

# 'Vettes and Lemons on EBay



**Chris Adams**

Federal Trade  
Commission

**Laura Hosken**

Federal Trade  
Commission

**Peter Newberry**

Federal Trade  
Commission

**Note:** This presentation does not necessarily represent the views of the Commission or any individual Commissioner.

**Star RAs:** Jorge Roberts and David Yans

# Overview

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- Akerlof's Hypothesis
- Other Literature
- Data
- Results
- Conclusions
- Questions



# Akerlof's Lemons Hypothesis

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- Quote:

“...most cars traded [in the used car market] will be ‘lemons,’ and good cars may not be traded at all”  
(1970)

- Stylized Fact: value of a “used” car.
- Model

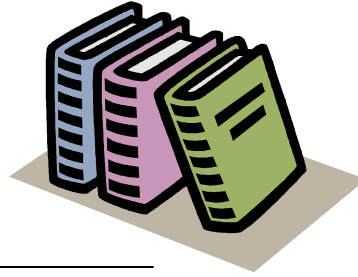
# Two Tests for Lemons Hypothesis

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- New vs. Used
- Common vs. Private Value Auction
  - Late Bidding
  - Bid Discounting

# Literature-

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- Lemons
  - Bond (1982, 1984), Lacko (1986)
  - Genesove (1993), Emons and Sheldon (2002), Engers et al (2005)
  - Hendel (1999), Porter (1999)
- Auctions
  - Milgrom and Weber (1982)
  - Bajari and Hortacsu (2003)

# Data

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Corvette Auctions: 32 months (Apr '01 – Dec '03)

Car	Model Year, Color, Engine, Style, New/Used, Mileage, Age, Manual/Automatic, VIN
Auction	Date, Length, BIN Price, Reserve Price, Starting Price, Seller Feedback, Seller Zip Code
Bid	Time (2003), Amount, Bidder ID
Bidder	Zip Code, Feedback Rating, Demo

# Summary Statistics - Cars

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	Mean	Standard Dev
Age of the Car	9.73	6.45
Mileage*	64,251	42,940
Model Year	1993	32
New	0.038	
Automatic	0.723	
Convertible	0.253	
Coupe	0.608	
Hardtop	0.060	
Hatchback	0.079	
Red	0.209	
Black	0.184	
Burgundy	0.056	
White	0.145	
Total Number of Auctions	8,332	

\*Restricted to mileage between 0 and 306,000

# Summary Statistics - Auctions

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	Mean
Three day auctions	0.084
Five day auctions	0.202
Seven day auctions	0.488
Ten day auctions	0.205
Auctions with BIN	0.331
Items sold with BIN	0.179
Reserve used	0.496
Final Price	\$ 16,703.28
Number of Bidders per auction	8.82
Distance between Bidder and Seller	810.14
Distance between Buyer and Seller	693.81
Total Number of Auctions	8,332
Total Number of Auctions, excluding items sold with BIN	6,838
Total Number of Auctions in bidder data	7,106



# Summary Statistics - Bidders

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	<b>Mean</b>	<b>Std Dev</b>
Median Household Income for Bidder Zip Code	45,328	18,591
Percent of the Bidder Zip Code Population that is Black	0.113	2.466
Bidder Feedback Rating	83.85	289.54

# Results: New vs. Used

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**Model 1:** “New” variables, Mileage, Convertible, Automatic, Color Dummies, Engine Dummies, Age, Seller Feedback, Auction Year Dummies, Auction Month Dummies

**Coefficient on New2:** -10,185.32 (172.43)

**Model 2:** Model 1, Distance Between Bidder/Seller, Median HH income, Percent Black

**Coefficient on New1:** -2,144.87 (149.45)

**Coefficient on New2:** -10,093.49 (174.33)

**Coefficient on New3:** -5,372.88 (236.47)

# Results: Late Bidding

TOP 2 BIDDERS				
	Last 1 Minute	Last 5 Minutes	Last Hour	Total Bids
Overall	0.235	0.333	0.464	8,107
New and 0 Age	0.272	0.342	0.500	114
Used	0.234	0.332	0.463	7,929
2 years old or less	0.244	0.305	0.430	940
5 years old or less	0.253	0.330	0.459	2,428
10 years old or less	0.249	0.332	0.465	4,499
Older than 10 years	0.218	0.333	0.462	3,608
1,000 miles or less	0.273	0.343	0.475	297
10,000 miles or less	0.260	0.335	0.453	823
100,000 miles or less	0.236	0.328	0.461	6,525
More than 100,000 miles	0.233	0.352	0.476	1,582 <sub>1</sub>

# **Results: Bid Discounting**

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**Model 3 (All Bids):** Model 2, Number of Bidders

**Coefficient on Number of Bidders:** -178.82 (4.79)

**Model 4 (Final Hour):** Model 2, Number of Bidders

**Coefficient on Number of Bidders:** -36.85 (11.26)

**Model 5 (Order Statistic):** Model 2, Number of Bidders

**Coefficient on Number of Bidders:** -135.65 (11.21)

**Model 6 (Order Statistic):** Model 2, Auction Length

**Coefficient on Auction Length:** 97.24 (33.97)

# Conclusions

Do the results indicate there is a lemons problem on EBay?

- New vs. Used: No
- Common Value Auctions
  - Late Bidding: No
  - Bid Discounting: Maybe

# QUESTIONS

