

# Non-Tenure Track STEM Faculty in Higher Education

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## Summary

The proportion of postsecondary faculty working off the tenure-track has grown rapidly over the past four decades. While we have generally built a better understanding of these faculty in recent times, there is still much to learn. For one, faculty have a range of motivations for working off the tenure track and their work experiences are quite diverse as well. Too often, scholars fail to recognize this heterogeneity and they formulate generalizations that do not apply to wide swathes of adjuncts. My work aims to elucidate and clarify the diverse types of contingent faculty working in higher education.

Our understanding is also limited with regard to the job satisfaction of tenure-ineligible faculty. In fact, the popular media and the professional outlets of higher education in many cases have already concluded that these faculty are hopelessly marginalized and unsatisfied with their work. My research presents evidence that these faculty experience great satisfaction, but that there are important, particular grievances that need to be addressed. If you want to learn more about this work, check out my website: [www.chadevans.org](http://www.chadevans.org)

## Common beliefs about non-tenure track (NTT) labor:

- **Part-time employment:** There is an impression that NTT faculty only teach one or two classes, but never a full course load (Schmalz and Oh 2014, Sabga 2015).
- **No future:** It is claimed that there is little or no opportunity for career advancement for NTT faculty (Fruscione 2014).
- **Disgruntled labor:** Some have argued that NTT experience little job satisfaction in their work (Schmidt 2015).
- **Transient employees:** Some have portrayed these faculty as itinerants, bouncing from one institution to the next in order to sustain employment (Kingkade 2013, Raab 2015).
- **Low pay:** Many believe NTT are paid inadequate salaries (Kiesel 2013, Takahashi 2014).
- **Few job benefits:** It is believed that NTT faculty rarely receive contributions towards their retirement, vacation time or health insurance (Brecher 2014, Dunn 2014).
- **Poor working conditions:** NTT faculty rarely possess office space and ways to engage and communicate with their students (Moser 2014, Pathe 2014).

## Research Questions

**R1:** What kinds of NTT typologies emerge from recent data and how do those compare to earlier classification schemas by Gappa and Leslie (1993) and Schuster and Finkelstein (2006)?

**R2:** Which variables among faculty are most important for classification and how do those variables influence or relate to the probability of tenure?

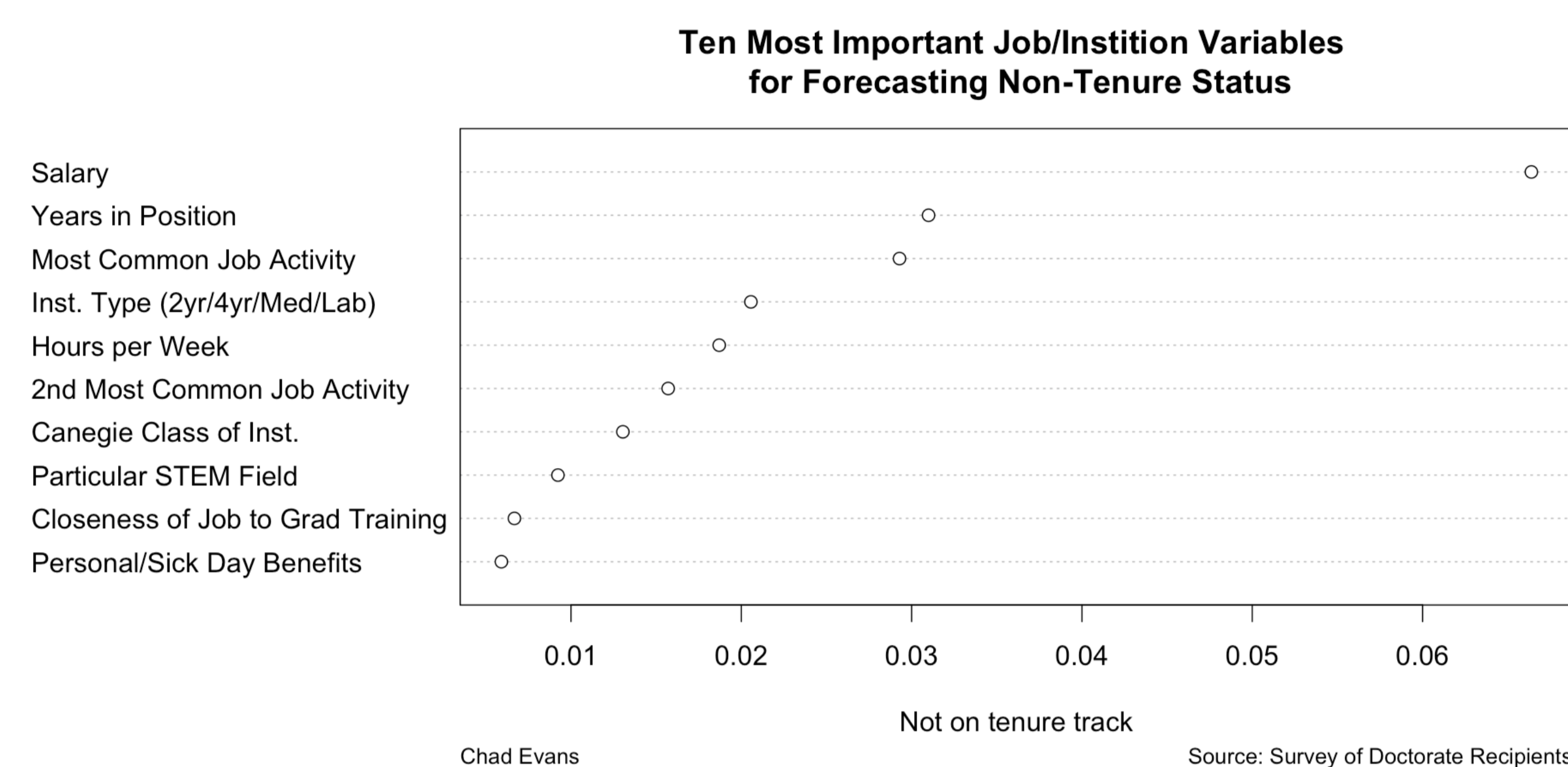
**R3:** How satisfied are NTT faculty with their jobs and in what areas are they more or less satisfied?

## Data

**The Survey of Doctorate Recipients (SDR):** The SDR is a longitudinal biennial survey (panel data) conducted since 1973. It contains demographic and career history information on individuals with a research doctoral degree in a science, technology, engineering, or mathematics (STEM) field from a U.S. academic institution. The survey follows a sample of individuals with STEM doctorates throughout their careers from the year of their degree award until age 76.

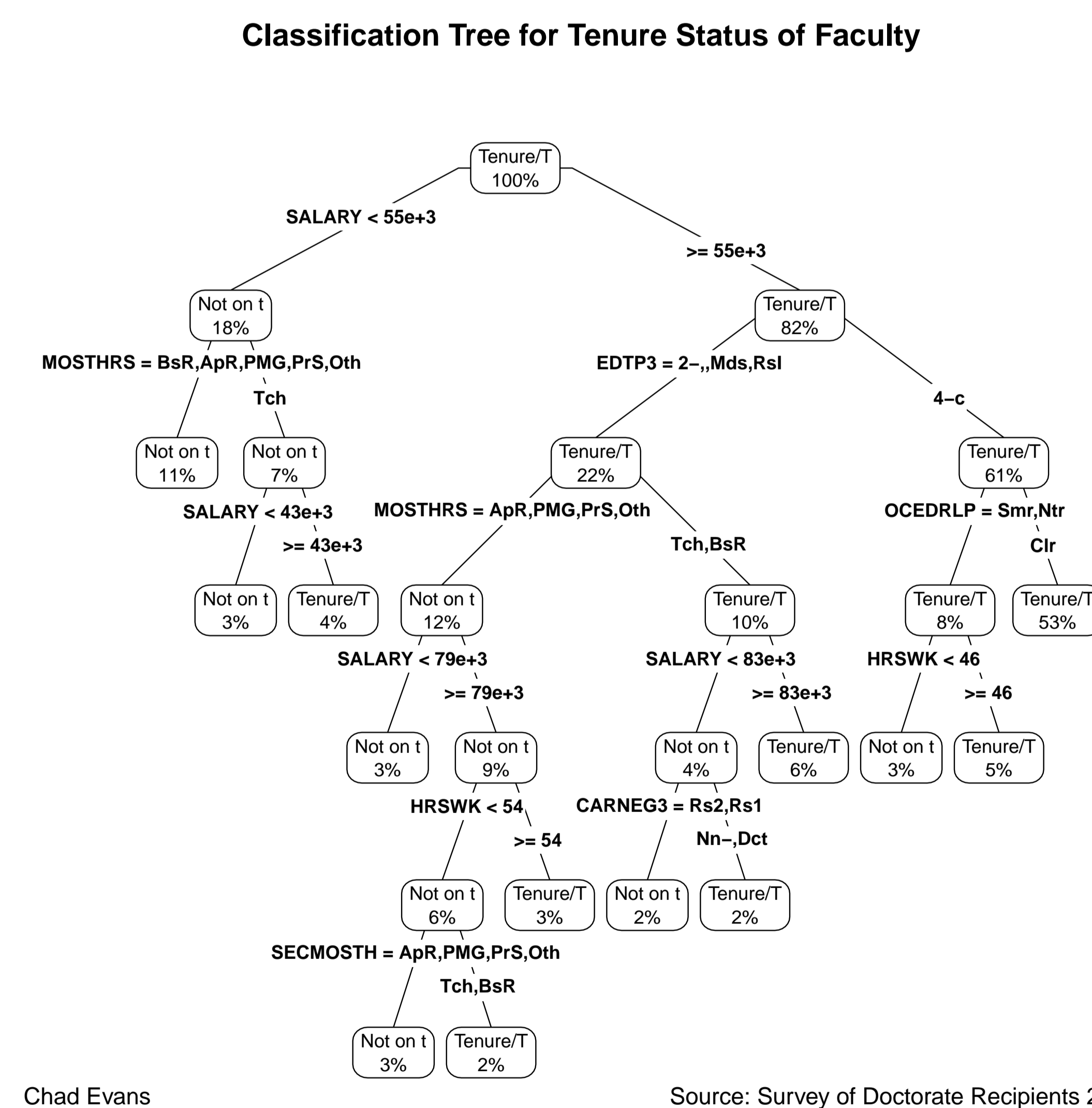
Unlike many survey instruments with information on non-tenure track faculty, this instrument is extremely well-designed and rigorously applied to a probability sample of faculty. The trade-off is that this sample only includes faculty who earned a STEM doctorate, thereby excluding significant numbers of tenure-ineligible faculty.

## Variable Importance w/ Random Forests (Breiman 1996)



The random forest variable importance procedure calculates the loss in forecasting skill when excluding a characteristic of interest. Most variables were of little importance for forecasting.

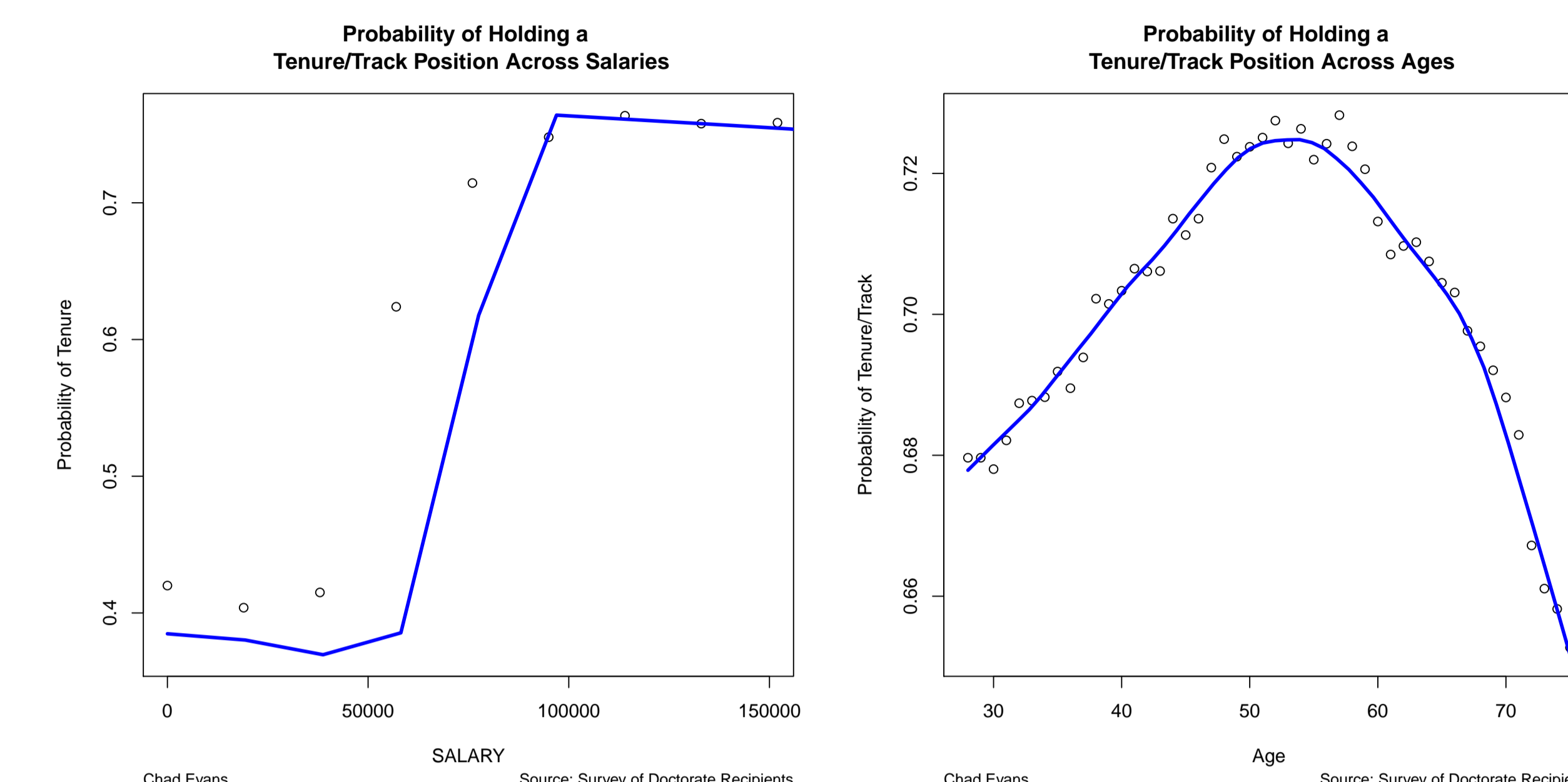
## Decision Trees to Aid in the Classification of Faculty



Recurrent faculty types to emerge during re-sampling:

- **Specialist Adjunct:** Well-compensated, but little job security. Some work fewer than 40 hours per week.
- **Secure Adjunct:** Reasonably compensated ( 45k) with good job security. Often with benefits and working in research institutions.
- **Stopgap Adjunct:** Strong salaries and good benefits, but without job security or opportunities for advancement.
- **Exploited STEM Adjunct:** Poorly compensated and working in non-research/doctoral institutions (e.g. Liberal Arts, 2-year, Theology).

## Partial Dependence Plots of Key Variables



Partial dependence plots give graphical depictions of the marginal effect of a variable of interest on the probability of classification. Here I examine how the probability of "Tenure/track" classification changes as salary (left) and age (right) increase.

## Principal Factors of Adjunct Job Satisfaction

Contrary to the beliefs of many, non-tenure track faculty are fairly satisfied with their jobs. More than 3/4 report that they are either "satisfied" or "very satisfied" with their jobs on the whole. But aggregated data sometimes obscures. Following an exploratory factor analysis, important factors emerge in the job satisfaction of contingent faculty. These data came from the HERI 2010.

Table 1: Factor Loadings of NTT Faculty Satisfaction Items

Factor 1	Factor 2	Factor 3
Quality of students	Salary	Health benefits
Office/lab space	Opportunity for scholarly pursuits	Retirement benefits
Autonomy and independence	Teaching load	Tuition remission for children
Prof. relationships with faculty	Job security	
Social relationships with faculty	Availability of child care at this inst.	
Competency of colleagues	Prospects for career advancement	
Departmental leadership		
Course assignments		
Freedom to determine course content		
Clerical/administrative support		

## Conclusions

- There is considerable *heterogeneity* among STEM faculty adjuncts. Generalizations failing to take into account these diverse characteristics may misrepresent the lived experiences of many non-tenure track faculty.
- Earlier classification schemas were extremely important in elucidating the roles and experiences of non-tenure track faculty. However, recent data suggests that a professional class of adjunct is emerging: faculty with much in common with traditional faculty, but without their social status and job security. This group of adjuncts merits recognition in our typological system.
- Some have argued that non-tenure track faculty are quite unsatisfied with their work. My research demonstrates that this is not the case. The vast majority ( 75%) of non-tenure track faculty are either "satisfied" or "very satisfied" with their work on the whole.
- Based on the faulty assumption that non-tenure track faculty are unsatisfied, many administrators have created programs to recognize the contributions of non-tenured faculty and offer them various forms of support. A factor analysis suggests that these efforts will have little if any effect. The grievances of non-tenure track faculty relate mostly to their job security, salary and opportunities for advancement—not "recognition."

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