2021

Effects of P2P Intercity Express on Agriculture Development – Evidence from China

Chunyu Qu
Fordham University

1.Introduction

Why P2P intercity express?

2.Research Questions

How beneficial to farmers?

Supply demand framework

3.Data

Survey

4. Specification

Difference-in-difference

5. Identification

Spillover, attrition

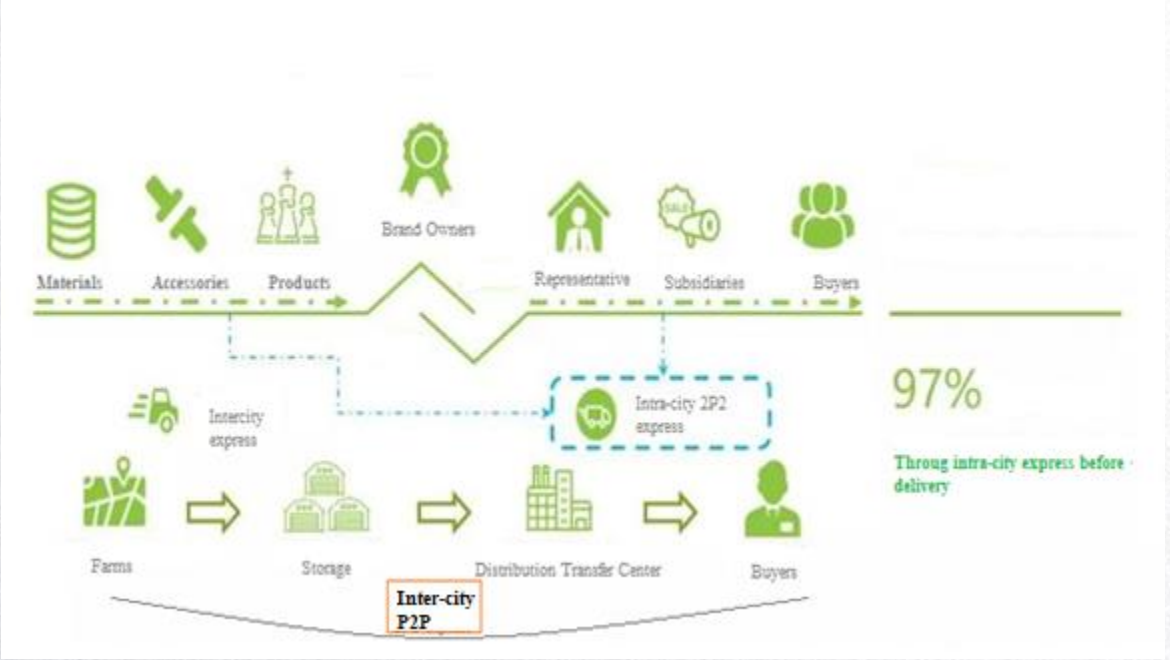
PART ONE

Introduction

What is P2P intercity express in China like?

P2P express in China

- 97% of all the deliveries are through intra-city P2P express
- Inter-city delivery still in old model: high expense, high attrition cost.
- No inter-city P2P model before 2020 in China



01

Introduction

Please click here to add the required titles

Booming Market of Inter-City P2P Express

The biggest increase in business in 2020

More Choices for Farmers

But still only covers 35.2% so far

PART TWO

Research Questions

How beneficial to farmers?

Welfare?

02

Research Questions

Please click here to add the required titles

1 How beneficial to farmers?

Profits increase and sales increase

2 Supply demand framework

Welfare: consumer surplus and producer surplus

Importance of Questions

Improve farmers

China’s poor are mainly concentrated in its rural areas (Stuart 2015). With the rapid development of agricultural e-commerce (Zeng et al., 2016), e-commerce poverty alleviation is becoming a new policy for local governments. Empirical evidence supports the conclusion that e-commerce can increase farmers’ income significantly (Jensen, 2007; Burga and Barreto, 2014; Shimamoto et al., 2015).

Challenges

With the market being more competitive, the poor farmers’ disadvantages in capital investment (Shao, Z., 2017) and human resources (Luo and Niu, 2019) are magnified.

02

Research Questions

Please click here to add the required titles

1 How beneficial to farmers?

Profits increase and sales increase

2 Supply demand framework

Welfare: consumer surplus and producer surplus

Controversial

Positive

1. E-commerce reduces the middle man expenses in sales channls (Bakos, 1998)
2. E-platforms make information more efficient (Varian et al., 2004), helping the sellers better use information to optimize production (Baorakis et al., 2002).
3. E-commerce helps sellers expand their markets (Fraser et al., 2000; Baourakis et al., 2002; Montealegre et al., 2007).

Negative

1. DiMaggio and Hargittai (2001), and Bonfadelli (2002) all insist that new IT will only benefit people with a higher level of education and income.
2. Additional inequality of competition due to e-commerce (Zeng et al., 2018)

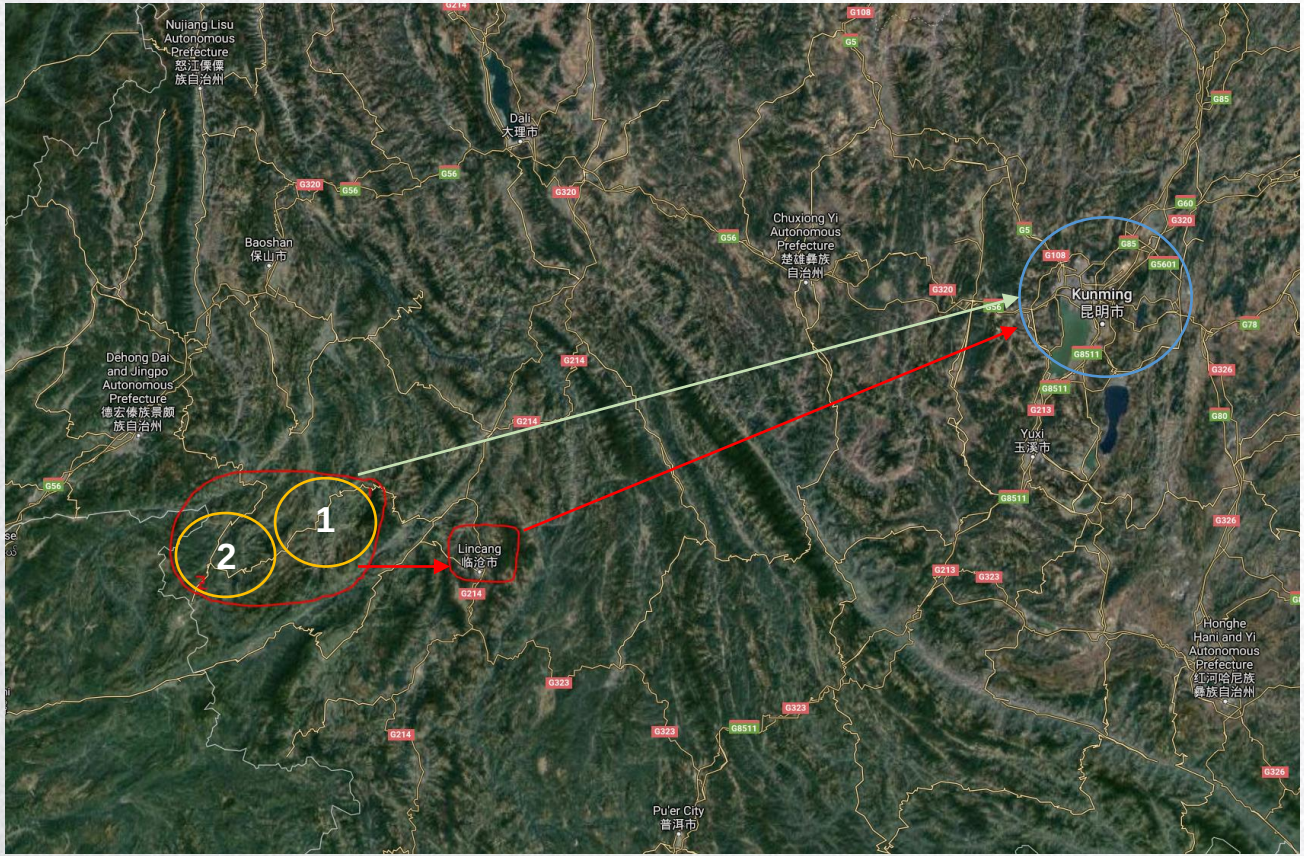
PART THREE

Data and Experiment Design

From Surveys

China's new transportation and shipment boom plan

- Huolala announced expand business into Yunnan mountain area by 2023
- Mengsa town (V1) and Longyang (V2) reply on Lincang (96.8% in V1) – classic inter-city express



LALAMOVE

03

Data and Experiment D

Assumptions

A1

No pre-existing differential trends or other factors in market outcomes across these regions

A2

Rule out possibility of migration of V2 to V1 in response to the P2P intervention

A3

The timing of service across the regions was nonrandom

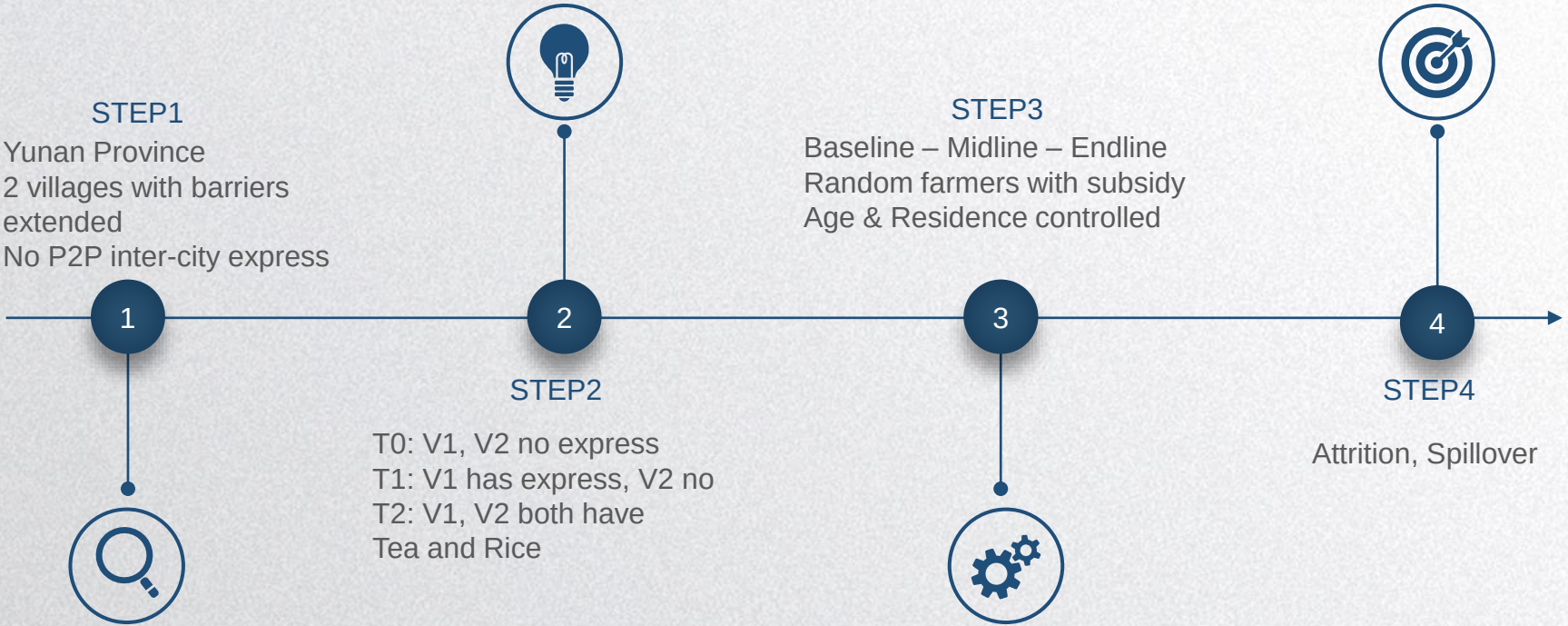
A4

Market of P2P inter-city express services by platforms are steady overtime

03

Data and Experiment D

Please click here to add the required titles



PART FOUR

Econometrics

Difference-in-difference with fixed effects

04

Research Questions

Please click here to add the required titles

1

How beneficial to farmers?

Profits increase and sales increase

$$Y_{r,t} = \alpha + \Sigma_{r=I}^{II}\beta_r V_r + \Sigma_{p=I}^{2}\beta_p T_p + \Sigma_{r=I}^{II}\Sigma_{p=I}^{2}\beta_{rp} V_r T_p + \gamma Z_{r,t} + \epsilon_{r,t}$$

Z is a set of control variables

Difference-in-difference

Profits and sales data from randomly picked sample of farmers from Village 1 and Village 2, in T0, T1, T2

Y is the value of the outcome of interest in village r in period p. Examine the change V I between periods 0 and 1, i.e., before versus after the introduction of 2P2 intercity express in V I, relative to the change over the same periods for V II

$$(\bar{Y}_{I,1} - \bar{Y}_{I,0}) - (\bar{Y}_{II,1} - \bar{Y}_{II,0})$$

Similarly, for the addition of mobile phone service to region II, we can compare

$$(\bar{Y}_{II,2} - \bar{Y}_{II,1}) - (\bar{Y}_{I,2} - \bar{Y}_{I,1})$$

04

Research Questions

Please click here to add the required titles

$$Y_{r,t} = \alpha + \Sigma_{r=I}^{II}\beta_r V_r + \Sigma_{p=I}^{2}\beta_p T_p + \Sigma_{r=I}^{II}\Sigma_{p=I}^{2}\beta_{rp} V_r T_p + \gamma Z_{r,t} + \epsilon_{r,t}$$

$$S_{r,t} = \alpha + \Sigma_{r=I}^{II}\beta_r V_r + \Sigma_{p=I}^{2}\beta_p T_p + \Sigma_{r=I}^{II}\Sigma_{p=I}^{2}\beta_{rp} V_r T_p + \gamma Z_{r,t} + \epsilon_{r,t}$$

2

Supply demand framework

Welfare: consumer surplus and producer surplus

Tea and rice

Demand

- Overall orders reported on Taobao (Alibaba, cooperated with Huolala) in Lincang and non-Lincang areas
- Average dealing prices

Supply

- S - Sales

PART FIVE

Concerns

Spillover, attrition

05

Concerns

Please click here to add the required titles

1 Spillover

From V1 to V2

2 Attrition

Welfare: consumer surplus and producer surplus

3 P2P market

4 Government Subsidy Effect

5 COVID-19 Effect

6 Short Term vs Long Term

References

Please click here to add the required titles

Bakos, J. Y., 1998, “The Emerging Role of Electronic Marketplaces on the Internet,” *Communications of the ACM*, 41(8): 35-42.

Baorakis, G., M. Kourgiantakis, and A. Migdalas, 2002, “The Impact of E-commerce on Agro-food Marketing: The Case of Agricultural Cooperatives, Firms and Consumers in Crete,” *British Food Journal*, 104(8): 580-590.

Burga, R., and M. E. G. Barreto, 2014, “The Effect of Internet and Cell Phones on Employment and Agricultural Production in Rural Villages in Peru,” Working Paper, Economics Department, Universidad de Piura.

Daum et al, 2021 “Uber for tractors? Opportunities and challenges of digital tools for tractor hire in India and Nigeria”, World Development

Gao, X., Shi, X., Guo, H., Liu, Y., 2020, “To buy or not buy food online: The impact of the COVID-19 epidemic on the adoption of e-commerce in China,” *PLoS ONE* 15(8): e0237900.

Jensen, R., 2007, “The Digital Provide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector,” *Quarterly Journal of Economics*, 122(3): 879-924.

Luo, Xubei; Niu, Chiyu. 2019, “E-Commerce Participation and Household Income Growth in Taobao Villages,” Policy Research Working Paper; No. 8811. World Bank, Washington, DC. © World Bank.

2021

Thank you!