

Measuring whether agencies have the resources to operate effectively

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Council of Professional Associations on Federal Statistics
September 8, 2023

We aim to monitor the federal statistical system

- ▶ Specifically, whether the system adheres to guidelines such as *Principles and Practices* and the *Statistical Policy Directives*.
 - ▷ But these guidelines are abstract. How do you measure if staff are qualified (Practice 4) or a research program is active (Practice 5)?
 - ▷ We need your help to reach a community consensus on which “vital signs” (simple/transparent criteria) best instantiate adherence?
 - ▷ Consensus is important since how the system is measured can impact the conclusion reached.
- ▶ In this presentation, I will “monitor” whether agencies had the resources to operate effectively over the past two decades.
 - ▷ The purpose of this retrospective analysis is to inform a discussion on how data might be summarized simply and transparently going forward.
 - ▷ Thanks to Madison Hardesty, Vasilli Nosov, Alayna Schoenberger, and Errol Schwartz.

1. Monitoring the federal statistics budget

► Goal:

- ▷ To determine whether sufficient financial resources are dedicated to federal statistics in an executive or congressional budget.

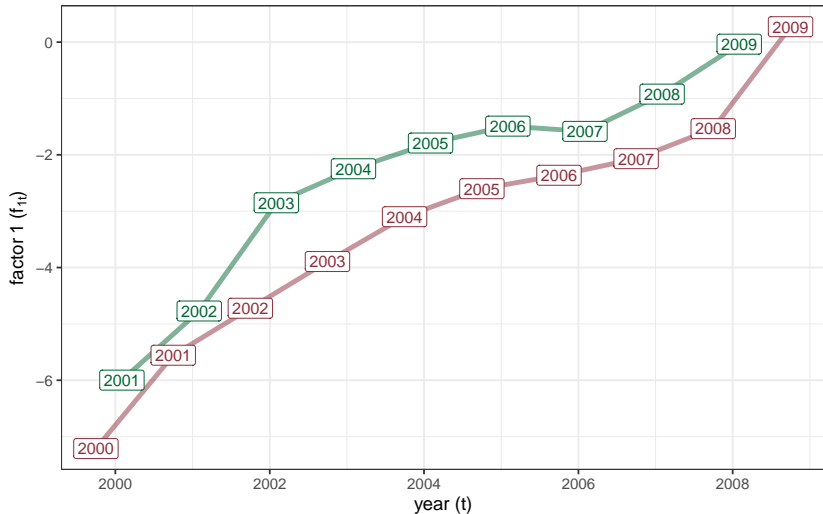
► Data:

- ▷ “Blue Books” (Statistical Programs of the United States Government), Analytical Perspectives, Budget of the United States Government, and the Budget Appendices.
- ▷ n.b. Budgets adjusted to account for changing programs.

► Model: Budget Factor Model

- ▷ Let y_{it} denote the budget of agency i at period t
- ▷ $\log(y_{it}) = \sum_{k=1}^K \alpha_{ik} f_{kt} + \epsilon_{it}$ where $f \sim \text{VAR}(2)$ and $\epsilon_t \sim \text{N}(0, \Sigma)$
- ▷ Interpretation: when the “factor” f_{kt} is higher, there is more support for the federal statistical agencies.

Until 2009, support increases at different rates—an average increase of about one unit per year



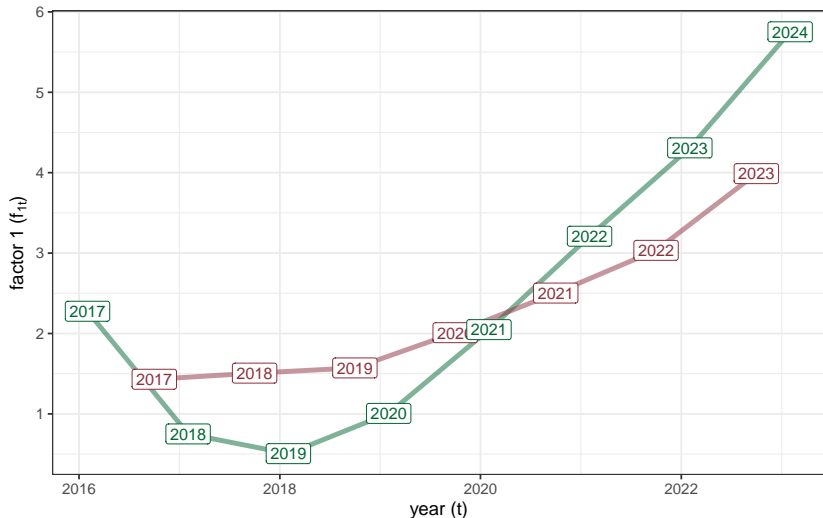
a executive budget a actual budget

No progress between 2010 and 2016—an average increase of zero units per year



a · executive budget a · actual budget

From 2018-2021, an average increase of about 0.1 units per year despite declining executive support



a executive budget a actual budget

2. Monitoring the tenure of federal employees

► Goal:

- ▷ To determine whether there is sufficient retention and turnover of employees at an agency.

► Data:

- ▷ FedScope Federal Workforce Data.

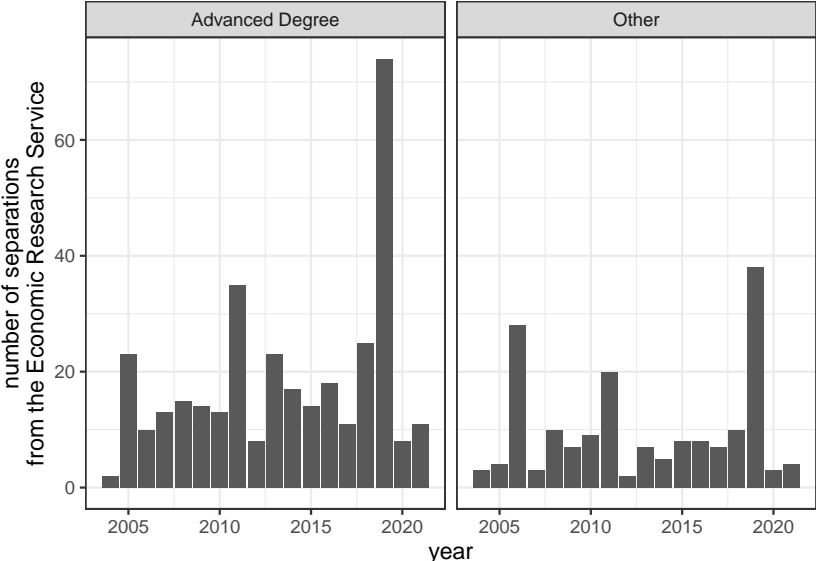
► Model: Period Life Expectancy Model of Employee Tenure

- ▷ Let p_{it} denote the proportion of employees with i years of service that left (i.e. “separated”) in year t .
- ▷ The “expected tenure” of an employee in year t is defined to be

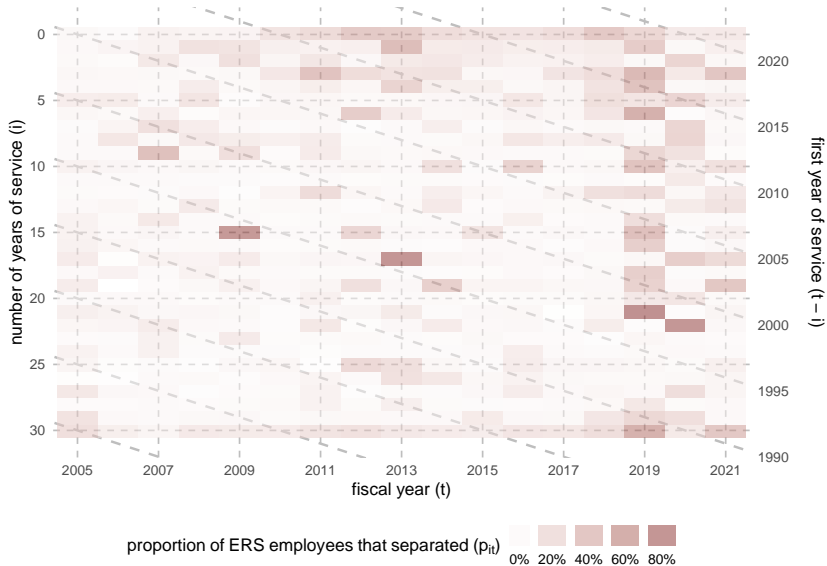
$$x_t = \sum_i i p_{it} \prod_{j < i} (1 - p_{jt})$$

- ▷ Interpretation: when expected tenure x_t is lower, more employees are leaving the agency earlier in their careers.

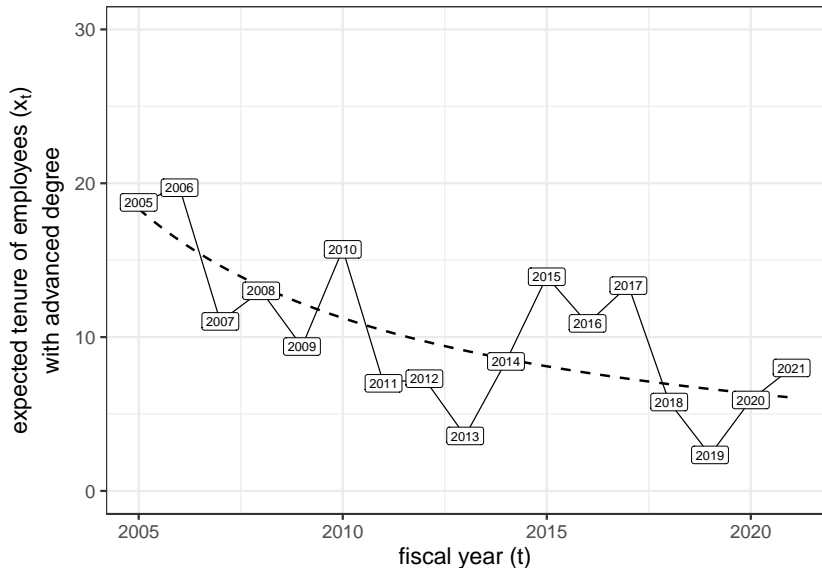
Recall 112 employees left ERS (i.e. “separated”) in 2019—more than 4x the 2009-2018 average



Those with advanced degrees who separated ERS in 2019 did so across all years of service



But ERS tenure was already declining—low tenure years correspond with low budget support years



So how can we determine whether agencies have the appropriate resources to operate effectively?

- ▶ In this presentation, I analyzed two resources essential for maintaining federal statistics: 1. budget and 2. staff.
- ▶ The purpose of these analyses was to inform a discussion on how such data might be summarized simply and transparently.
- ▶ All summary statistics risk oversimplifying the complexities of the federal statistical system.
 - ▷ The question is which aspects of the system can be simplified for the purpose of monitoring.