Decision Analysis on optimizing a workforce

IE 512: Decision Analysis Project
December 1, 2017

Presented by
Group #10

Shreyash Kulkarni   : 50247447
Arpit Rana   : 50241234
Yash Ahuja   : 50245092

Introduction

- All organizations want to increase their productivity.
- They have 3 options
  - Hire more
  - Fire employees
  - Do nothing

Workforce Optimization

- Meaning: Increasing overall productivity of a company.
  - Done by observing various positions & stations.
  - Study times and nature of job.
  - Include taking feedback from the operators.
  - Appointing the appropriate number of workers to that position.
  - Demand for the product.

Model

- **DECISION**: Whether to hire or layoff employees.

- If hiring,
- **2nd DECISION**: Whether to
  - hire a temporary employee
  - a new permanent employee or to
  - just keep a current employee paying him/her overtime.

- If Laying-off
- **3rd Decision:** Whether to
  - Layoff or not
  - Hire HR/Lawyer team then layoff.

Elements of Decision Making

- **Objective**

  To optimize the workforce for the better of the organization

- **Decision**

  There are consecutive decisions to make:

- ✓ Whether to hire and layoff a candidate

- ✓ If we choose to hire, we have to decide whether to choose a temporary employee, permanent employee or an overtime current employee

- **Decision maker**

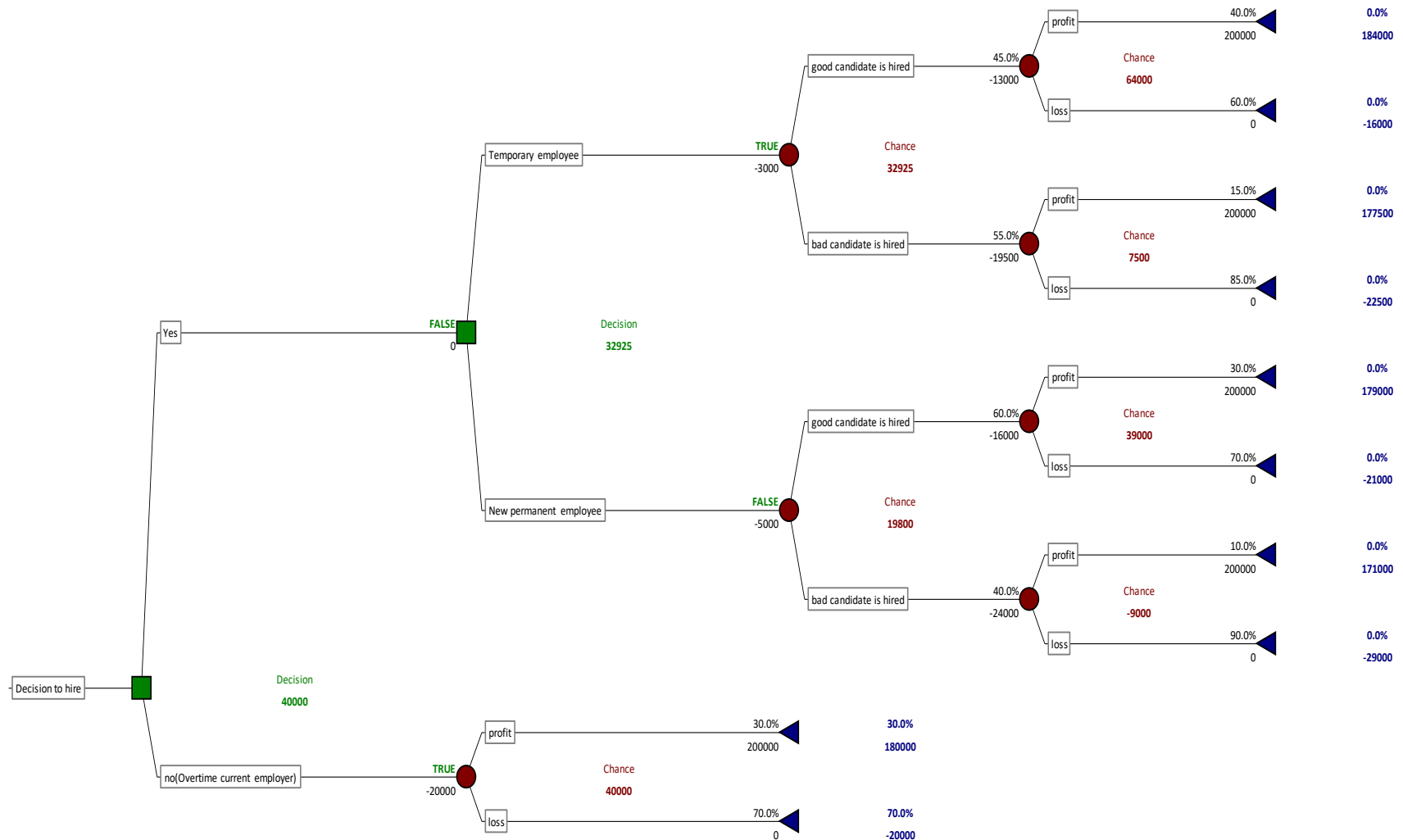 Employer/Recruiter of an organization
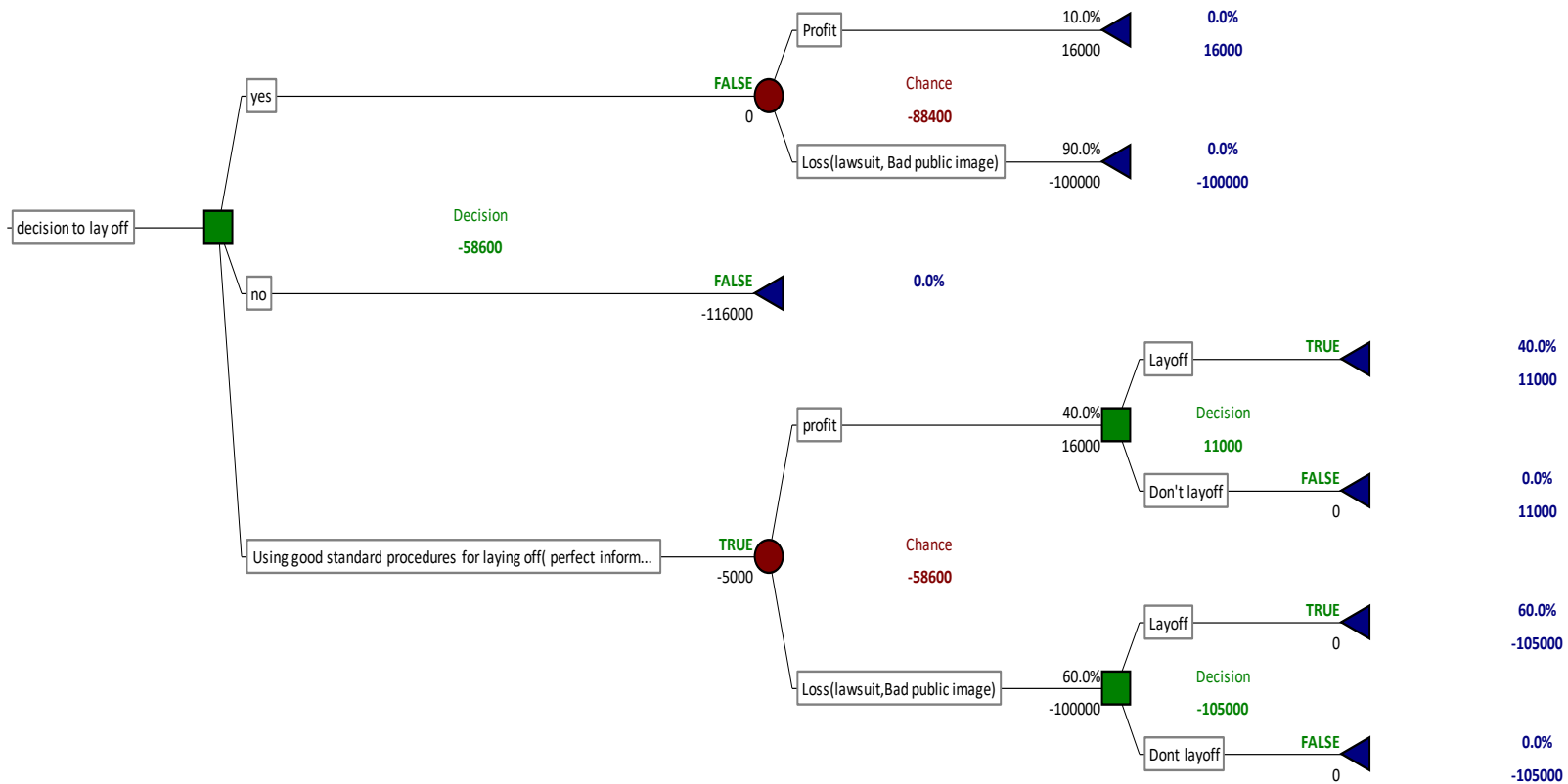
- **Payoff/ Advantage:**

  - ❑ To maximize the profits

  - ❑ To minimize losses

Decision Tree-First Step

Results of Report

Business report
0

Good report — 30.0%
0

Decision
0

Hire — TRUE — 30.0%
0 — 0

Lay-off — FALSE — 0.0%
0 — 0

Bad report — 30.0%
0

Decision
0

Hire — TRUE — 30.0%
0 — 0

Lay-off — FALSE — 0.0%
0 — 0

No loss no profit — 40.0%
0

Decision
0

Hire — TRUE — 40.0%
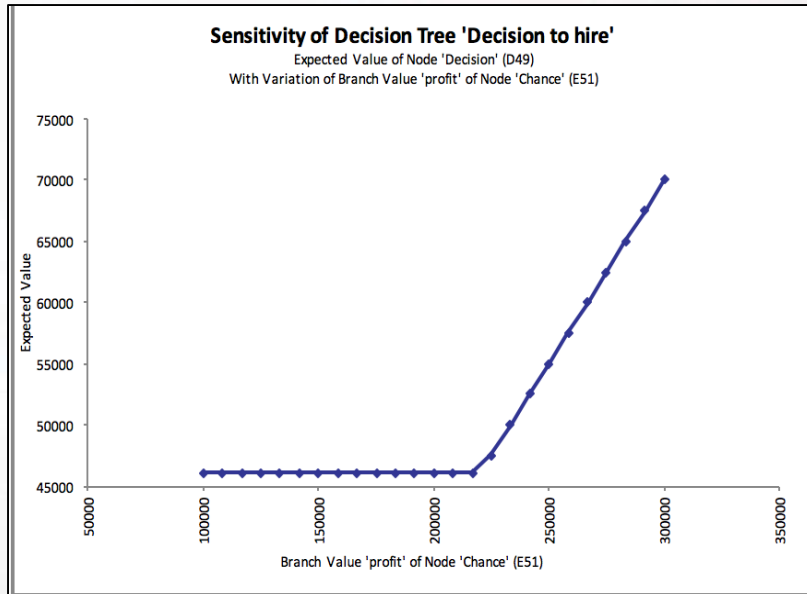0 — 0

Lay-off — FALSE — 0.0%
0 — 0
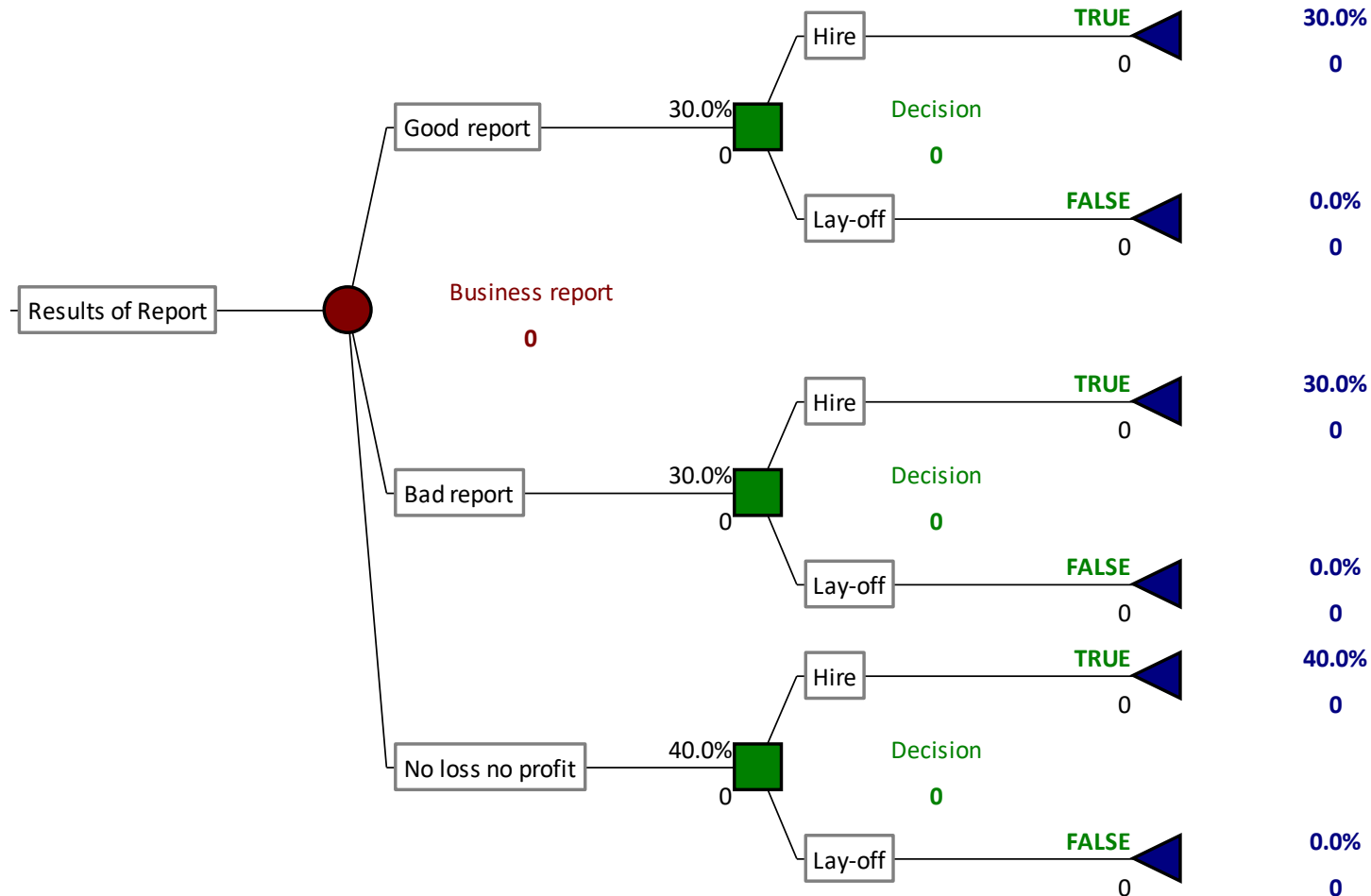
Decision Tree-Hire

Decision Tree-Layoff

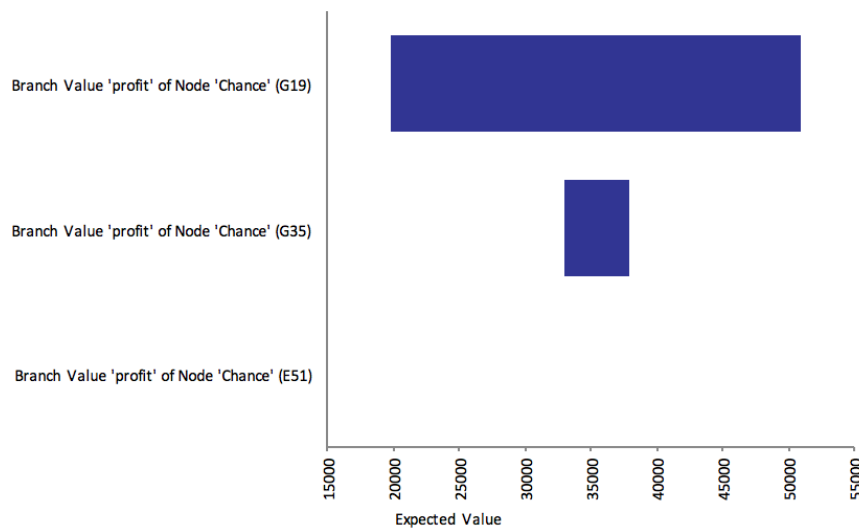# Sensitivity Analysis – One Way(Hire or Choose current employee)
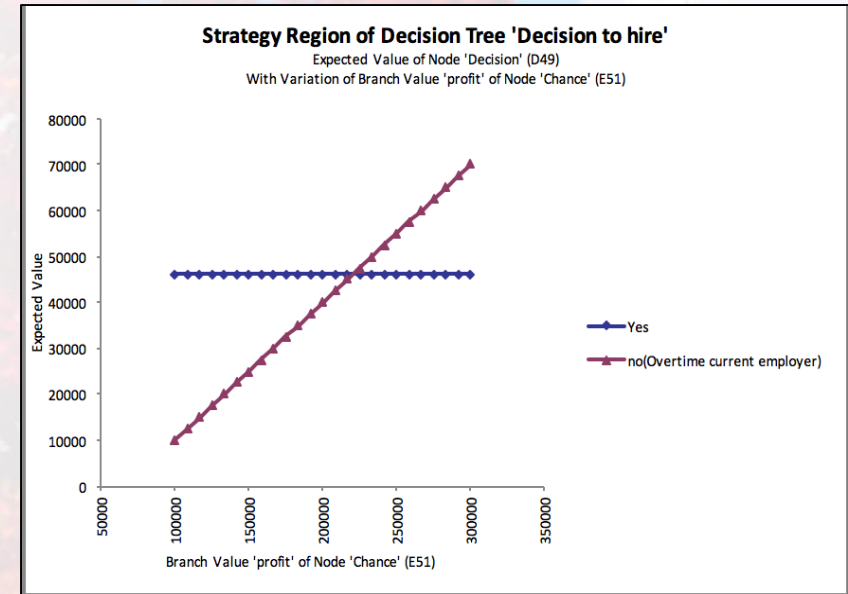
Sensitivity Analysis – One Way (Temporary Emp or New Permanent Emp)
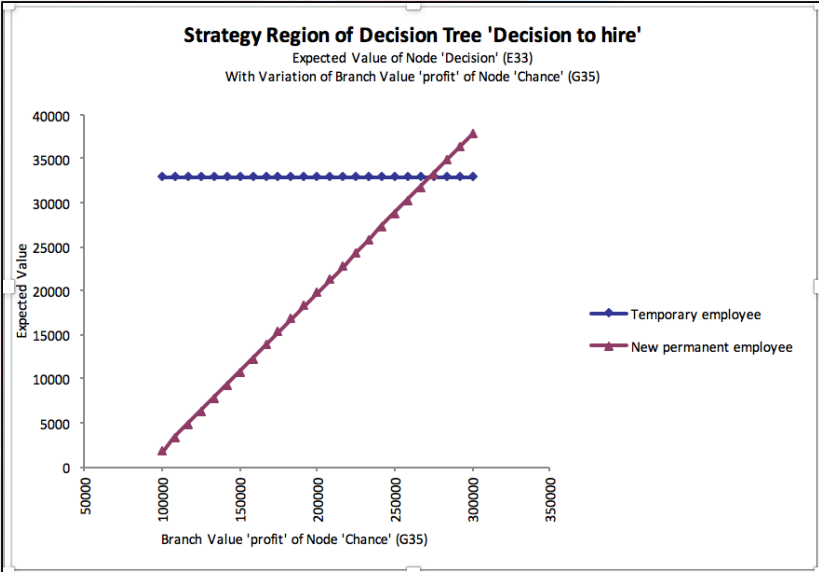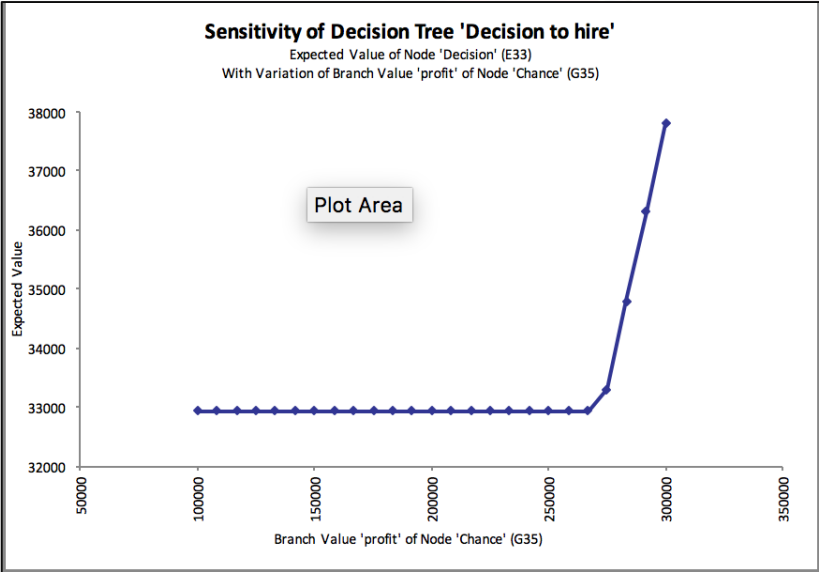
Tornado & Spider Diagram(Hire)

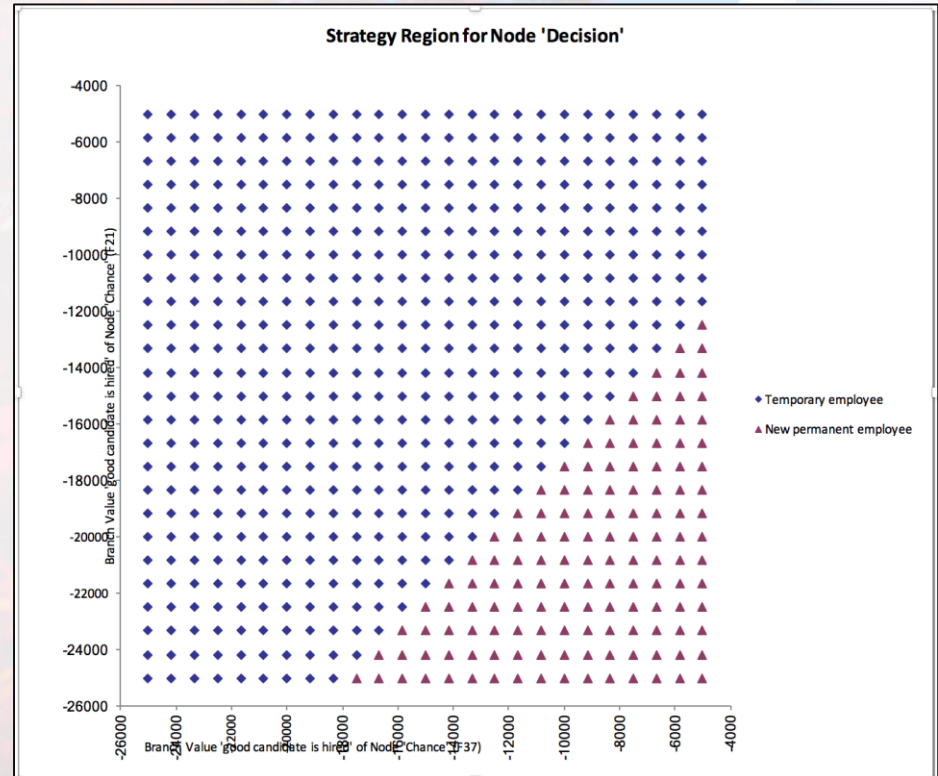**Tornado Graph**
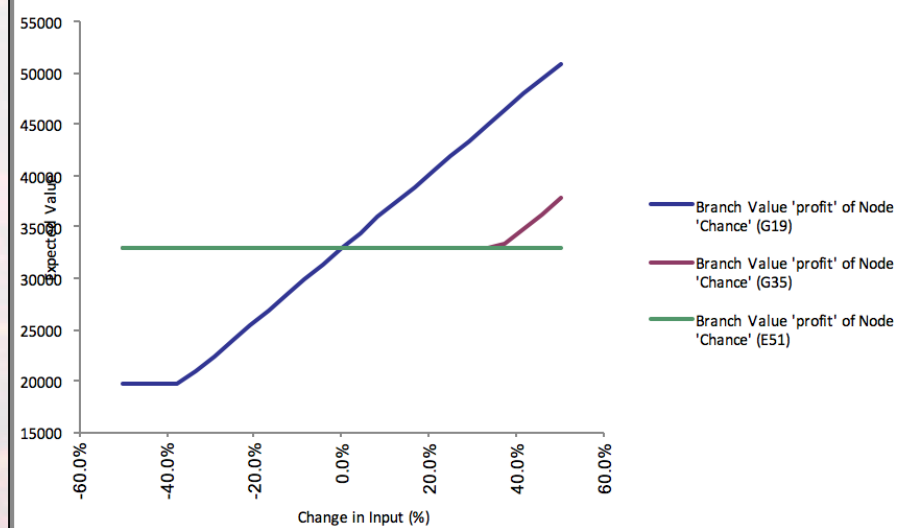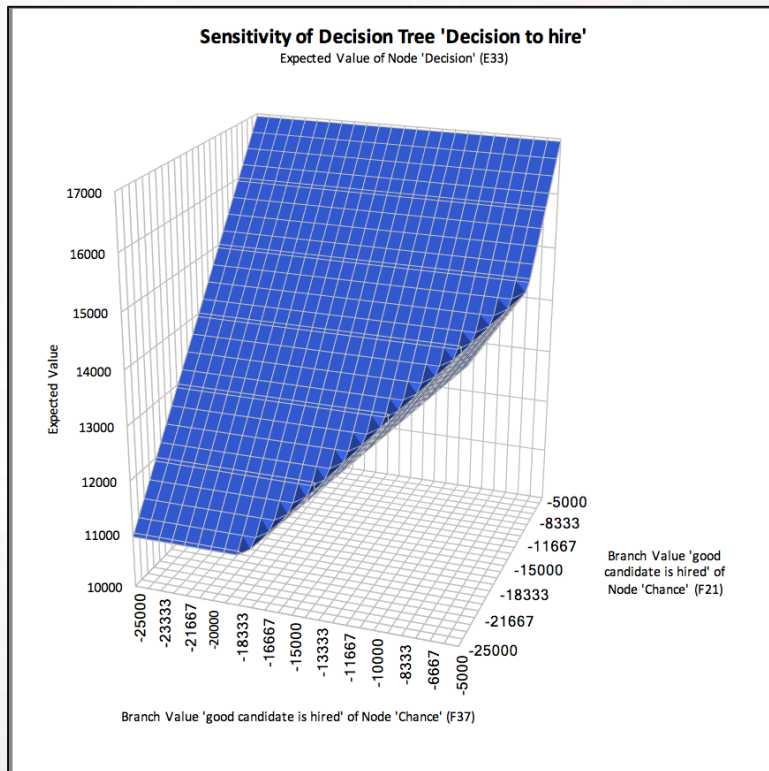

Spider Graph

This analysis suggests that there will be a higher profit if a Temporary Employee is hired.
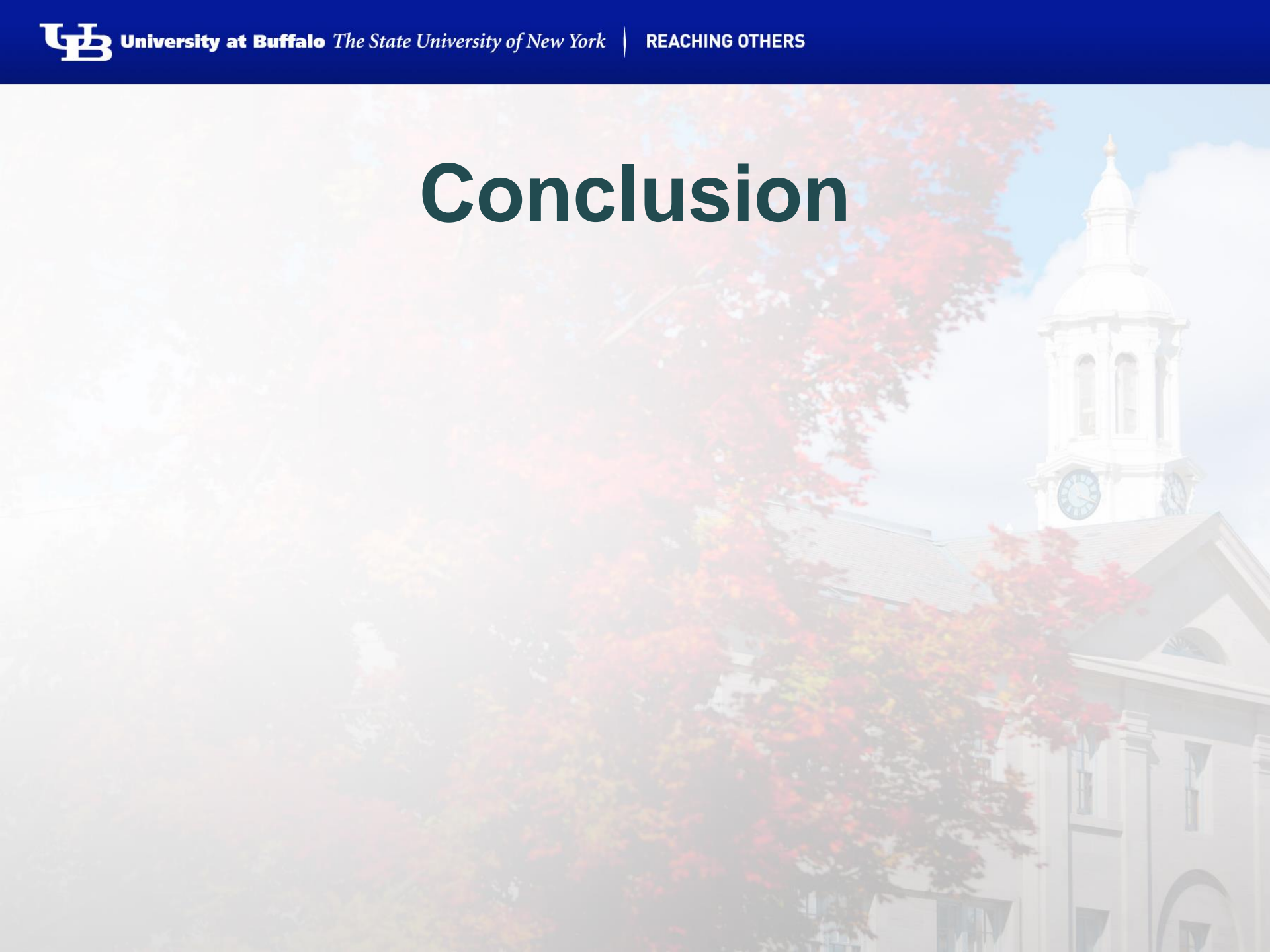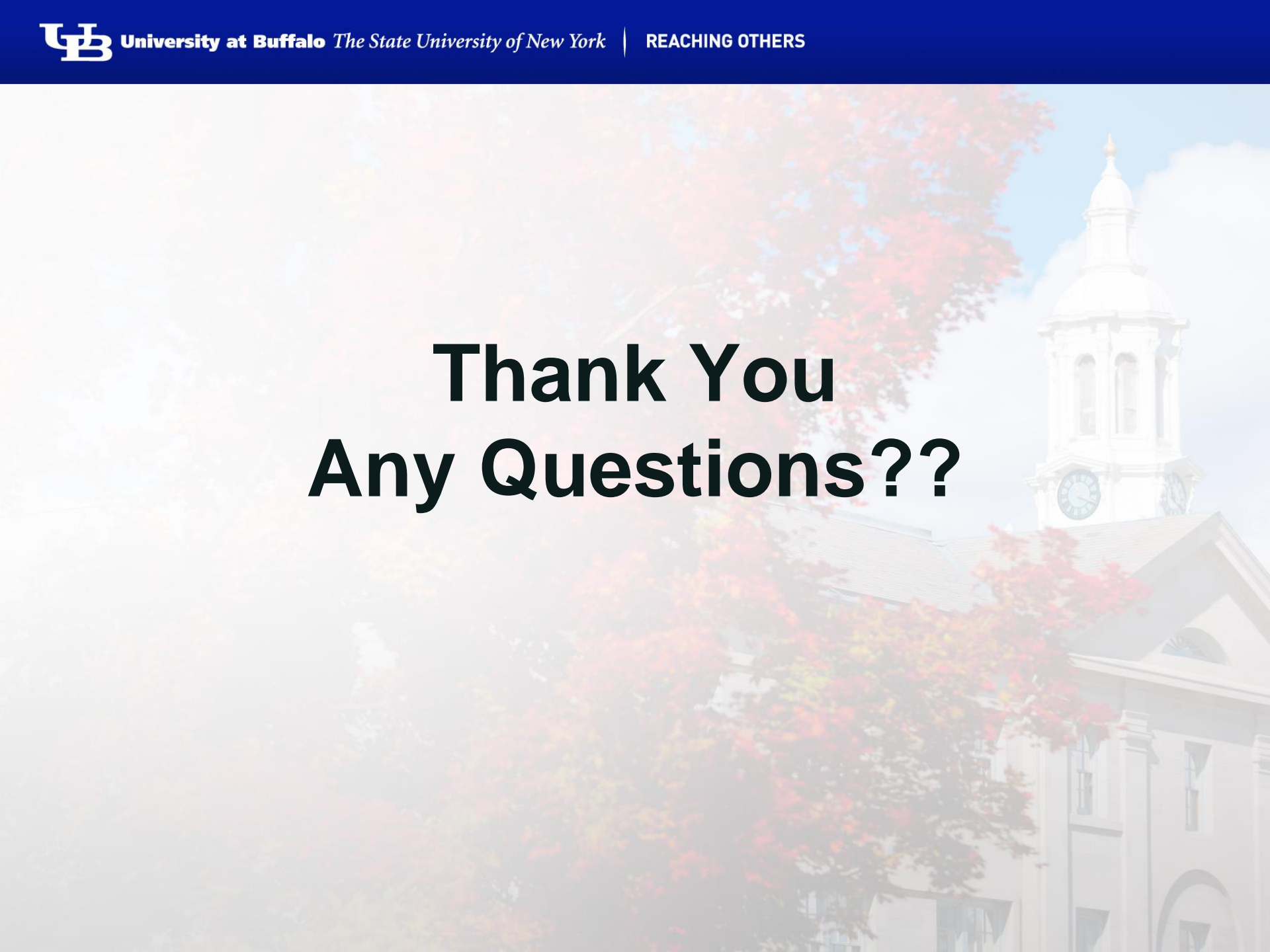
Sensitivity Analysis–One Way(Layoff)
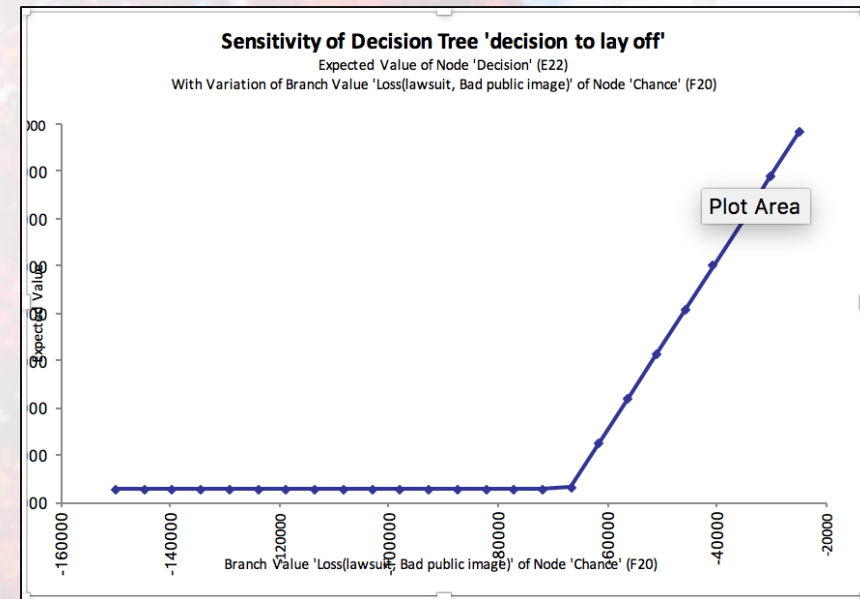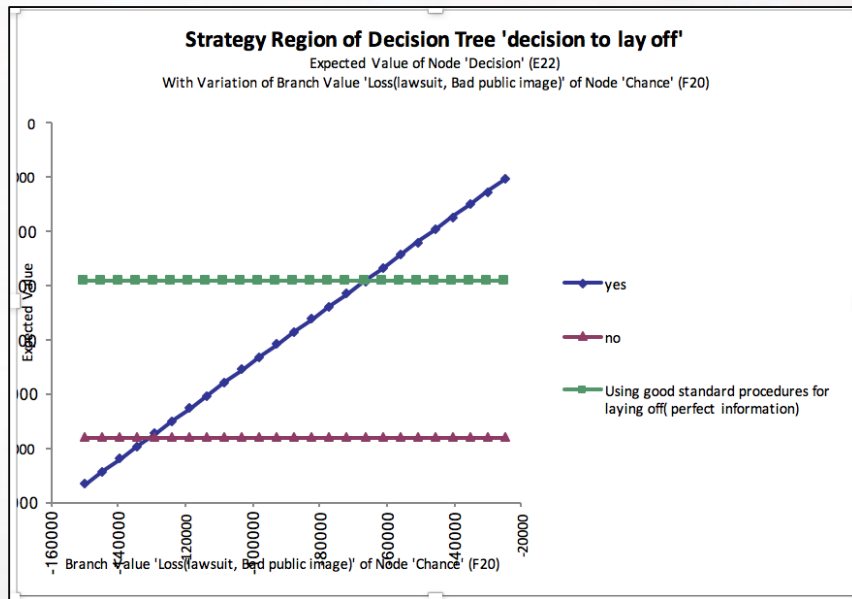
Sensitivity Analysis – Two Way(Hire)

Conclusion

Thank You
Any Questions??