Implementing Non-OSD Inflation indices using ACE and the ACEIT Librarian

Abstract

- Over the past few years, several studies have highlighted the disconnect between the OSD Standard Indices and the inflation rates that are being awarded on contracts. This disconnect is apparent when the budget has been set to an ICE that used the OSD Indices and the contract is awarded with higher rate indices. This leads to higher labor rates than planned in the ICE, especially in the later years of a contract.

- There are multiple ways to accomplish modeling non-OSD indices in ACEIT from hard-coding in the labor rates, creating a custom inflation index using the ACEIT Librarian and writing a formula that calculates the index in ACE.

- This paper will walk through 3 different methods of implementing non-OSD indices using ACE and the ACEIT Librarian and will highlight the benefits and the caveats with of each method and an example of when to use each method.

Agenda

- Why use non-OSD inflation indices – a real world example

- Method #1 – Hard Code the rates / indices into ACE
- Method #2 – Use the Librarian to create custom indices
- Method #3 – Create an User Defined Function (UDF) that models inflation in ACE

- *All data in this presentation is made up!*

Background – A Sample Program

- Program ABC, had an Component Cost Estimate (CCE) and an Independent Cost Estimate (ICE) performed in 2006 for Milestone B
- Milestone B was granted early 2007
- The Program was budgeted to the Independent Cost Estimate (ICE)
- The development contract was awarded in late 2007
- The next CCE / ICE was planned for June 2010 in support of milestone C
- The development contract runs from 2007-2012

The Problem

- The program was experiencing cost overruns when compared to the Milestone B ICE and CCE
- When reviewing the old estimate for an update at Milestone C, it was discovered that most of the labor estimates were lower than the current rates on the contract

What Happened?

- **Both the CCE and the ICE had used OSD (specifically Air Force) indices in the original Milestone B estimate**

- **The development contract has a 3.5% / year increase in rates every year**

	2007	2008	2009	2010	2011	2012
OSD Inflation Rate	$ 102.19	$ 104.41	$ 106.60	$ 108.85	$ 111.17	$ 113.62
3.5% Inflation per Year	$ 103.50	$ 107.12	$ 110.87	$ 114.75	$ 118.77	$ 122.93
% delta	1%	3%	4%	5%	7%	8%
TY Cost of $100 / hour estimated in 2006						
*OSD Inflation Indices from 2006 (RDTEA)						

- **Even if the ICE / CCE had estimated the rates exactly the same as the contract, we would have been 5% lower by the time Milestone C happened, and 8% lower by the end of the contract**

What Happened?

- **Since the program was budgeted to the Milestone B ICE, the program was experiencing a cost over-run purely due to inflation**
  - The program was 90% labor / 10% material

Possible Modeling Solutions

- **There are 3 options:**
  - Hard code inflation rates into ACE
  - Create a Custom Inflation Index in the ACEIT Librarian
  - Write a UDF in ACE and use a custom inflation index

Method #1 – Hard Code into ACE

- **Enter the labor rates onto the yearly phasing screen in ACE**
  - Label the labor rates / costs with Phasing Method “TY”
  - Use the OSD indices that correspond to the correct appropriation in the model

Method #1 – Hard Code into ACE

- **Cut to ACE file to show modeling**

Method #1 – Hard Code into ACE

- **Pros:**
  - Easy to Use
  - Can use multiple inflation rates in the same file or different rates every year

- **Cons:**
  - Can be cumbersome if there are multiple labor rates
  - Could take a long time to make updates to labor rates or inflation rates if many different labor rates are hard coded
  - The BY cost is not correct as it uses the OSD indices to convert to BY
  - No cost past the years that were specified

Method #2 – Create a Custom Inflation Index using the ACEIT Librarian

- **Creating a custom inflation index allows the estimator control of the inflation used in the estimate**
  - Can be fixed inflation amounts or different per year
  - Can also be specified for a specific year range

Method #2 – Create a Custom Inflation Index using the ACEIT Librarian

- **Cut to Librarian to show steps in next slide**

Method #2 – Create a Custom Inflation Index using the ACEIT Librarian

- **Click on the New Table icon or select Edit > New Inflation Table from the menu.**
- **The Inflation Table Properties dialog opens. Enter table information and click OK.**
- **To add new appropriations and their associated inflation indices into the librarian, follow these steps:**
- Click on the **New Appropriation** icon on the Inflation Toolbar, click on the **New Appropriation** link in the Tasks section of the Task View, or select **Edit > New Appropriation** from the menu.
- This opens the Appropriation Properties Dialog where you can enter information about the indices, such as whether you want to enter the Raw/Weighted directly or enter escalation and outlay rates and have the librarian calculate them for you.
- After entering appropriation properties, you'll be placed in the Inflation Indices Dialog where you can enter the indices. Note that you can paste indices into the dialog from Excel or some other spreadsheet.
- Close the dialog when finished by selecting **File > Close** or clicking the red X in the top right corner of the dialog.
- The new index is now available for use within ACE

- **Source: ACEIT Librarian Help Text**

Method #2 – Create a Custom Inflation Index using the ACEIT Librarian

- **Pros:**
  - Can create multiple appropriations in the same custom index
  - Inflation index is saved with file, so a user that does not have the custom index can still calculate the file
- **Cons:**
  - Cannot run sensitivity analysis on the inflation rate
  - If different inflation indices are used each year the years must be specified and the inflation will only work on those specific years

Method #3 – Write a UDF

- **A UDF (user defined function) allows the user to write an equation once and reference it many times in a session**
- **This is combined with a custom appropriation that does not have inflation on it, so that all of the inflation is done in ACE**
  - Set the “Fixed Rate” to 0 in the Appropriation Properties Menu

Method #3 - Write a UDF

- **Cut to ACE to show UDF and how it works**

Method #3 - Write a UDF

- **Pros:**
  - Can run sensitivities (what-ifs) on the inflation rate
  - Can be used multiple times in the same session for different labor rates and different inflation rates
  - User sets up the range of years for inflation
- **Cons:**
  - Base year calculations will not be correct

Summary

- **Inflation Rates on development contracts can be significantly higher than OSD inflation rates**
  - Even a small difference can significantly affect the affordability of the program.
- **There are many different ways to model non-OSD inflation indices, but each method has it's strengths and its weaknesses**
  - Hard Code into ACE
  - Create a Custom Inflation index using the Librarian
  - Write a UDF and use a custom inflation index

Questions?