

NEPA Project Cost and ESA Impact

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Goals for this presentation

- Provide a background of previous NEPA cost estimations
- Show my motivation for this research topic
- Present an econometric model that estimates a NEPA cost function obtained from historical observations from a database managed by the US Forest Service
- Review the results and application of the model
- Obtain feedback and discuss future opportunities for continuing NEPA analyses

NEPA in a nutshell

- Disclosure of impacts on public lands
- Intensity of analysis
 - Categorical Exclusion (CE)
 - Environmental Assessment (EA)
 - Environmental Impact Statement (EIS)

Motivation For Research: What is out there?

- Lack of previous academic literature of the Economics of NEPA
- Public and private demand for information regarding the cost of doing NEPA analysis
- Gaining clarity on factors influencing costs of NEPA projects

Research Motivations cont.

- There is a lack of a current clear objective direction for the Forest Service with regards to the NEPA process
- There is little direction for the Budgeting Office within the Forest Service for NEPA
- A 2002 study estimated that the Forest Service spends \$250 million annually on NEPA planning¹
- A 2014 report by the Government Accountability Office (GAO) also concluded: “Little information exists on the costs and benefits of completing NEPA analyses”²

Historical
observations:
getting up to
speed

- **Planning rules! 1982,2000,2005, 2008, and 2012.**
 - Best of?
- **Fire Mitigation**
 - Legislative policy responses
 - Efforts to incentivize fuel load reduction
 - Revision of regulations for Categorical Exclusions
- **Additional Passage of regulations regarding NEPA efficiency**
 - 2004, 2005, 2012
- **Agricultural Act of 2014**
 - Designated areas of substantially increased tree mortality to be treated as hazardous fuels
- **GAO issued report on the lack of information on cost and benefits of NEPA (2014)**

Now what?

- Historically it has been shown that there is interest in modifying and implementing "best practices" to make the NEPA process more efficient, while provided an adequate document to fully disclose environmental impacts.
- The attempts to centralize and systematically improve the NEPA process within the US Forest Service have failed to this point.
- The Forest Service has aggressive goals of reducing the costs of performing NEPA analysis.
- The first step to finding a solution is attempting to identify the existing problems in the process and determining where it is experiences the greatest costs.

Data Analysis

Forest Service database: Workplan system (WPS)

- Planning estimates tracked on a project by project basis
- Data exists for Region 1 2006-2016
- Cross referencing projects found in WPS to existing corresponding NEPA documents focusing on timber projects
 - Once projects are linked, the costs can be estimated based on their qualitative and quantitative characteristics
 - Length of document (pages)
 - CCF (timber volume)
 - Litigation (Comments)
 - Endangered Species Act

Building the Model

- **Modified Translog Function for NEPA project Cost:**
 - $\ln C^* = \alpha_0 + \alpha_q \ln q + \frac{1}{2} \gamma_{qq} (\ln q)^2$
 - q represents the quantity of project acreage accomplished for the NEPA document

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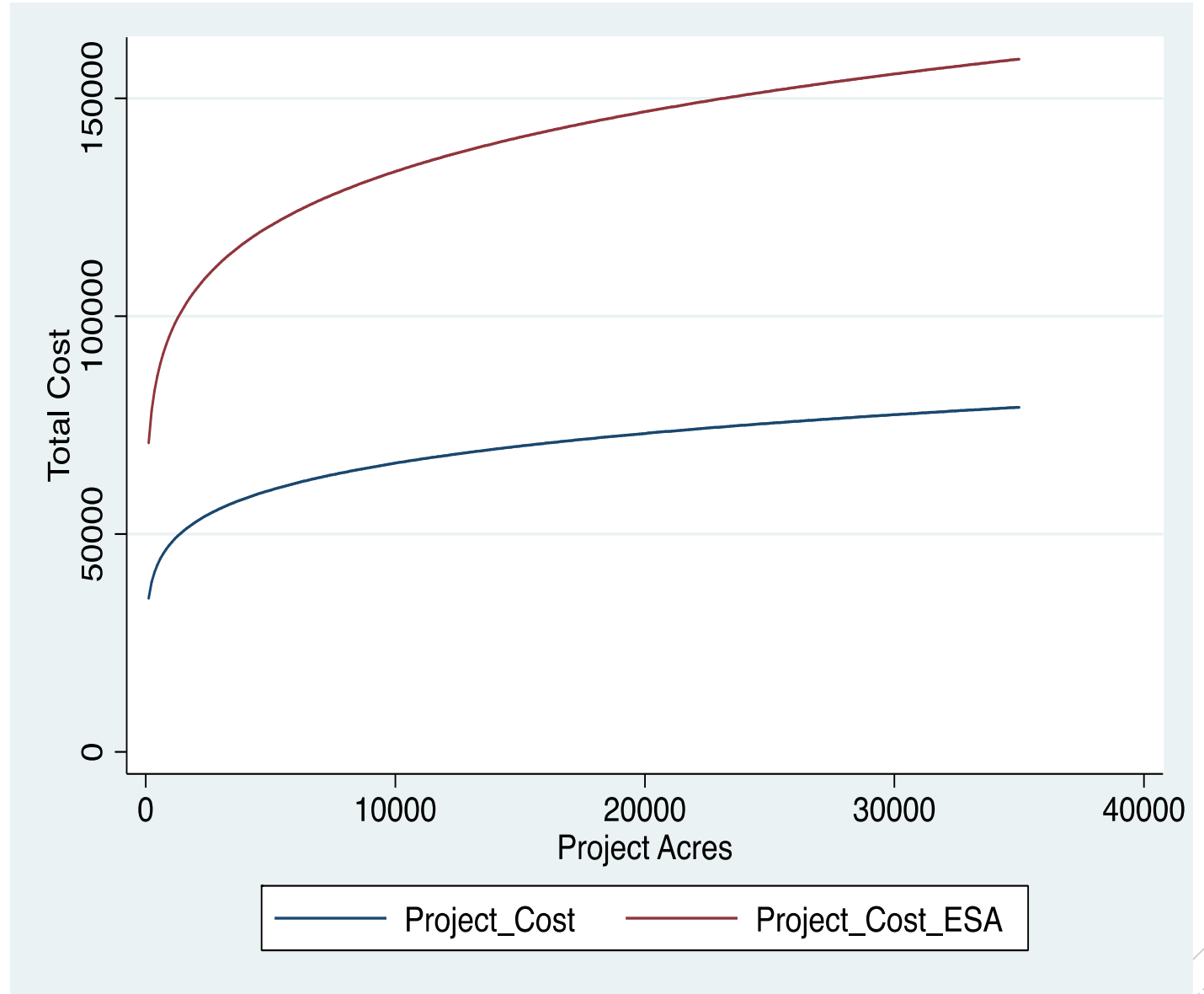
Other cost function considerations

- **ESA**
- **Project Years**
- **CE, EA, EIS**

Model Results

- R^2 of .783
- Variable ESA significant at 95% confidence level : NEPA project costs experience a 51% increase in cost when an endangered species is present in the project area.
- Variable CE significant at 90% level: The cost of completing a Categorical Exclusions is on average 82% less than an EIS, all else equal.

ESA Impact



Discussion of Results

- **Economies of scale estimation: An additional increase of 5000 acres to a project area estimates a 57.9% increase in project cost.**
- **Varied social aspect of opinions within Forest Service.**
 - **Desire for direction from multiple levels from budgeting to planners**
 - **Uniformity across the Region or even forest to forest to systematically track NEPA costs**
 - **Is it feasibly possible?**

Continuing Areas of Research

- **Extend scope of analysis to look across Regions of U.S. Forest Service.**
- **Estimate costs for regional differences to look for efficiency and BMPs**
- **Improved modeling techniques built upon my research for predicting NEPA cost**

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Questions?

Comments?