
THE PAPER TITLE^{*}

Your Name[†]
Department of Economics

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ABSTRACT

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Keywords: keyword1, keyword2

JEL Codes: J02, R10

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[†]Your address; Email: [yourEmail@email.com](#).

1 Introduction

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2 Model

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Theorem 1 (Envelope Theorem). *Only the direct effects of a change in an exogenous variable need be considered, even though the exogenous variable may enter the maximum value function indirectly as part of the solution to the endogenous choice variables. The proof is in Appendix B.*

The **competition** can be illustrated with the following graph with the implementation is presented in Listing 1:

Figure 1: This is a graph



Note: some notes. The graph should be self-contained. Etiam vel ipsum. Morbi facilisis vestibulum nisl. Praesent cursus laoreet felis. Integer adipiscing pretium orci. Nulla facilisi. Quisque posuere bibendum purus. Nulla quam mauris, cursus eget, convallis ac, molestie non, enim. Aliquam congue. Quisque sagittis nonummy sapien. Proin molestie sem vitae urna. Maecenas lorem. Vivamus viverra consequat enim.

3 Comparative Statics

This is also demonstrated in Figure 1 and the results are presented in Appendix B.1b. Download this template at the [Github repository](#).

Listing 1: Long short-term memory

```

1 class network_LSTM(nn.Module):
2     def __init__(self, input_size=1, hidden_size=256, output_size=1):
3         super().__init__()
4         self.hidden_size = hidden_size
5         self.lstm = nn.LSTM(input_size, hidden_size)
6
7         # fully-connected
8         self.linear = nn.Linear(hidden_size, output_size)
9
10        self.hidden = (
11            torch.zeros(1, 1, self.hidden_size),
12            torch.zeros(1, 1, self.hidden_size)
13        )
14
15    def forward(self, vec):
16        lstm_output, self.hidden = self.lstm(vec.view(len(vec), 1, -1), self.hidden)
17        prediction = self.linear(lstm_output.view(len(vec), -1))
18        return prediction[-1]
```

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placerat blandit, malesuada vel, sem. Donec sit amet ante eget mauris adipiscing sollicitudin. Curabitur posuere sem et leo. Nulla ultricies mauris. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Fusce sollicitudin augue vel tellus. Vivamus mauris eros, pharetra vel, lacinia pretium, egestas a, nibh. Morbi a ligula.

4 Empirical Results

We follow the approach from [Harding and Lamarche \(2019\)](#). Quisque facilisis auctor sapien. Pellentesque gravida hendrerit lectus. Mauris rutrum sodales sapien. Fusce hendrerit sem vel lorem. Integer pellentesque massa vel augue. Integer elit tortor, feugiat quis, sagittis et, ornare non, lacus. Vestibulum posuere pellentesque eros. Quisque venenatis ipsum dictum nulla. Aliquam quis quam non metus eleifend interdum. Nam eget sapien ac mauris malesuada adipiscing. Etiam eleifend neque sed quam. Nulla facilisi. Proin a ligula. Sed id dui eu nibh egestas tincidunt. Suspendisse arcu.

By using this approach, comparable results can be obtained ([Chen, Esteban and Shum, 2013](#)). To calculate the ELBO³, we start from using the property of the KL-divergence. The data can be summarized by the tables with decimal alignment below:

Table B.1a: First Table

| Category | Total | Shares (%) | Female | Male | Asian | Black/AA | His./Latino | White/Cau. | Zeros (%) |
|------------------------|-------|------------|--------|-------|-------|----------|-------------|------------|-----------|
| child care | 19.39 | 0.08 | 12.32 | 20.12 | 23.14 | 63.78 | 20.24 | 19.00 | 0.07 |
| eating | 30.35 | 6.12 | 35.97 | 6.23 | 24.61 | 21.58 | 38.18 | 2.02 | 0.00 |
| education | 9.91 | 0.04 | 9.94 | 90.54 | 9.69 | 7.99 | 10.64 | 10.14 | 0.90 |
| entertainment (not TV) | 26.05 | 0.10 | 29.19 | 26.60 | 33.36 | 26.13 | 4.43 | 25.15 | 0.45 |

Note: This is the first table.

Table B.1b: Second Table

| Category | Total | Shares (%) | Female | Male | Asian | Black/AA | His./Latino | White/Cau. | Zeros (%) |
|-----------------|-------|------------|--------|-------|-------|----------|-------------|------------|-----------|
| child care | 19.39 | 0.08 | 39.32 | 40.12 | 23.14 | 18.78 | 20.24 | 19.00 | 0.07 |
| personal care | 13.92 | 0.06 | 24.00 | 23.14 | 16.12 | 1.76 | 15.15 | 13.66 | 0.00 |
| sports/exercise | 20.44 | 0.08 | 20.38 | 31.00 | 24.99 | 25.48 | 20.71 | 20.07 | 0.53 |
| TV | 28.61 | 0.12 | 48.47 | 9.93 | 2.35 | 63.70 | 29.22 | 80.20 | 0.46 |

Note: This is the second table.

³More information about the evidence lower bound (ELBO) can be found on the [Wikipedia](#).

5 Algorithm

In the following, we present the algorithm:

Algorithm 1: Euclid’s algorithm for finding the greatest common divisor of two nonnegative integers

function **Euclid** (a, b);

Input : Two nonnegative integers a and b

Output : $\gcd(a, b)$

if $b = 0$ **then**

 | return a ;

else

 | return **Euclid**($b, a \bmod b$);

end

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Table 2: Summary Statistics

| | Cohort | | |
|----------------------------|--------|------|------|
| | 2006 | 2007 | 2008 |
| Students registered | 1535 | 1584 | 1767 |
| Gender (%) | | | |
| Male | 61.1 | 64.5 | 57.7 |
| Female | 38.9 | 35.5 | 42.3 |
| Race (%) | | | |
| White | 43.3 | 43.4 | 40.6 |
| Black | 29.8 | 33.4 | 34.8 |

Note: Source: UCT Institutional Planning Department.

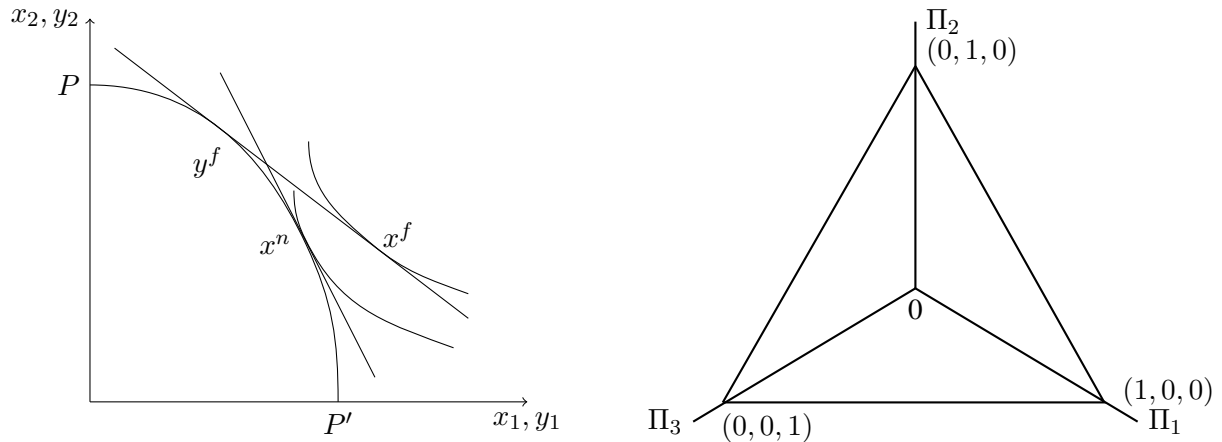
6 Conclusion

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We graph with `tikz` in `LATEX`:



References

- Chen, Jiawei, Susanna Esteban, and Matthew Shum.** 2013. “[When Do Secondary Markets Harm Firms?](#)” *American Economic Review*, 103(7): 2911–2934.
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Appendices

A Additional Discussion

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B Proof of Theorem 1

We will proof the following equation:

Proof. Given $y, x, \Delta, \nu, \eta, \mathcal{L} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 3 & 4 & 5 & 6 & 7 \end{pmatrix}$, and $\Pi = \begin{vmatrix} A & B & C \\ D & E & F \end{vmatrix}$, if

$$\begin{cases} \text{trade,} & p(\text{trade}) = \frac{y}{v} \\ \text{no trade,} & p(\text{no trade}) = 1 - \frac{y}{v} \end{cases}$$

then we get the following:

$$\begin{aligned} y &= \mathbb{E}_{\pi}(\beta x + \epsilon) \\ &\neq \sum_i \beta_i (\underbrace{\alpha + \xi}_{\text{variables}}) + \epsilon \end{aligned} \tag{1}$$

$$\implies \int_0^{10} r \left(\frac{r}{50} \right) dr \xrightarrow{\text{text here}} \frac{r^3}{150} \Big|_0^{10}, \forall x \in (a, b) \tag{2}$$

So from \widehat{ABCD} , \widetilde{ABCD} , \widehat{ABCD} , \overrightarrow{ABCD} , and \overline{ABCD} , we get the desire result. ■

Consider $g(x) = f(x) - x$, since $f(x)$ and x are continuous, then $g : [a, b] \rightarrow \mathbb{R}$ is continuous. Then

$$g(a) = f(a) - a > 0, \quad g(b) = f(b) - b < 0$$

By IVT: $\exists c \in (a, b)$ s.t. $g(c) = 0 \implies \exists c \in (a, b)$ s.t. $f(c) - c = 0 \implies f(c) = c$.