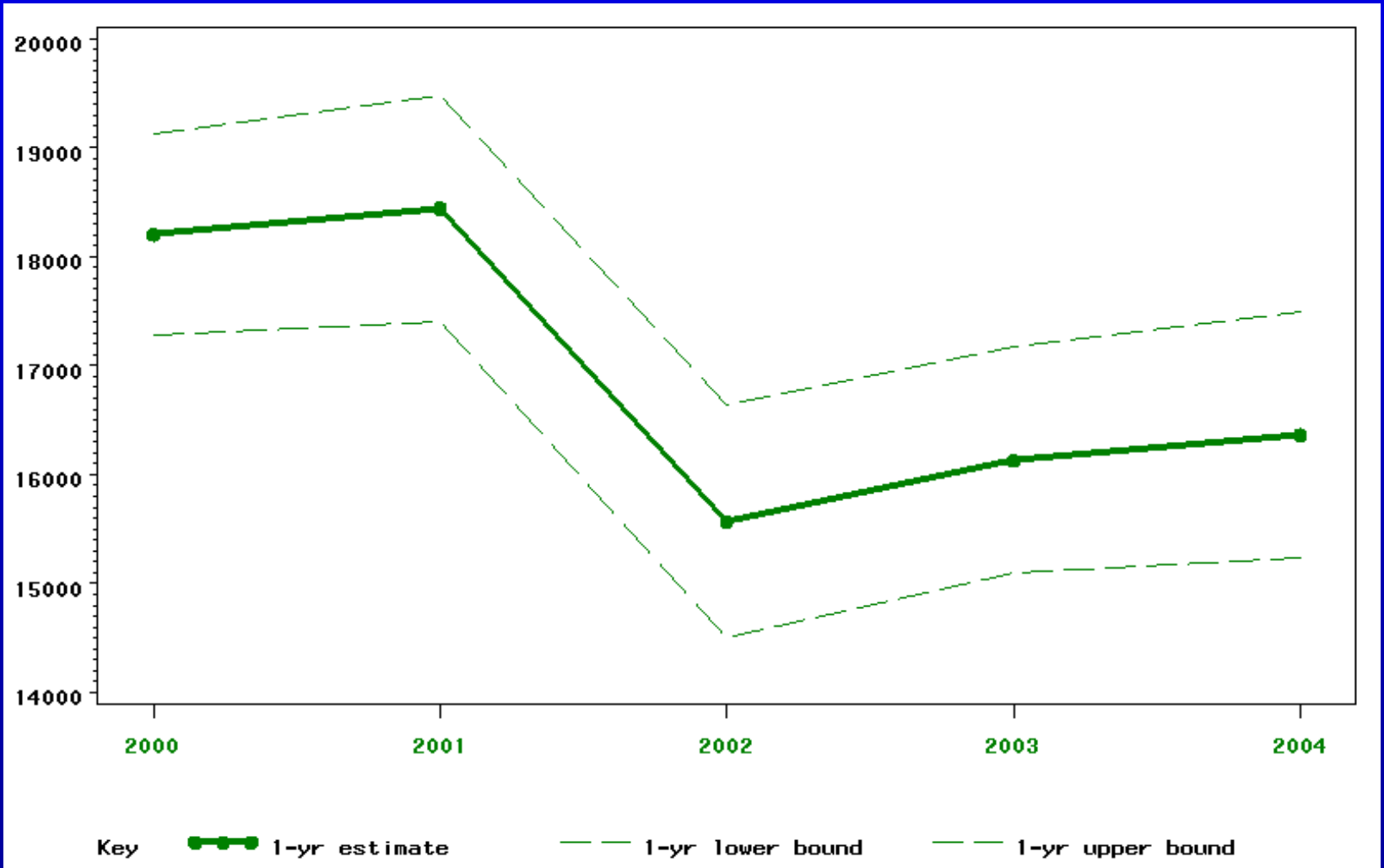
It's 2011 – Which 3-Year MYE to Use?



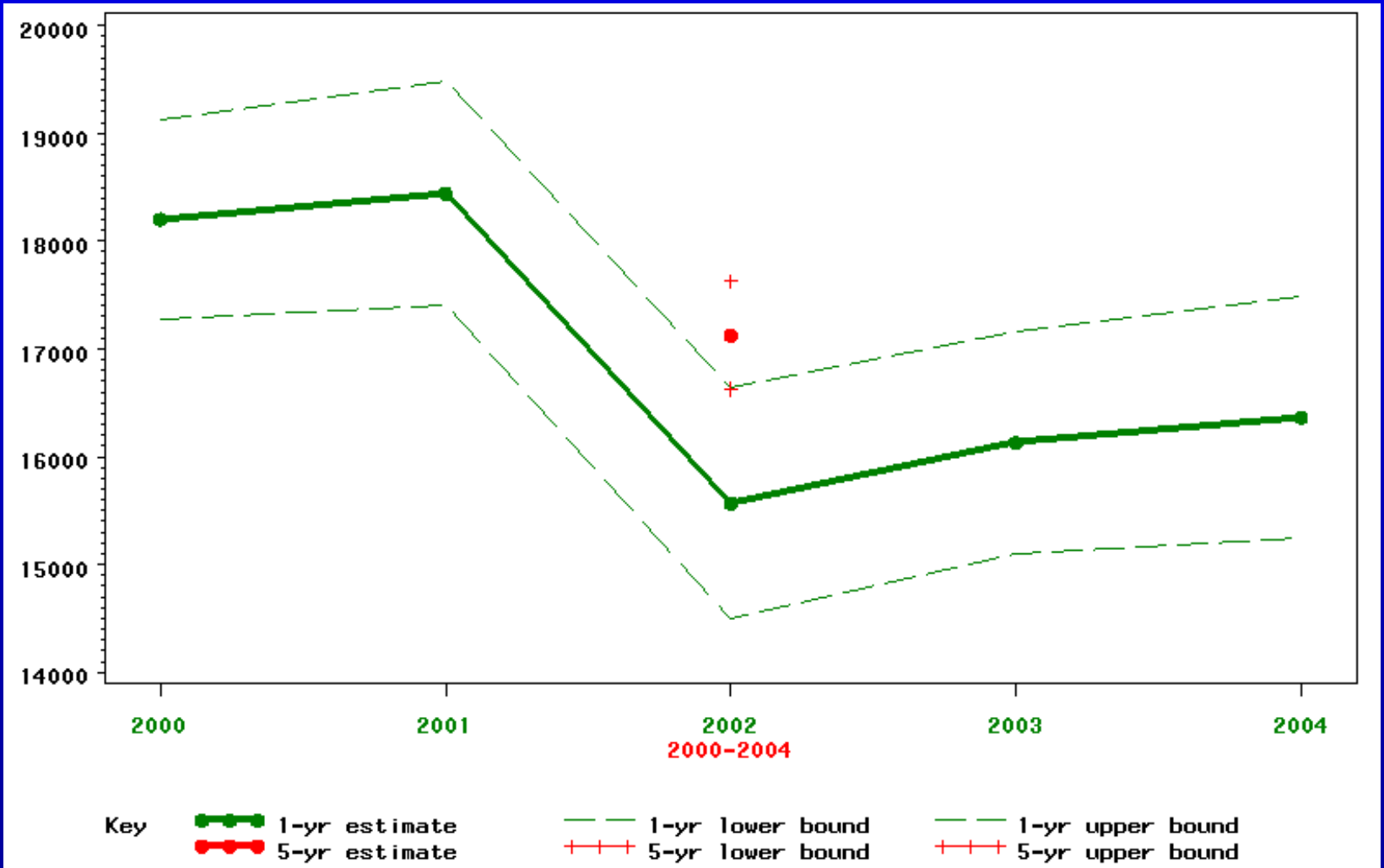
What if 1-year estimate is not available?

- Generally use most recent MYE – it's most up-to-date.
- But in some circumstances use the MYE as an estimate of the middle year.
- E.g., historical time series

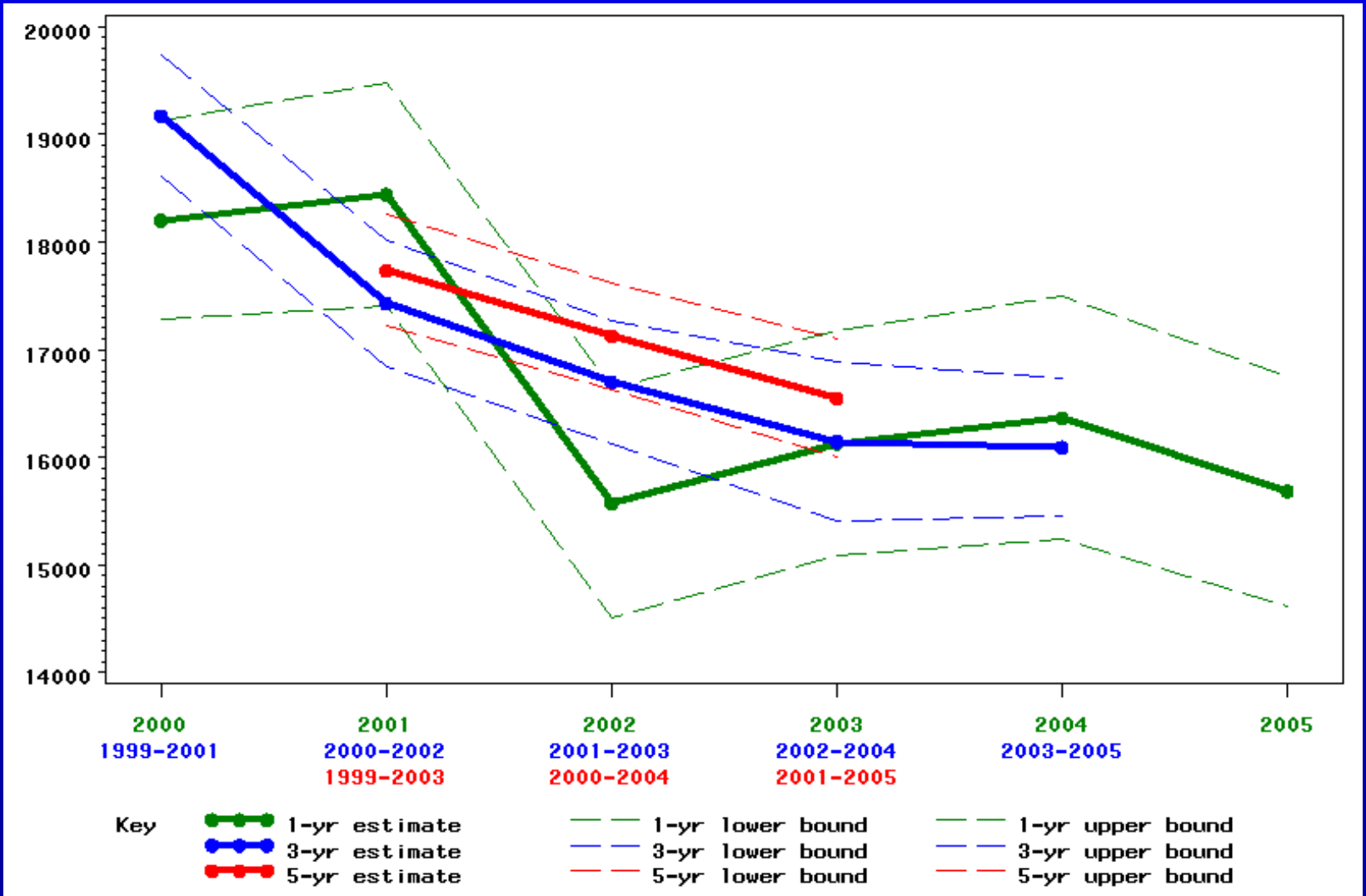
Civilian Veterans Schuylkill County, PA – Single Year Estimates 2000-2004



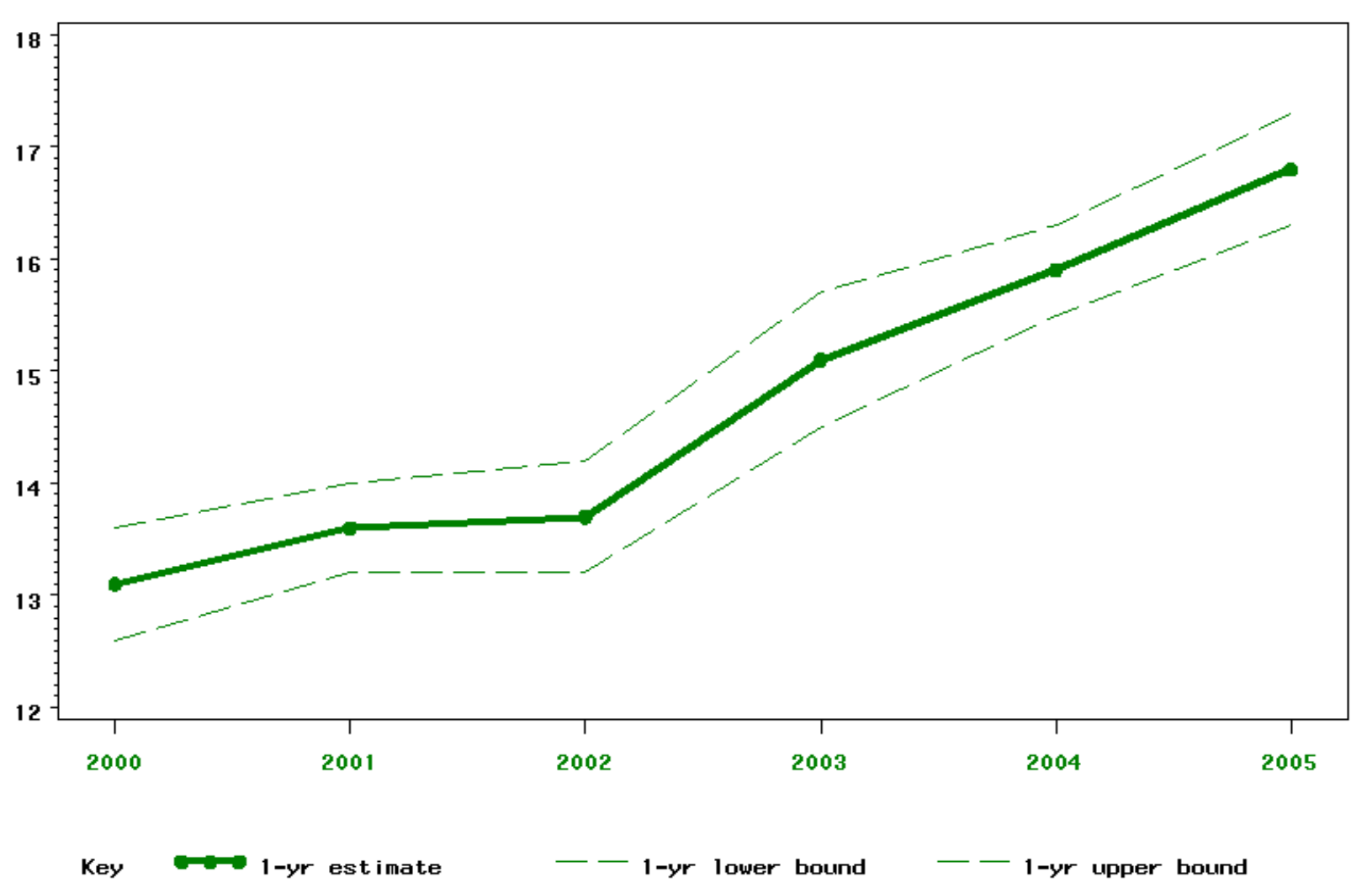
Civilian Veterans Schuylkill County, PA – Single Year Estimates and Five Year Estimate



Civilian Veterans Schuylkill County, PA – Single Year Estimates and Multi-Year Estimates



Lake County, IL – Percent Spanish Speakers at Home



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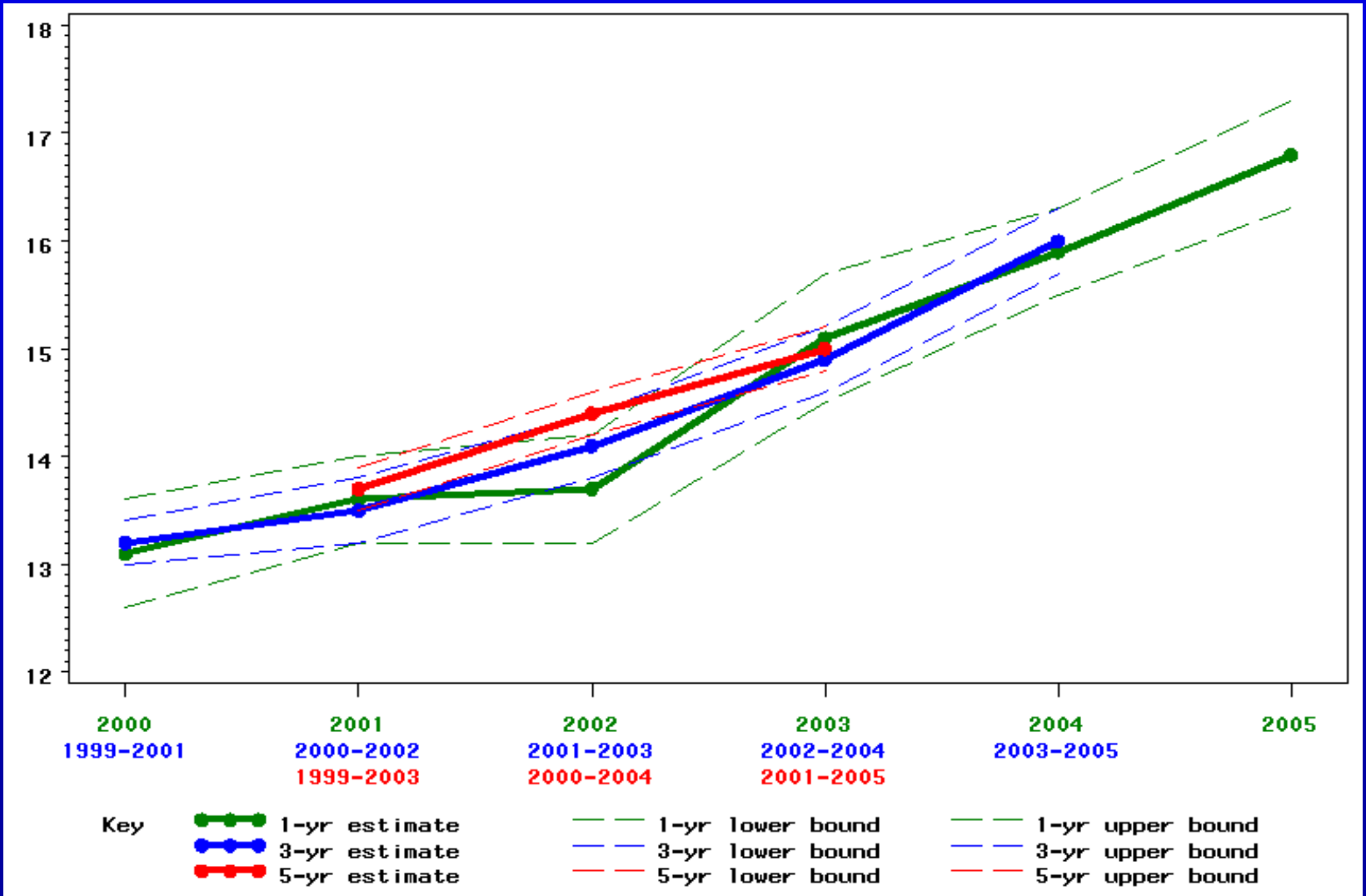
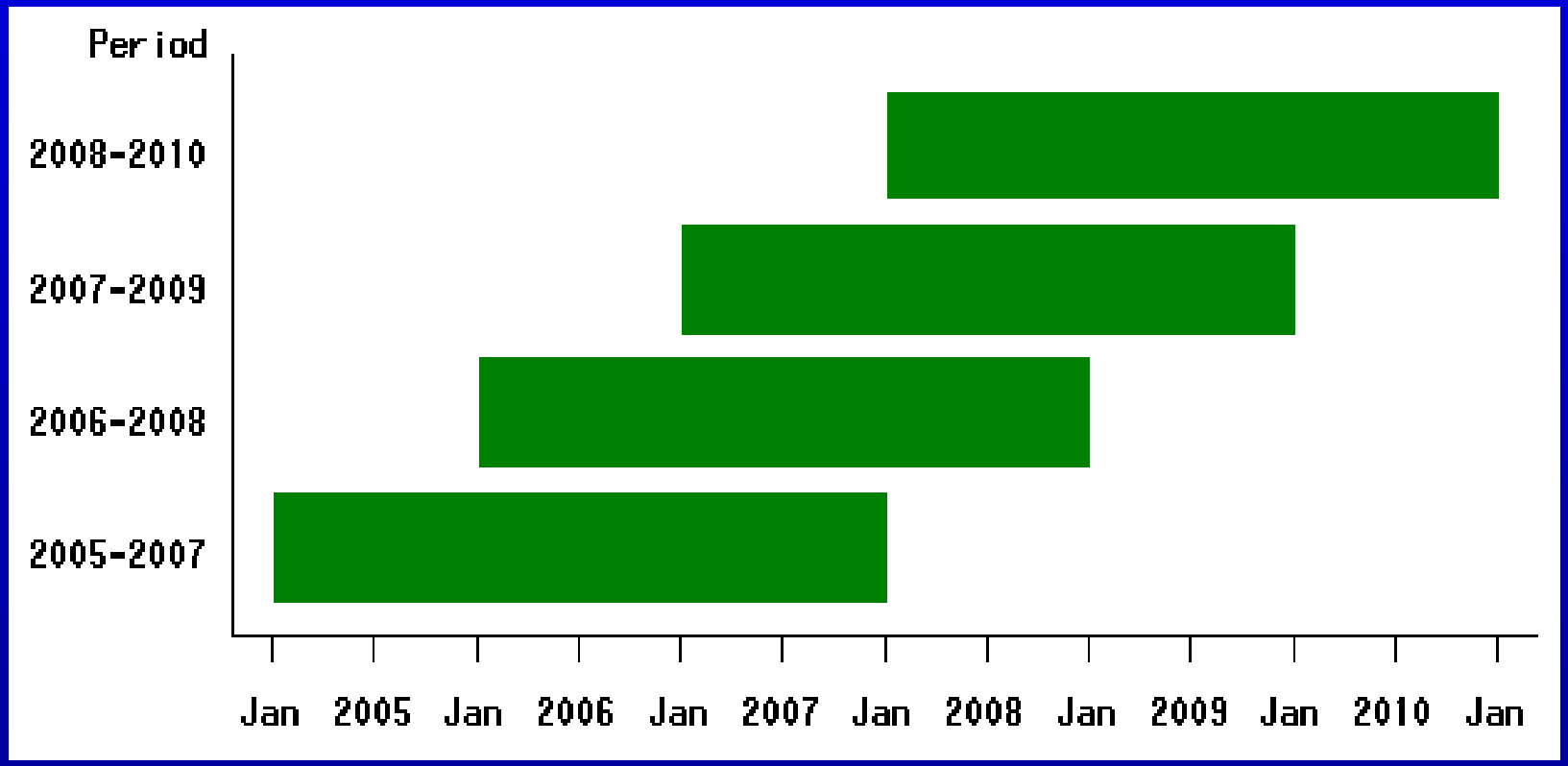


In Summary

- MYE is not an Estimate of any Single Year of the Period
- Using MYE as an estimate of the middle year can be reasonable - if trend over time is linear

Multi-Year Estimates Over Time Non-Overlapping vs Overlapping Time Periods



Funding Allocation Examples

- Demonstrate how different decisions in using 1-, 3-, or 5-year estimates affect results

Financially Stressed Homeowners with Mortgages in New Iowa

- Goal: help financially stressed homeowners with mortgages by setting up Financial Counseling Centers.
- Allocate $10,000,000 by county proportional to the number of homeowners with a mortgage who pay 35% or more of their income in owner's costs.

New Iowa

State of New Iowa with 26 counties and 5.4 million residents (drawn from MYE Study).

- 11 counties with single-, three-, and five-year data, (83.9 of stressed homeowners)
- 11 counties with three- and five-year data, (14.8% of stressed homeowners)
- 4 counties with five-year data only, (1.3% of stressed homeowners)

Number of Stressed Homeowners with Mortgages in New Iowa

2001	68,207
2002	68,897
2003	71,828
2004	73,901
2005	78,401

Question

- Which ACS estimates should New Iowa use to allocate funds among counties?
- 1-year, 3-year, or 5-year estimates?

Challenge

- They would like to use the most current data.
- But the ACS doesn’t provide single-year data for all counties.

Two Obvious Approaches

- Use the most current estimate available for each county
- Use five-year data for all counties

Using the Most Current Estimate Available for Each County

- Drawback: older data shortchanges the smaller counties – they show relatively fewer stressed homeowners with mortgages.

Using Five-Year Data for All Counties

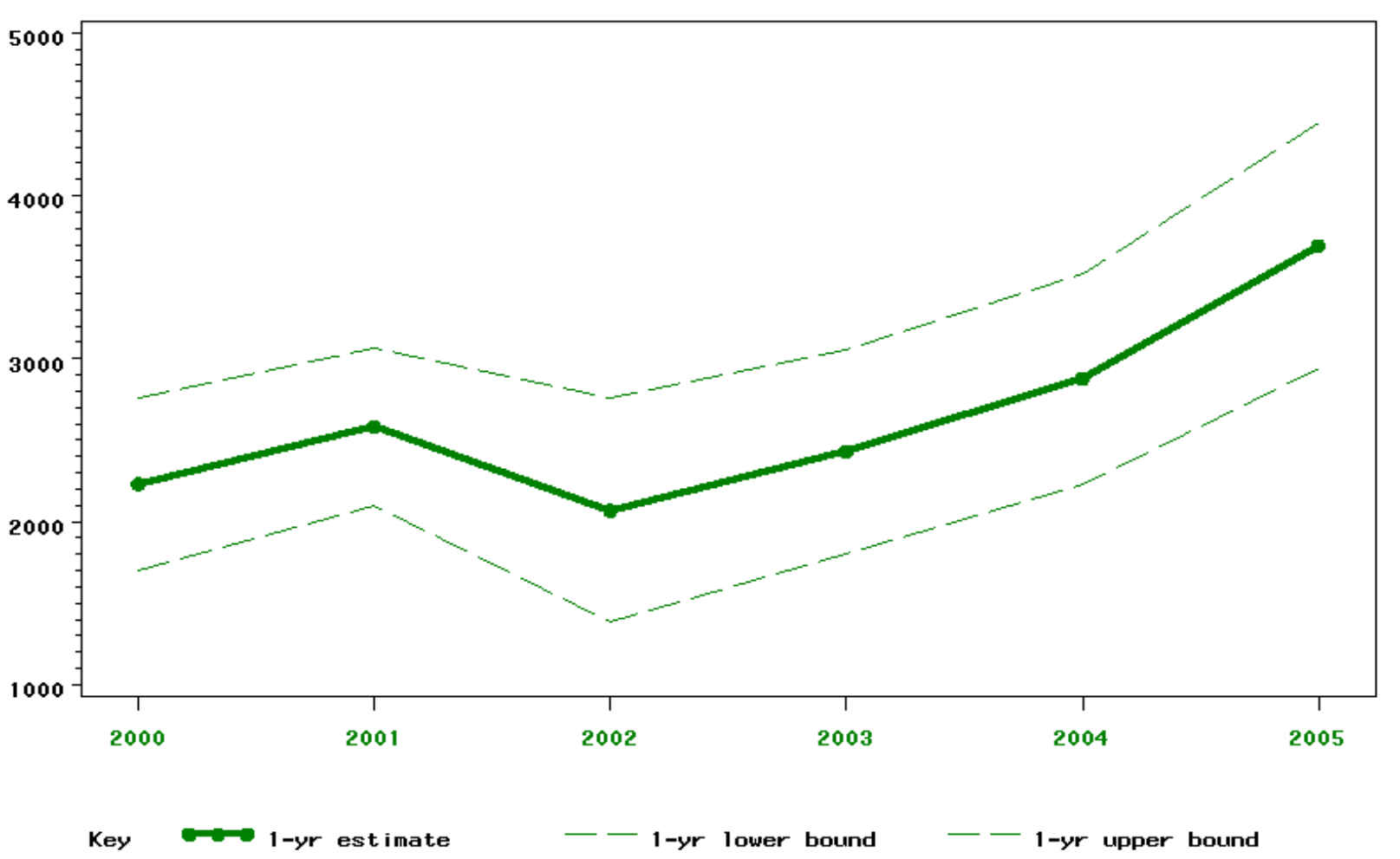
- Drawback: data are not the most recent for counties with bulk of stressed homeowners with mortgages, the larger ones (65,000+)

Most Current Data Shortchanges the Smaller Counties

County Size	Most Current Estimates	Five-Year Estimates	Percent Difference
Under 20,000	$121,250	$130,620	7.17%
20,000-64,999	$1,406,264	$1,484,086	5.24%
65,000+	$8,472,486	$8,385,294	-1.04%

Tulare County – Number of Owner's with a Mortgage who Pay 35% or More of Income in Housing Costs

Madison County – Number of Owner's with a Mortgage who Pay 35% or More of Income in Housing Costs



A Hybrid Approach

- Allocate funds among the three size-groups based on the five-year data.
- Allocate funds within the size-groups based on the most recent data available.

11 Larger Counties

County	By Most Recent Single-Year (Hybrid)	By Five-Year	Difference	Percent Difference
Jefferson	$262,679	$240,401	($22,277)	-9.27%
Tulare	$ 1,663,240	$1,527,393	($135,847)	-8.89%
Black Hawk	$388,029	$401,173	$13,145	3.28%
Calvert	$313,054	$375,096	$62,042	16.54%
Hampden	$1,573,185	$1,645,906	$72,720	4.42%
Madison	$394,981	$314,908	($80,072)	-25.43%
Flathead	$459,153	$494,424	$35,270	7.13%
Rockland	$1,613,721	$1,613,192	($528)	-0.03%
Schuylkill	$517,871	$506,997	($10,874)	-2.14%
Sevier	$345,889	$346,923	$1,034	0.30%
Yakima	$853,492	$918,881	$65,388	7.12%
Total	$8,385,294	$8,385,294	$0	

In Conclusion

- Which ACS estimates to use makes a difference, especially when estimates change over time.

- Contact me at

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