DISCUSSION:

CONSUMER SURPLUS OF ALTERNATIVE PAYMENT METHODS:
PAYING UBER WITH CASH

BY: ALVAREZ AND ARGENTE

Gabriel Chodorow-Reich
Harvard University and NBER

NBER EF&G
October 25, 2019
OVERVIEW

1. Fascinating paper(s).

2. Review contribution.
   - Research designs.
   - Consumer surplus calculations.
   - Sensitivity.

3. Implications for broader cash debate.
Review of contribution
ONE SLIDE OVERVIEW OF PAPER

1. Cash introduction has no impact on market prices or wait times.


3. Cash-only users that do not migrate to credit card: lost surplus pinned down by pre-ban expenditure plus elasticity of demand.

4. Cash-only users that migrate: lost surplus bounded from below by cost of registering card.
**AA Demand System**

Choke price $\bar{P}$

Demand curve: $P(X) = \bar{P} \exp \left( -\frac{X}{k} \right)$

Local elasticity of demand: $\varepsilon(X) = k/X$

CES composite price: $P = \left[ (1 - \alpha) p_{\text{cash}}^{1-\eta} + \alpha p_{\text{credit}}^{1-\eta} \right]^{\frac{1}{1-\eta}}$

Consumer surplus:

\[
\int_{X^*}^{P^*} P(X) \, dX
\]

Expenditure:

\[
\varepsilon(X^*) (\bar{P} - P^*) X^*
\]
AA DEMAND SYSTEM

Choke price $\bar{P}$

Demand curve: $P(X) = \bar{P} \exp\left(-\frac{X}{k}\right)$

Local elasticity of demand: $\varepsilon(X) = \frac{k}{X}$

CES composite price: $P = \left[(1 - \alpha)p_{\text{cash}}^{1-\eta} + \alpha p_{\text{credit}}^{1-\eta}\right]^{\frac{1}{1-\eta}}$

Consumer surplus:

$$\int_0^{X^*} P(X) dX - P^* X^* = \varepsilon(X^*) \left(\bar{P} - P^*\right) X^* - P^* X^*.$$
QUASI-EXPERIMENTAL RESEARCH DESIGNS

1. Event study of uneven cash introduction in 15 cities in Mexico.
   - Total trips, fares ↑, market prices, wait times flat.
   - Ignore impact on driver surplus, market prices.

2. Census block coarsened matching of cash introduction in Mexico city.
   - ATE on total trips of 100%.

   - Total trips up 40%.

4. City-level synthetic control analysis of cash ban in Puebla.
   - Immediate reduction in trips of 60%, intermediate reduction of 40%.
   - 35% of cash-only riders register credit card.
   - Decline in trips even among those who register credit card.
**Experimental Research Designs**

1. Random 10 or 20% discount for using cash or credit for mixed riders.
   - Elasticity of substitution across means of payment of 3.

2. Random 10 or 20% discount regardless of means of payment.
   - Price elasticity for miles/trips of 1.1.

3. Random 10, 15, 20, or 25% discount for riders that use only cash.
   - Price elasticity for miles/trips of 1.3.

4. Random incentive to register credit card in 1 or in 6 weeks.
   - Infer coarsened distribution of registration costs relative to threshold.
   - 1 and 6 week responses relatively similar.
Consumer surplus at price $P$ for type $\phi$:

$$CS(P; \phi) = \varepsilon(P; \phi) \left( \bar{P}_\phi - P \right) X(P; \phi) - PX(P; \phi).$$ (1)
CONSUMER SURPLUS FROM CASH, MIXED USERS

- Consumer surplus at price $P$ for type $\phi$:
  \[
  CS(P; \phi) = \varepsilon(P; \phi) (\bar{P}_\phi - P) X(P; \phi) - PX(P; \phi).
  \]  

- Normalize $p_c = p_a = P_0 = 1$ when cash and credit both available.
**Consumer surplus from cash, mixed users**

- Consumer surplus at price $P$ for type $\phi$:
  $$CS(P; \phi) = \varepsilon(P; \phi) \left( \bar{P}_\phi - P \right) X(P; \phi) - PX(P; \phi).$$  

1. Normalize $p_c = p_a = P_0 = 1$ when cash and credit both available.

2. CES preferences over payment method $\Rightarrow P_{ban} = \alpha_\phi^{1/(1-\eta)}$.
   - Expenditure share $\alpha_\phi$: observable using pre-ban expenditures.
   - Elasticity of substitution $\eta$: payment-specific discount experiments.
CONSUMER SURPLUS FROM CASH, MIXED USERS

- Consumer surplus at price $P$ for type $\phi$:
  \[ CS(P; \phi) = \varepsilon(P; \phi) (\bar{P}_\phi - P) X(P; \phi) - PX(P; \phi) . \]  
  (1)

- Normalize $p_c = p_a = P_0 = 1$ when cash and credit both available.

- CES preferences over payment method $\Rightarrow P_{ban} = \alpha_{\phi}^{1/(1-\eta)}$.
  - Expenditure share $\alpha_{\phi}$: observable using pre-ban expenditures.
  - Elasticity of substitution $\eta$: payment-specific discount experiments.

- Elasticity of demand $\varepsilon(P; \phi)$: payment-neutral discount experiments.
**Consumer surplus from cash, mixed users**

- Consumer surplus at price $P$ for type $\phi$:
  
  $$CS(P; \phi) = \varepsilon(P; \phi) (\bar{P}_\phi - P) X(P; \phi) - PX(P; \phi).$$

- Normalize $p_c = p_a = P_0 = 1$ when cash and credit both available.

- CES preferences over payment method $\Rightarrow P_{ban} = \alpha_{\phi}^{1/(1-\eta)}$.
  - Expenditure share $\alpha_{\phi}$: observable using pre-ban expenditures.
  - Elasticity of substitution $\eta$: payment-specific discount experiments.

- Elasticity of demand $\varepsilon(P; \phi)$: payment-neutral discount experiments.

- Choke price $\bar{P}_\phi = \exp\{1/\varepsilon(P_0; \phi)\}$: observable from rider-specific pre-ban demand, given constant semi-elasticity of demand.
Consumer surplus at price $P$ for type $\phi$:

$$CS(P; \phi) = \varepsilon(P; \phi)(\bar{P}_\phi - P)X(P; \phi) - PX(P; \phi).$$  \hspace{1cm} (1)

- Normalize $p_c = p_a = P_0 = 1$ when cash and credit both available.
- CES preferences over payment method $\Rightarrow P_{ban} = \alpha_{\phi}^{1/(1-\eta)}$.
  - Expenditure share $\alpha_{\phi}$: observable using pre-ban expenditures.
  - Elasticity of substitution $\eta$: payment-specific discount experiments.
- Elasticity of demand $\varepsilon(P; \phi)$: payment-neutral discount experiments.
- Choke price $\bar{P}_\phi = \exp\{1/\varepsilon(P_0; \phi)\}$: observable from rider-specific pre-ban demand, given constant semi-elasticity of demand.
- Substitute values into (1) to compute surplus at $P_0 = 1$ and $P_{ban} = \alpha_{\phi}^{1/(1-\eta)}$ and expenditure-aggregate across consumers.
**COMMENT I: TEST MODEL PARAMETERS IN PUEBLA**

Figure 12: Puebla: Intensive and Extensive margin adjustment to Ban given Past Cash Intensity

(a) Percent change in trips (b) Probability of staying as an Uber user

Note: Panel (a) shows the change in the average weekly trips of mixed users after the ban on cash as a function of the share of fares paid in cash of different users before the ban. Mixed users are defined as those whose share of fares paid in cash before the ban was between 1% and 99%. The panel plots the coefficient of $\beta_k$ estimated using equation (3) for different shares of cash (indexed by $k$). Panel (b) shows the probability of staying as an Uber user after the ban on cash as a function of the share of fares paid in cash of the different users before the ban. The sample of users plotted in Panel (b) include pure credit users, pure cash users—which are the ones in the last bin—and mixed users. In both graphs the users considered are those that were active in 2017, the year before the ban on cash, and that had at least 10 trips that year.

7 Rider's Model and Consumer Surplus

We describe the model for the rider's preferences used to estimate the cost of a ban. We assume that during a ban the price paid for Uber in credit as well as the price paid for other related goods, such as taxis, are kept constant. These assumptions simplify the problem, but, as we argue in Section 4 they are consistent with the available evidence in Mexico. Thus we ignore the potential cost for the drivers, or the benefits for the riders registered before the ban and that where not using cash both coming from price decreases. Hence, our model exclusively studies the problem of riders that face potentially different prices for Uber rides paid in cash and in credit, and fixed prices for the rest of the goods.

The essential ingredients are a general utility function for $n+1$ goods, one good being "Uber composite trips", and good $n+1$ representing the rest of the goods, with constant marginal utility, i.e. we use that utility is quasi-linear. We distinguish as different goods Uber rides paid in cash from Uber rides paid in credit. Technically, composite Uber rides are given by an aggregator of Uber rides paid in cash and Uber rides paid in credit. We complement this intensive margin problem with the problem of choosing to register a credit card, which we assume is subject to a fixed cost. In particular, agents have access to Uber...
**COMMENT I: TEST MODEL PARAMETERS IN PUEBLA**

![Graph showing the relationship between the share of trips paid in cash before ban and the percent change in trips.](image)

\[
d\ln X = -\varepsilon(P_0; \phi) \ d\ln P = -\varepsilon(P_0; \phi) \left(\frac{\ln \alpha}{1-\eta}\right)
\]

Note: Panel (a) shows the change in the average weekly trips of mixed users after the ban on cash as a function of the share of fares paid in cash of different users before the ban. Mixed users are defined as those whose share of fares paid in cash before the ban was between 1% and 99%. The panel plots the coefficient of $\beta_k$ estimated using equation (3) for different shares of cash (indexed by $k$). Panel (b) shows the probability of staying as an Uber user after the ban on cash as a function of the share of fares paid in cash of the different users before the ban. The sample of users plotted in Panel (b) include pure credit users, pure cash users—which are the ones in the last bin—and mixed users. In both graphs the users considered are those that were active in 2017, the year before the ban on cash, and that had at least 10 trips that year.


**COMMENT I: TEST MODEL PARAMETERS IN PUEBLA**

Figure 12: Puebla: Intensive and Extensive margin adjustment to Ban given Past Cash Intensity

(a) Percent change in trips (b) Probability of staying as an Uber user

\[ d \ln X = -\varepsilon (P_0; \phi) d \ln P = -\varepsilon (P_0; \phi) \left( \frac{\ln \alpha}{1 - \eta} \right) \]

\[ \varepsilon = 1.1, \eta = 3 \]

Note: Panel (a) shows the change in the average weekly trips of mixed users after the ban on cash as a function of the share of fares paid in cash of different users before the ban. Mixed users are defined as those whose share of fares paid in cash before the ban was between 1% and 99%. The panel plots the coefficient of \( \beta_k \) estimated using equation (3) for different shares of cash (indexed by \( k \)). Panel (b) shows the probability of staying as an Uber user after the ban on cash as a function of the share of fares paid in cash of the different users before the ban. The sample of users plotted in Panel (b) include pure credit users, pure cash users—which are the ones in the last bin—and mixed users. In both graphs the users considered are those that were active in 2017, the year before the ban on cash, and that had at least 10 trips that year.

7 Rider's Model and Consumer Surplus

We describe the model for the rider's preferences used to estimate the cost of a ban. We assume that during a ban the price paid for Uber in credit as well as the price paid for other related goods, such as taxis, are kept constant. These assumptions simplify the problem, but, as we argue in Section 4 they are consistent with the available evidence in Mexico. Thus we ignore the potential cost for the drivers, or the benefits for the riders registered before the ban and that were not using cash both coming from price decreases. Hence, our model exclusively studies the problem of riders that face potentially different prices for Uber rides paid in cash and in credit, and fixed prices for the rest of the goods.

The essential ingredients are a general utility function for \( n + 1 \) goods, one good being "Uber composite trips", and good \( n + 1 \) representing the rest of the goods, with constant marginal utility, i.e. we use that utility is quasi-linear. We distinguish as different goods Uber rides paid in cash from Uber rides paid in credit. Technically, composite Uber rides are given by an aggregator of Uber rides paid in cash and Uber rides paid in credit. We complement this intensive margin problem with the problem of choosing to register a credit card, which we assume is subject to a fixed cost. In particular, agents have access to Uber rides paid in cash and credit cards.
**Comment I: Test Model Parameters in Puebla**

Figure 12: Puebla: Intensive and Extensive margin adjustment to Ban given Past Cash Intensity

(a) Percent change in trips  
(b) Probability of staying as an Uber user

-0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1
Percent change trips

-0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1
Share of trips paid in cash before ban

Note: Panel (a) shows the change in the average weekly trips of mixed users after the ban on cash as a function of the share of fares paid in cash of different users before the ban. Mixed users are defined as those whose share of fares paid in cash before the ban was between 1% and 99%. The panel plots the coefficient of $\beta_k$ estimated using equation (3) for different shares of cash (indexed by $k$). Panel (b) shows the probability of staying as an Uber user after the ban on cash as a function of the share of fares paid in cash of the different users before the ban. The sample of users plotted in Panel (b) include pure credit users, pure cash users—which are the ones in the last bin—and mixed users. In both graphs the users considered are those that were active in 2017, the year before the ban on cash, and that had at least 10 trips that year.

### Rider's Model and Consumer Surplus

We describe the model for the rider's preferences used to estimate the cost of a ban. We assume that during a ban the price paid for Uber in credit as well as the price paid for other related goods, such as taxis, are kept constant. These assumptions simplify the problem, but, as we argue in Section 4 they are consistent with the available evidence in Mexico. Thus we ignore the potential cost for the drivers, or the benefits for the riders registered before the ban and that were not using cash both coming from price decreases. Hence, our model exclusively studies the problem of riders that face potentially different prices for Uber rides paid in cash and in credit, and fixed prices for the rest of the goods.

The essential ingredients are a general utility function for $n+1$ goods, one good being "Uber composite trips", and good $n+1$ representing the rest of the goods, with constant marginal utility, i.e. we use that utility is quasi-linear. We distinguish as different goods Uber rides paid in cash from Uber rides paid in credit. Technically, composite Uber rides are given by an aggregator of Uber rides paid in cash and Uber rides paid in credit. We complement this intensive margin problem with the problem of choosing to register a credit card, which we assume is subject to a fixed cost. In particular, agents have access to Uber

$$d \ln X = -\varepsilon (P_0; \phi) d \ln P = -\varepsilon (P_0; \phi) \left( \frac{\ln \alpha}{1-\eta} \right)$$

$\varepsilon = 1.1, \eta = 3$
Comment I: Test model parameters in Puebla

Figure 12: Puebla: Intensive and Extensive margin adjustment to Ban given Past Cash Intensity

(a) Percent change in trips
(b) Probability of staying as an Uber user

\[ \varepsilon = 1.1, \eta = 6 \]
\[ X(P_{ban}(\alpha)) = 0 \]

\[ d\ln X = -\varepsilon(P_0; \phi) d\ln P = -\varepsilon(P_0; \phi) \left( \frac{\ln \alpha}{1-\eta} \right) \]

Note: Panel (a) shows the change in the average weekly trips of mixed users after the ban on cash as a function of the share of fares paid in cash of different users before the ban. Mixed users are defined as those whose share of fares paid in cash before the ban was between 1% and 99%. The panel plots the coefficient of \( \beta_k \) estimated using equation (3) for different shares of cash (indexed by \( k \)). Panel (b) shows the probability of staying as an Uber user after the ban on cash as a function of the share of fares paid in cash of the different users before the ban. The sample of users plotted in Panel (b) include pure credit users, pure cash users—which are the ones in the last bin—and mixed users. In both graphs the users considered are those that were active in 2017, the year before the ban on cash, and that had at least 10 trips that year.

Rider’s Model and Consumer Surplus

We describe the model for the rider’s preferences used to estimate the cost of a ban. We assume that during a ban the price paid for Uber in credit as well as the price paid for other related goods, such as taxis, are kept constant. These assumptions simplify the problem, but, as we argue in Section 4 they are consistent with the available evidence in Mexico. Thus we ignore the potential cost for the drivers, or the benefits for the riders registered before the ban and that were not using cash both coming from price decreases. Hence, our model exclusively studies the problem of riders that face potentially different prices for Uber rides paid in cash and in credit, and fixed prices for the rest of the goods.

The essential ingredients are a general utility function for \( n+1 \) goods, one good being “Uber composite trips”, and good \( n+1 \) representing the rest of the goods, with constant marginal utility, i.e. we use that utility is quasi-linear. We distinguish as different goods Uber rides paid in cash from Uber rides paid in credit. Technically, composite Uber rides are given by an aggregator of Uber rides paid in cash and Uber rides paid in credit. We complement this intensive margin problem with the problem of choosing to register a credit card, which we assume is subject to a fixed cost. In particular, agents have access to Uber...
ACCOUNTING FOR DISCREPANCY

1. Payment elasticity of substitution $\eta$ not constant as $p_a \to \infty$.
2. $\eta$ different for price increases than price decreases.
3. $\eta$ increasing in cash share. Testable.
4. $\eta$ higher at longer horizons.
5. Semi-elasticity of demand not constant or different for price increases.
6. Elasticity of demand $\varepsilon$ decreasing in cash share. Testable.
7. Credit share $\alpha$ mis-measured if mixed users are cash-only who migrated to credit-only. Testable.
8. State of Mexico (where experiments occurred) different from Puebla.
10. Trips different from total miles.
11. Something else?
Credit card adoption cost: $\psi \sim g(\psi)$.
CONSUMER SURPLUS FROM CASH, CASH-ONLY USERS

- Credit card adoption cost: $\psi \sim g(\psi)$.

- Assumption: common pre-ban demand $X_0$, preference parameter $\alpha$, price $P_0(\alpha, \eta)$, elasticity $\varepsilon(P_0)$, choke price $\bar{P}(P_0, X_0, \varepsilon(P_0))$. 

Lost surplus if no adoption:

\[ CS_{\text{drop ban}} = \varepsilon(P_0)(\bar{P} - P_0)X_0 \]

Expenditure = $36.

Lost surplus if adopt with switching cost $\psi$ bounded from below by $\psi$.

Total lost surplus for pre-ban cash-only users:

\[ CS_{\text{ban}} \geq \varepsilon(P_0)X_0 \times CS_{\text{drop ban}} + 0.35 \times E[\psi | \text{adopt}] = \$34.75 \text{ (experiments and $\psi$ calibration)} \]
CONSUMER SURPLUS FROM CASH, CASH-ONLY USERS

- Credit card adoption cost: $\psi \sim g(\psi)$.

- Assumption: common pre-ban demand $X_0$, preference parameter $\alpha$, price $P_0(\alpha, \eta)$, elasticity $\varepsilon(P_0)$, choke price $\bar{P}(P_0, X_0, \varepsilon(P_0))$.

- Lost surplus if no adoption:

$$CS_{drop}^{ban} = \varepsilon(P_0) (\bar{P} - P_0) X_0 - P_0 X_0 = $36.$$
Credit card adoption cost: $\psi \sim g(\psi)$.

Assumption: common pre-ban demand $X_0$, preference parameter $\alpha$, price $P_0(\alpha, \eta)$, elasticity $\varepsilon(P_0)$, choke price $\bar{P}(P_0, X_0, \varepsilon(P_0))$.

Lost surplus if no adoption:

$$CS_{\text{drop}}^{\text{ban}} = \varepsilon(P_0)(\bar{P} - P_0)X_0 - P_0X_0 = \$36.$$  

$$\text{Expenditure}$$  

Area under demand curve

Lost surplus if adopt with switching cost $\psi$ bounded from below by $\psi$. 

Total lost surplus for pre-ban cash-only users:

$$CS_{\text{ban}} \geq 0.65 + 0.35 \times E[\psi | \text{adopt}] = \$31.75 \text{(experiments and } \psi \text{ calibration} = \$34.5).$$
CONSUMER SURPLUS FROM CASH, CASH-ONLY USERS

- Credit card adoption cost: $\psi \sim g(\psi)$.

- Assumption: common pre-ban demand $X_0$, preference parameter $\alpha$, price $P_0(\alpha, \eta)$, elasticity $\varepsilon(P_0)$, choke price $\bar{P}(P_0, X_0, \varepsilon(P_0))$.

- Lost surplus if no adoption:
  \[ CS_{ban}^{drop} = \varepsilon(P_0) (\bar{P} - P_0) X_0 - P_0 X_0 = $36. \]

- Lost surplus if adopt with switching cost $\psi$ bounded from below by $\psi$.

- Total lost surplus for pre-ban cash-only users:
  \[ CS_{ban} \geq 0.65 \times CS_{ban}^{drop} + 0.35 \times E[\psi|adopt] = $34.5. \]
  \[ =$31.75 \text{ (experiments and calibration)} \]
**Comment II: allow for more heterogeneity**

- Foregone surplus smaller if non-adopters used less Uber pre-ban.
- Use pre-ban demand to obtain rider-specific $X_0$, choke price $\bar{P}$.
- Inferred cost $\psi$ for adopters depends on choke price.
  - Technical detail: since experimental incentives random, inferred distribution of $\psi$ scales with choke price.
- Other parameters less important.
  - $P_{ban}/P_0$ can’t rise too much given $\psi, k \Rightarrow \alpha >> 0$.
  - Switchers in Puebla use less Uber post ban $\Rightarrow P_{ban}/P_0 > 1$, $\alpha < 0.5$.
  - $\alpha \rightarrow 0.5 \Rightarrow P_{ban}/P_0 \rightarrow 1$, independent of $\eta$. 
Relationship to cash debate
CASH DEBATE

Benefits of going cashless:

1. Discourage organized crime.
2. Discourage petty crime.
3. Discourage tax evasion.
4. Mitigate effective lower bound on nominal interest rates.
5. Convenience.

Costs:

1. Transition costs.
2. Convenience.
TRANSITION COSTS ARE REAL

- Left panel: Uber rides in Puebla fall after cash ban.
- Right panel: districts in India that had larger decline in cash during demonetization had lower nightlight activity (Chodorow-Reich, Gopinath, Mishra, Naryanan, forthcoming).

Figure VII: Real Activity
Panel A: Employment

Nightlights in India
**But people switch**

Left panel: 35% of cash-only users register card after ban.

Right panel: districts in India that had larger decline in cash during demonetization had faster growth of E-wallet payments (Chodorow-Reich, Gopinath, Mishra, Naryanan, forthcoming).
A BETTER ALTERNATIVE

- Becoming cashless does not require pain from transition.
A BETTER ALTERNATIVE

- Becoming cashless does not require pain from transition.
- Instead, make electronic payments cheaper.
A BETTER ALTERNATIVE

- Becoming cashless does not require pain from transition.
- Instead, make electronic payments cheaper.
- Example: Sweden offers basic debit account.
A BETTER ALTERNATIVE

- Becoming cashless does not require pain from transition.
- Instead, make electronic payments cheaper.
- Example: Sweden offers basic debit account.
- Conjecture: almost all Puebla users that do not migrate are “unbanked” (46% of total Mexico population).
A BETTER ALTERNATIVE

- Becoming cashless does not require pain from transition.
- Instead, make electronic payments cheaper.
- Example: Sweden offers basic debit account.
- Conjecture: almost all Puebla users that do not migrate are “unbanked” (46% of total Mexico population).
- Rogoff (Curse of Cash) recommendation: make government transfer payments electronically to encourage switch.
A better alternative

- Becoming cashless does not require pain from transition.
- Instead, make electronic payments cheaper.
- Example: Sweden offers basic debit account.
- Conjecture: almost all Puebla users that do not migrate are “unbanked” (46% of total Mexico population).
- Rogoff (*Curse of Cash*) recommendation: make government transfer payments electronically to encourage switch.
- Countries that do this already include...
A better alternative

- Becoming cashless does not require pain from transition.
- Instead, make electronic payments cheaper.
- Example: Sweden offers basic debit account.
- Conjecture: almost all Puebla users that do not migrate are “unbanked” (46% of total Mexico population).
- Rogoff (*Curse of Cash*) recommendation: make government transfer payments electronically to encourage switch.
- Countries that do this already include...
- Mexico! 1M debit cards disbursed between 2009 and 2012 as part of Progresa/Oportunidades/Prospera.
A BETTER ALTERNATIVE

- Becoming cashless does not require pain from transition.
- Instead, make electronic payments cheaper.
- Example: Sweden offers basic debit account.
- Conjecture: almost all Puebla users that do not migrate are “unbanked” (46% of total Mexico population).
- Rogoff (Curse of Cash) recommendation: make government transfer payments electronically to encourage switch.
- Countries that do this already include...
- Mexico! 1M debit cards disbursed between 2009 and 2012 as part of Progresa/Oportunidades/Prospera.
- Higgins (WP): positive network effects magnify direct benefit.
Uber’s first “pitch deck”

Operating Principles

- Luxury service on-demand
- Modern and fuel-efficient fleet
- Customer-focused, computer-coordinated
- The best end-user experience possible
- Statistically optimized response time
- Pre-paid, cashless billing system
- Profitable by design

https://medium.com/@gc/the-beginning-of-uber-7fb17e544851
Operating Principles

- Luxury service on-demand
- Modern and fuel-efficient fleet
- Customer-focused, computer-coordinated
- The best end-user experience possible
- Statistically optimized response time
- Pre-paid, cashless billing system
- Profitable by design

https://medium.com/@gc/the-beginning-of-uber-7fb17e544851
Appendix slides
MINUTIAE

1. To interpret magnitude, report relative price of Uber substitutes.
2. To interpret magnitude, report credit card costs.
3. Typo in second line of eq. 7.
5. Typo in expression for $\varepsilon(P)$ on p. 45.
6. Typo in E.5 where $P_i$ missing over bar.
7. Typo in Appendix K part 1(c): should read $\tilde{a}(1, \infty; \phi) > \tilde{c}(\infty, 1; \phi) > 0$.
8. $k$ indexes credit adoption incentives and is semi-elasticity parameter.
9. Too strong to claim no impact on Uber substitutes? Quantity of taxi rides could have responded even if price didn’t. What about other, closer substitutes (e.g. Cabify in Puebla)?