

NASWA

LMI Directors

CES Program Update

Indianapolis, IN

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Topics

- Introduction of ACESweb
- Expanded Use of the Small Domain Model
- Wedge process team
- Estimation changes with the January 2008 benchmark
- Production testing new estimators

Introduction of ACESweb

- The new state estimation system (ACESweb) has been deployed
- Some fine-tuning of the system is still occurring
- Initial training of state staff has been completed
- Training and testing in the new system will continue through January 2009

ACESweb implementation for production

- Plans are for the ACESweb system to be used for production beginning with the January 2009 preliminary estimates
- The mainframe system will still be available as a back-up if problems arise

Expanded use of the model - what was changed and why?

Effective with the release of January 2008 estimates, additional CES employment series were transitioned from sample-based to small domain model-based estimation

The goal of this project was to improve cost efficiency in the CES program by reducing analyst review time, without harming data quality

Decision timeline leading up to the change

- Project was developed by the CES Budget Workgroup in the summer of 2006; final report issued October 2006
- Recommendation for implementation was endorsed by WIC and the CES Policy Council in October 2006
- CES Tech Memo S-07-08 (May 15, 2007) gave the “official” announcement of this change
- Implementation of the change with publication of Jan 2008 data

Details – what was changed?

- Prior to 2008, series with less than 30 sample units *drawn* were candidates for using the small domain model (SDM)
- Beginning with 2008 data, series with less than 30 sample units *actively reporting* were candidates for the SDM
- Using this new criteria, shifted about 1,800 State and 2,600 MSA series to the SDM – these figures were given in the October 2006 CES Budget workgroup report

Details - why the change to more modeling?

Budget workgroup agreed that:

- use of SDM reduces analyst review time considerably,
- Because it reduces month to month volatility, there is less need for detailed analyst review and intervention
- BLS agreed that it could expand the number of series it produces SDM inputs for, with only a minor cost increase

Details - why the change to more modeling?

From the budget workgroup report:

- Nearly all States reported good results from the current SDM series; SDM has been in use since 2003
- Budget workgroup report also summarized BLS research in this area

Research Description

Simulations done for all MSAs for the 2004-05 benchmark cycle

Research compared three sets of estimates:

- un-reviewed SDM results
- un-reviewed pure sample results
- State published estimates

Across two dimensions:

- benchmark error
- smoothness

Research Results

- Purely sample-based, un-reviewed estimates are unbiased (mean error near zero) but highly variable (large mean absolute error)
- Both the un-reviewed SDM and State-published shrink the mean error considerably as compared to pure sample-based
- The SDM and State-published are relatively comparable in terms of mean and mean absolute errors

Research Results, continued

- Smoothness statistics indicate that both SDM and State published series are considerably less volatile than un-reviewed sample based series

Conclusions from the Research

- Analyst review/intervention shrinks error and volatility over purely sample-based, un-reviewed estimates.
- However the un-reviewed SDM does about as well as the State published estimates.
- In general, expanded use of SDM is an effective method to control costs without harming data quality.

Additional Modeled Series

Wrap-up

- Tables with detailed research results are included in the document sent along with this powerpoint.
- Document also includes examples of how the different estimators worked for three detailed industry series in Oregon
- With top-down estimate review this year the potential for drag to the QCEW trend is lessened for states with modeled cells below the Super Sector level

Wedge Team report

- The CES Policy Council has put a team in place to examine how we would implement a wedge benchmark procedure, if we decide to move to a wedge benchmark process
- The goal/purpose of the team is not to make a decision or recommendation on whether or not to use a wedge methodology or to keep a replacement methodology

Overview

- Suggestions were solicited from the Benchmark Methods Team for modified wedge procedures
- If we wedge, we are presuming that the sample estimate is 'as correct' at least as often as the QCEW so we hoped for suggestions that would wedge

at least half of total employment

What the Team has tested so far

1. Straight wedge

2. Straight wedge with the following two exceptions suggested by States (Sim1):

- If wedge value is greater than 0.5% different from the QCEW data for a given month, in absolute terms, then for that month the wedge value is replaced with the QCEW value.
- All SDM series replaced & all Independent series replaced.

What we've tested so far, continued

3. Straight wedge with the following exceptions, as suggested by States (Sim 2):
 - If wedge value is greater than 0.5% different from the QCEW value at any point in the year, in absolute terms, then the whole series is replaced with QCEW data.
 - All SDM series are replaced.

Results

- The suggested tolerances essentially amount to a replacement methodology, which does not meet the basic guidelines we started from
- Results of the simulations can be found at -
 - <http://stateweb1/smweb/intranet/Sarah/wedgepage.html> - 2005 and 2006 – Straight wedge only
 - http://199.221.111.170/smweb/intranet/Nick/bmksim/start_wlogin.html - 2007 – Straight wedge and requested tolerance

What's next

- Continue to explore options at detailed cell levels
 - Change the criteria to something larger than .5
 - Identify “single event” exceptions that could be used
- Explore another possible methodology:
 - Wedge at the supersector level and rake the series below that to the supersector level
- Work on this later option is nearly complete on the 2007 Benchmark and will be posted for the states & regions to review

What's next, continued

- None of the research to date has looked at the comparability between National and SOS estimates after benchmarking
- As with estimation, the alignment of benchmark methodologies and benchmark months should produce final benchmarked series that do not differ greatly at aggregate levels
- We will explicitly look at this once we identify methodologies that appear to be acceptable

Changes with the 2008 Benchmark

- Registry and microdata will be pulled from the new Centralized Database (CDB)
- Microdata is edit and screened in the National System and results are input into ACESweb
- By default, estimates that fail edit and screening will be held out of estimation
- States will have to review the rejected data and decide whether to put it back in

Level of Estimate review and review steps

- 1) The Estimation Super Sector – Super Sector with state option to break out Super Sectors – will be reviewed first

Super Sectors that can be broken out

a) Professional and Business Services

- Professional, Scientific, and Technical Services
- Management of Companies and Enterprises
- Waste Management and Remediation and Administrative Services

b) Education and Health Services

- Educational Services
- Health Care and Social Assistance

c) Leisure and Hospitality

- Arts, Entertainment, and Recreation
- Accommodation and Food Services

Level of Estimate review and review steps

- 2) Review traditional lower level basic cells
- 3) Review the proposed ratio adjustment of the lower level estimates
- 4) Do one of the following –
 - a) manually change the ratio adjustment amounts to a different distribution
 - b) accept the ratio adjustments as calculated by the system
 - c) overlay the super-sector level estimates with the traditional “bottom-up” estimate

Overlays

- For the next year (through December 2009 prelims), states may overlay the Estimation Super Sector level estimates without BLS approval (beyond “normal” regional review)

Production testing of the new estimators

- Beginning in March 2009, states will begin running and reviewing estimates using the three estimators described in S-08-10
- This production test will be used to evaluate the three estimators and refine procedures

New estimators - continued

- States will be able to produce post-benchmark 2008 (July or October forward) estimates using the 3 estimators
- Microdata through December 2008 will be loaded by ACESweb staff for post-benchmark estimates
- Microdata used to produce each month's published estimates will be saved and used for January 2009 forward

Estimation steps and how they are defined in the new methodology

- Microdata acceptance/rejection
- Cell structure
- Estimator
- Atypical identification and tolerances
- Strikes and Permanent Atypical units
- Large births and deaths
- Overlays

Microdata acceptance/rejection

- States can reject or unreject microdata

Cell Structure

- The “Estimation Super Sector” concept mentioned earlier will be the level at which estimates are made and controlled to
- Levels of detail below this will be ratio adjusted so that the sum of the lower levels are adjusted to equal to the “Estimation Super Sector”

Possible "Estimation Super Sector" Breakouts

- Professional and Business Services
 - Professional, Scientific and Technical Services, Sector 54
 - Management of Companies and Enterprises, Sector 55
 - Administrative and Support and Waste Management and Remediation Services, Sector 56
- Education and Health Services
 - Educational Services, Sector 61
 - Health Care and Social Assistance, Sector 62
- Leisure and Hospitality
 - Arts, Entertainment, and Recreation, Sector 71
 - Accommodation and Food Services, Sector 72
- Additional breakouts of Railroads and/or Religious Organizations

Estimator - options

1. Robust estimator

- Pure sample-based estimates (where cell meets minimum sample criteria)
- Automated process to identify atypical and down-weighted reporters (see detailed specs)

2. Fay-Herriot model (FH)

- A form of composite estimation, à la the Small Domain Model
- Incorporates QCEW data to decrease monthly volatility
- See specs and separate estimator description

3. Modified Fay-Herriot (MOD)

- (Estimation) super sector estimates made using FH model
- FH estimates are then controlled to Statewide total private estimate obtained from Robust estimator
 - Captures Robust efficiency at total private level
 - Retains OTM smoothness of FH estimates

Atypical identification and tolerances

- The weight trimming and atypification of reports takes place by *Unemployment Insurance account* within a super sector

Strikes and Permanent Atypicals

- All documented strikes can be adjusted for without BLS approval
- BLS will work with the States to annually review and identify situations where permanent atypification of units is appropriate
 - example – PA amusement parks

Large births and deaths

- BLS has recommended a threshold of any single event of at least 100 employees for a single event to be allowed with no approval required from BLS.
 - Documentation of the event is still required.
- No adjustment to the B/D methodology is needed

Overlays

- Overlays at the estimation super sector level will require documentation and BLS program office approval
- Requests and approvals will occur through the ACESweb system and interfaces

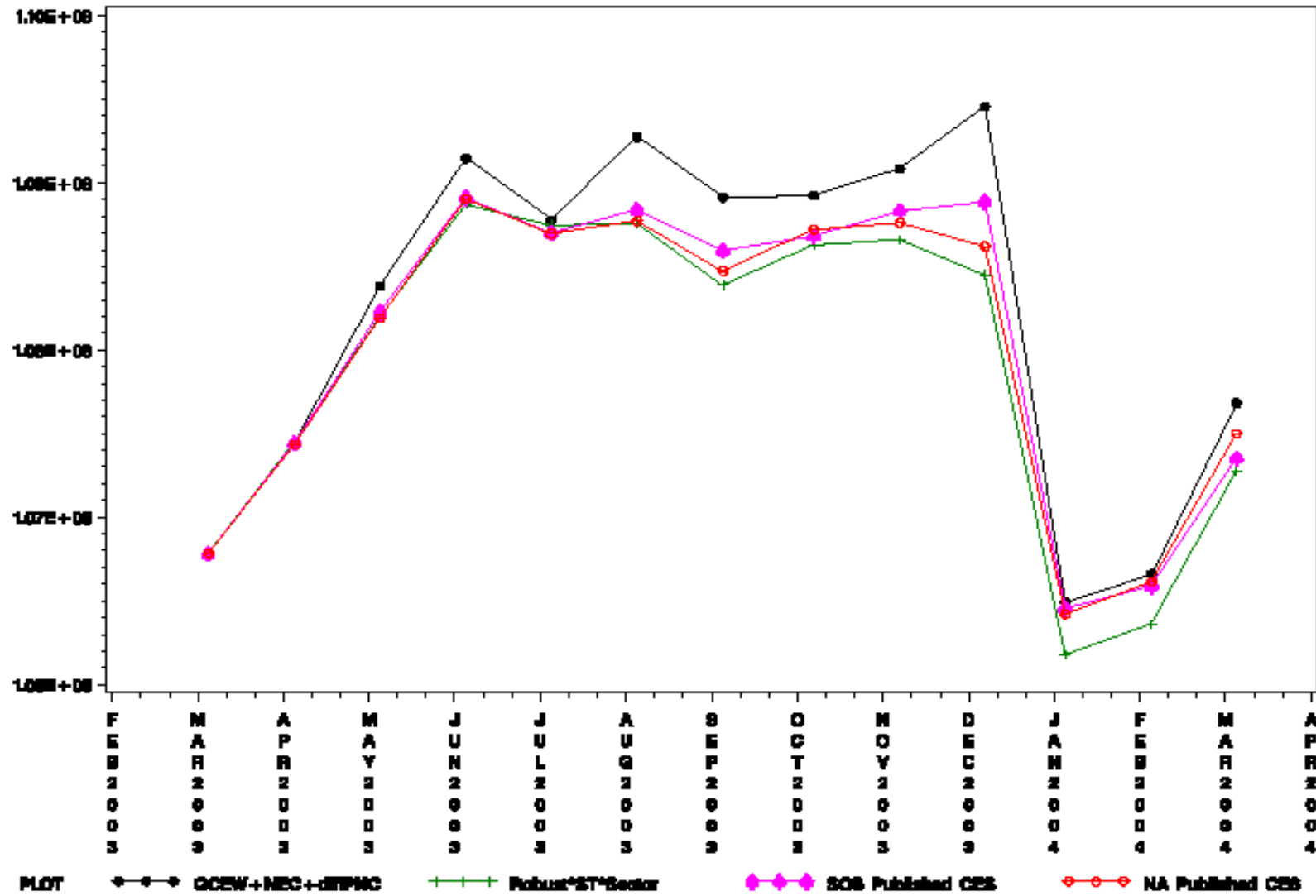
What are we measuring, and how should we evaluate it

- The goal of the program is to accurately measure month-to-month change in employment, using the sample reports and statistical methodology
- Duplicating the monthly QCEW seasonal pattern is not a program goal
- The primary error measure is the annual 12-month estimate revision

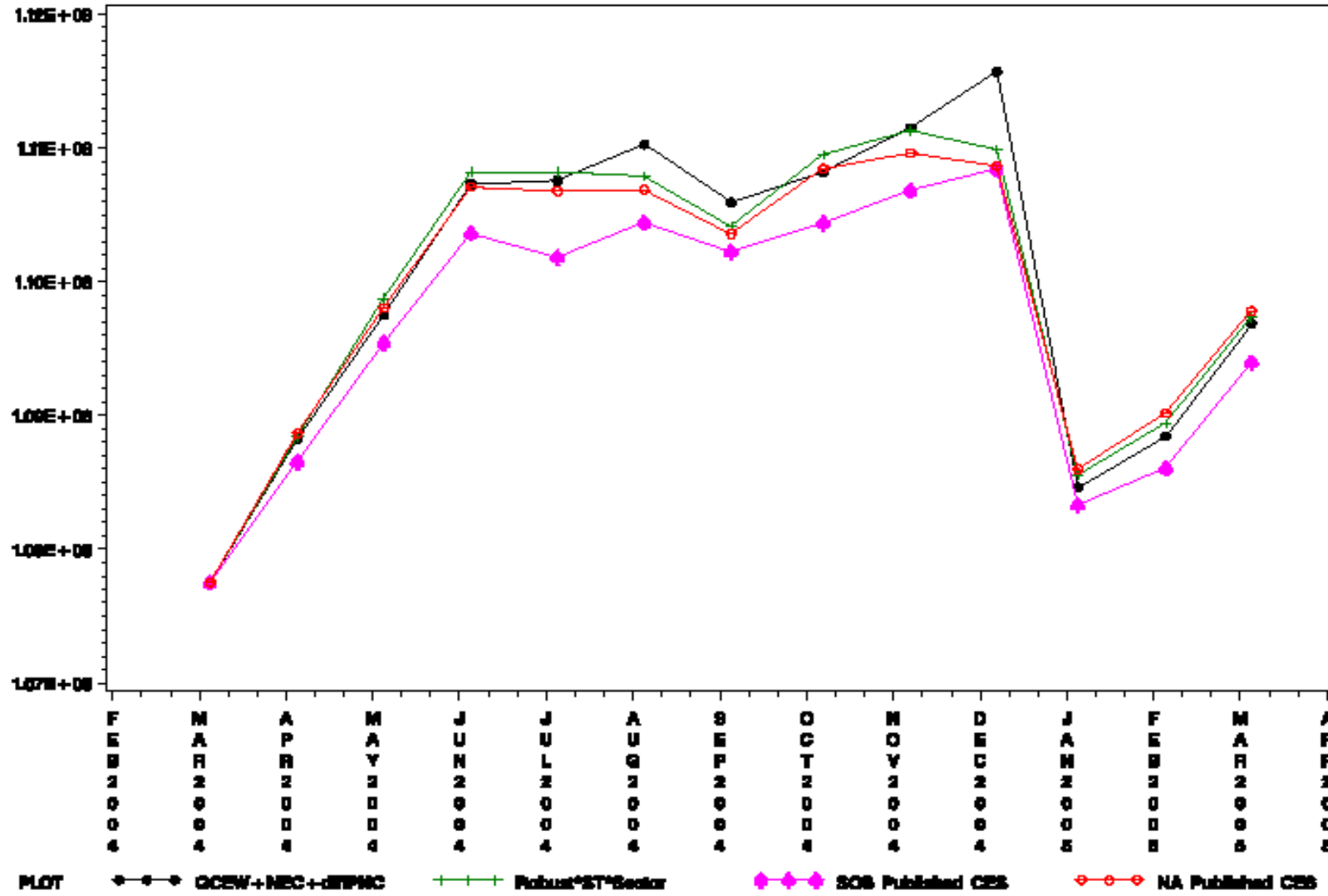
Historical performance of the estimators

- At this point we have almost 5 complete benchmark period of estimates using the estimators that we can look at (see pdf files)

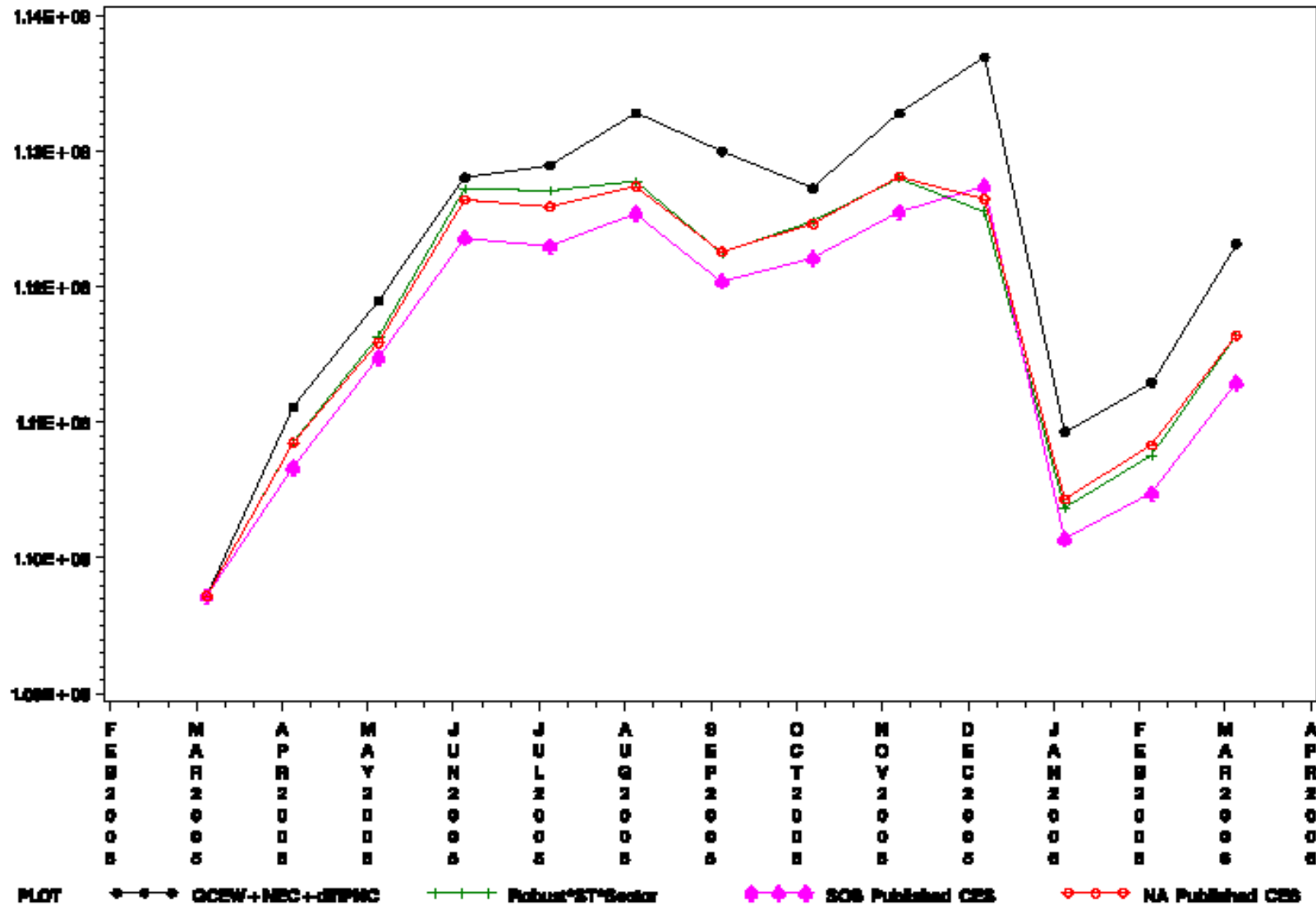
National Total Private



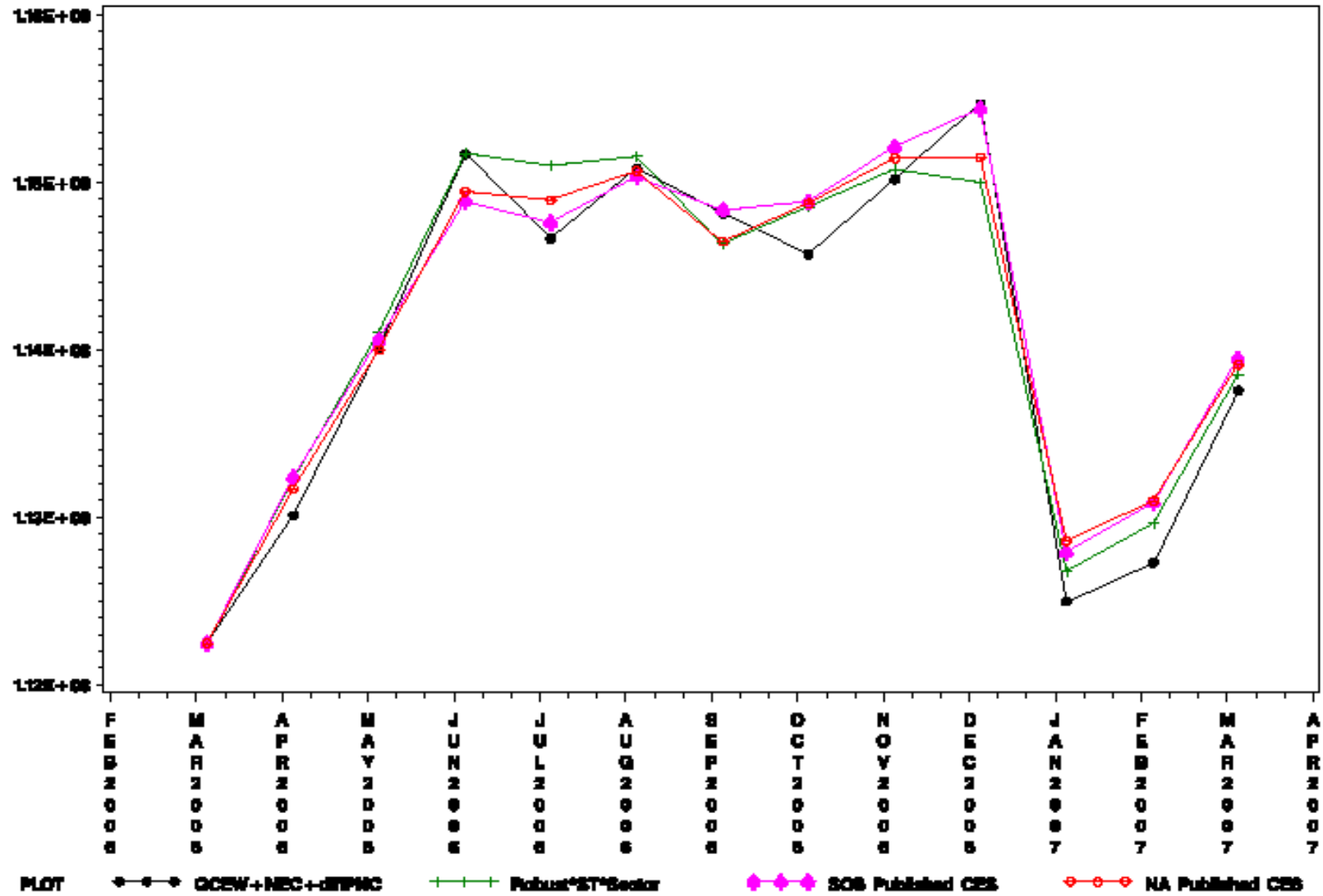
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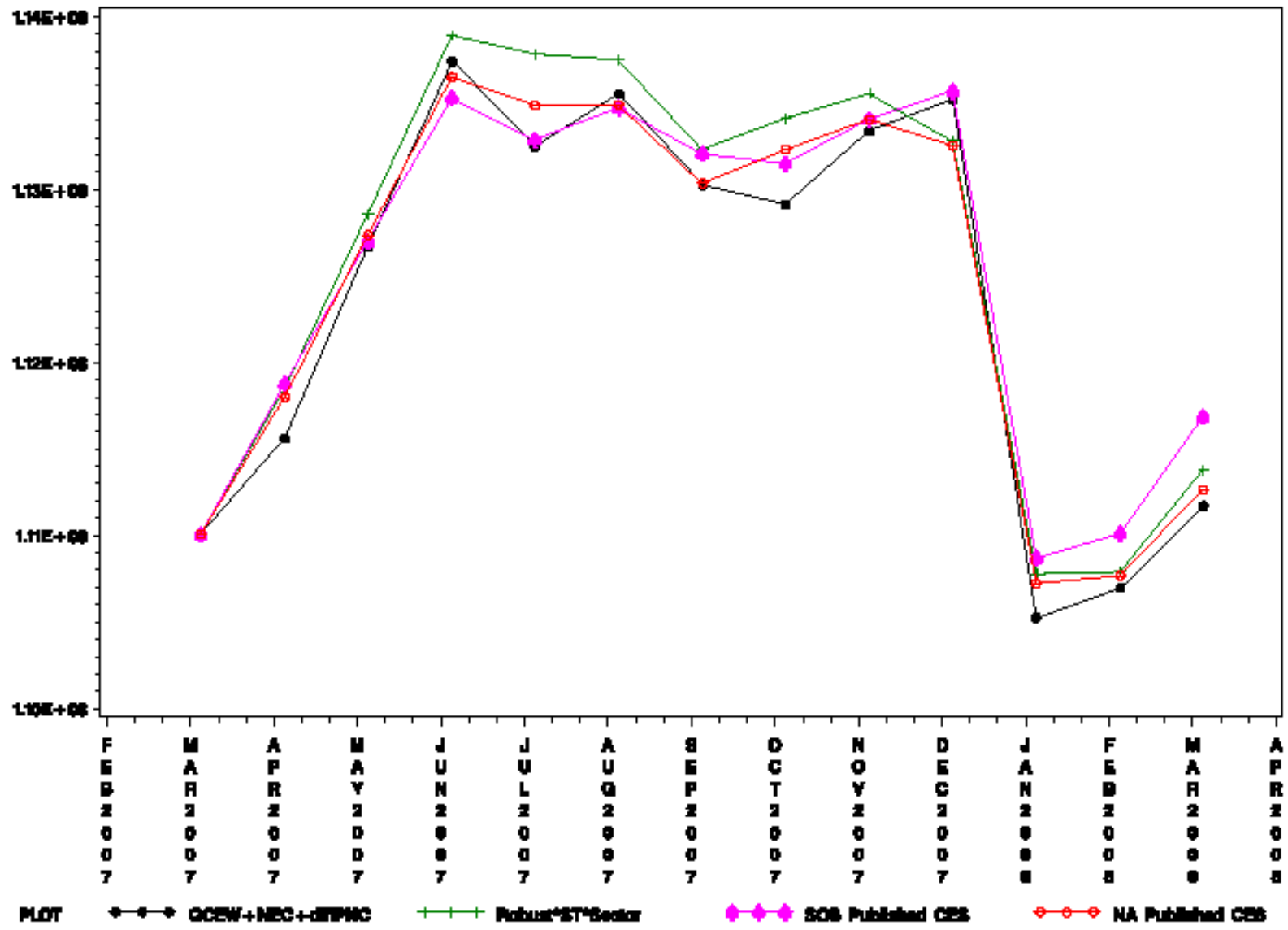
National Total Private



National Total Private



National Total Private



What is "success" in the production test

- Results are consistent with or better than the five years of estimates produced with no intervention
- The ACESweb system can produce the estimator of choice without long processing times
- The overlay approval process can be accomplished in the ACESweb system within the production timeframe

Questions?