

MPP THESIS (2024)

Thesis Title



January 10, 2024

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ABSTRACT

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ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

GLOSSARY

CHAPTER 1

INTRODUCTION

Statement of the problem

Objectives

Organization of the thesis

CHAPTER 2

BACKGROUND INFORMATION

CHAPTER 3

LITERATURE REVIEW

Citation example

For articles: (Blanchard, 2019)

For books:: (see Goossens et al., 1993, chap 2)

Hypothesis 1 *The better the answer, the higher the score.*

Hypothesis 1 *A higher score is positively correlated with shoe-size.*

Hypothesis 2 *A lower score is negatively correlated with shoe-size.*

Hypothesis 3 *Pythagoras had something to say.*

Hypothesis 1 *Pythagoras contributed something to geometry.*

Hypothesis 2 *Pythagoras wasn't a single person but a group of like-minded philosophers and mathematicians.*

CHAPTER 4

THEORETICAL FRAMEWORK

Examples for insert Theorem, Corollary, and Lemma

- Theorem

Theorem 1 *Let f be a function whose derivative exists in every point, then f is a continuous function.*

Theorem 2 (Pythagorean theorem) *This is a theorem about right triangles and can be summarised in the next equation*

$$x^2 + y^2 = z^2$$

And a consequence of theorem 2 is the statement in the next corollary.

- Corollary

Corollary 3 *There's no right rectangle whose sides measure 3cm, 4cm, and 6cm.*

- Lemma

Lemma 4 *Given two line segments whose lengths are a and b respectively there is a real number r such that $b = ra$.*

CHAPTER 5

EMPIRICAL FRAMEWORK

Figure insertation example



Figure 5.1: APPP Symbol

CHAPTER 6

EMPIRICAL RESULTS

CHAPTER 7

CONCLUSION

7.1 Conclusions

7.2 Policy Implications

7.3 Limitations and Further Research

Appendix A: Stata code

```
1 * Run a sharp RDD with a second-order polynomial term rdrobust y x, c
   (0) p(2)
2 * Run a fuzzy RDD
3 * We don't have a fuzzy RDD in this data, but let's create one, where
4 * probability of treatment jumps from 20% to 60% at the cutoff
5   g treatment = (runiform() < .2)*(x < 0) + (runiform() < .6)*(x >=
   0)
6   rdrobust y x, c(0) fuzzy(treatment)
7 * Generate a standard RDD plot with a polynomial of 2 (default is 4)
8   rdplot y x, c(0) p(2)
```

Appendix B. R Programming Code

R Programming Code

```
1 fib <- function(n) {
2   if (n < 2)
3     n
4   else
```

```

5     fib(n - 1) + fib(n - 2)
6 }
7 fib(10) # => 55

```

Appendix C: Python code

```

1 ##### Start of code #####
2 # Problem 2.1. Game Theory with Nashpy package for 2 players and 2
3     strategies
4
5 import nashpy as nash
6
7 import numpy as np
8
9 import fractions
10
11 # NumPy: Convert decimals to fractions
12
13 np.set_printoptions(formatter={'all':lambda x: str(fractions.Fraction(x
14     ).limit_denominator())})
15
16
17 # Create the payoff matrix
18
19 R = np.array([[ -2,  3],
20     [-1,  0]]) # R is the Row player (Passenger)
21
22
23 C = np.array([[ -1, -9],
24     [-2,  0]]) # C is the Col player (Inspector)
25
26
27 game21 = nash.Game(R,C)
28
29 game21
30
31
32 # Find the Nash Equilibrium with Support Enumeration
33
34 equilibria = game21.support_enumeration()
35
36 list(equilibria)
37
38 ##### End of code #####
39
40
41 # Result
42 [(array([1/5, 4/5]), array([3/4, 1/4]))]

```

BIBLIOGRAPHY

BLANCHARD, O. (2019): “Public Debt and Low Interest Rates,” *American Economic Review*, 109, 1197–1229.

GOOSSENS, M., F. MITTELBACH, AND A. SAMARIN (1993): *The L^AT_EX Companion*, Reading, Massachusetts: Addison-Wesley.