Behavioral economics: (Wikipedia, 2014-01-22)

Behavioral economics and the related field, **behavioral finance**, study the effects of social, cognitive, and emotional factors on the economic decisions of individuals and institutions and the consequences for market prices, returns, and the resource allocation.[1] The fields are primarily concerned with the bounds of rationality of economic agents. Behavioral models typically integrate insights from psychology with microeconomic theory; in so doing, these behavioral models cover a range of concepts, methods, and fields.[2]

The study of behavioral economics includes how market decisions are made and the mechanisms that drive public choice.

There are three prevalent themes in behavioral finances:[3]

Heuristics: People often make decisions based on approximate rules of thumb and not strict logic.

Framing: The collection of anecdotes and stereotypes that make up the mental emotional filters individuals rely on to understand and respond to events.

Market inefficiencies: These include *mis-pricings* and *non-rational decision making*.

Behavioral economics: (Wikipedia, 2014-01-22)

Studies of the effects of social, cognitive, and emotional factors on the economic decisions of individuals and institutions.

Bounded rationality of economic agents.

Three prevalent themes

Heuristics: decisions based on approximate rules of thumb and not strict logic.

Framing: The collection of anecdotes and stereotypes that make up the mental emotional filters individuals rely on to understand and respond to events.

Market inefficiencies: These include mispricings and non-rational decision making.

Especially important in health economics, since many emotional factors enter in, and experts play a huge role in framing how to think about health problems.

Behavioral economics

Studies of the effects of social, cognitive, and emotional factors on the economic decisions of individuals and institutions.

Themes:

Bounded rationality *or irrationality* of economic agents: consumers do not always optimize

Heuristics: decisions use approximate rules of thumb and not strict logic.

Framing: The information and emotional filters individuals rely on to understand and respond to events.

Market inefficiencies: These include mispricings and non-rational decision making.

Especially important in **health economics.** (Think about why.)

Results of a mini behavioral economics survey.

A. X=Random number based on cell phone number last two digits (=N) if(N<25, N+25,if(N>75,N-25,N)), so that X is U[25,75]

1. Do you believe that the age of Prof. Ellis is greater than X?

2. Please write your best guess of the age of Professor Ellis.

B. X = random number based on last two digits of BU ID.

if(N>50, N-50,N)), so that X is U[0,50]

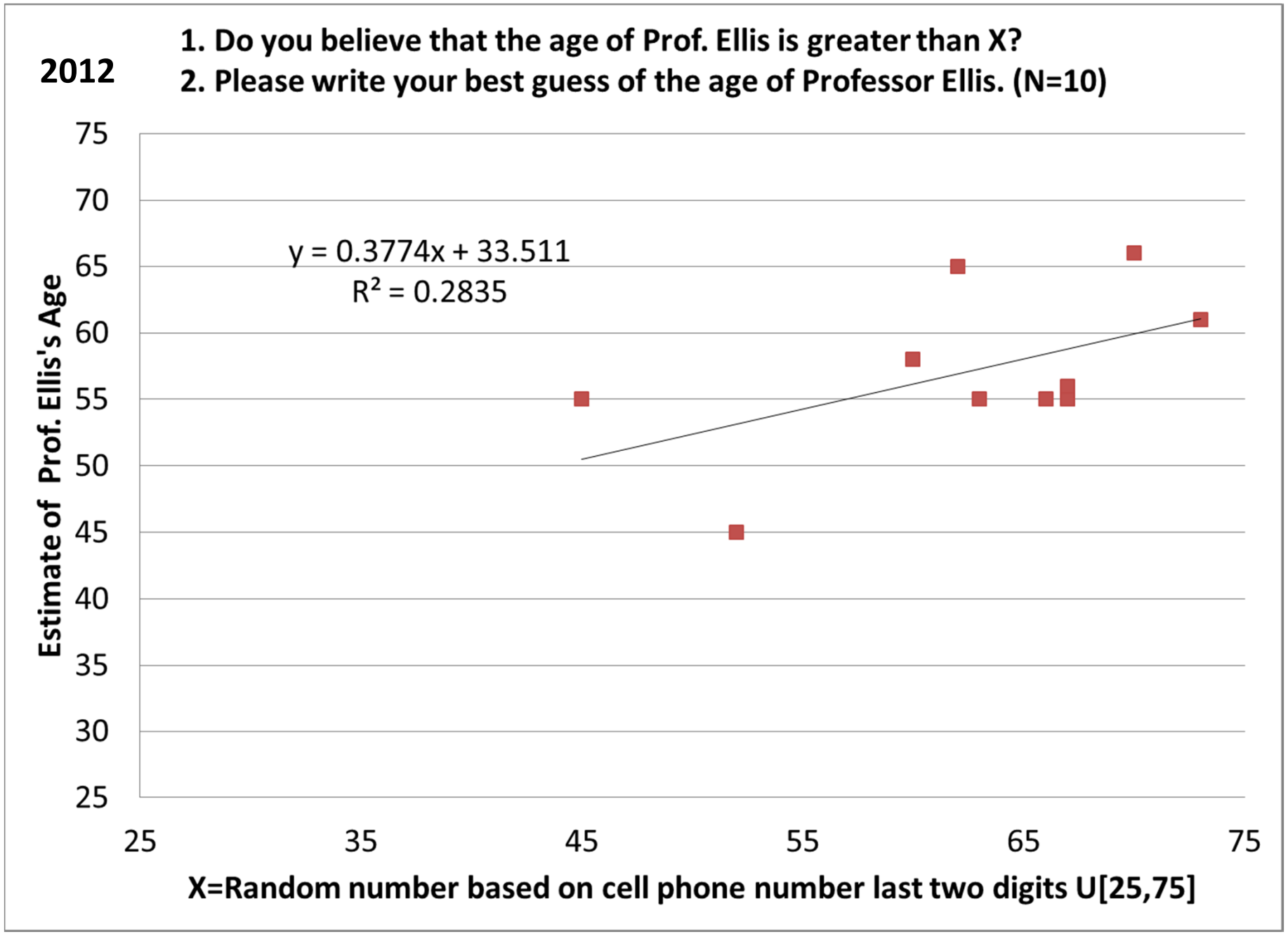
3. Do you think the total number of students at BU (including part-time, undergraduate and graduate students) is greater than X?

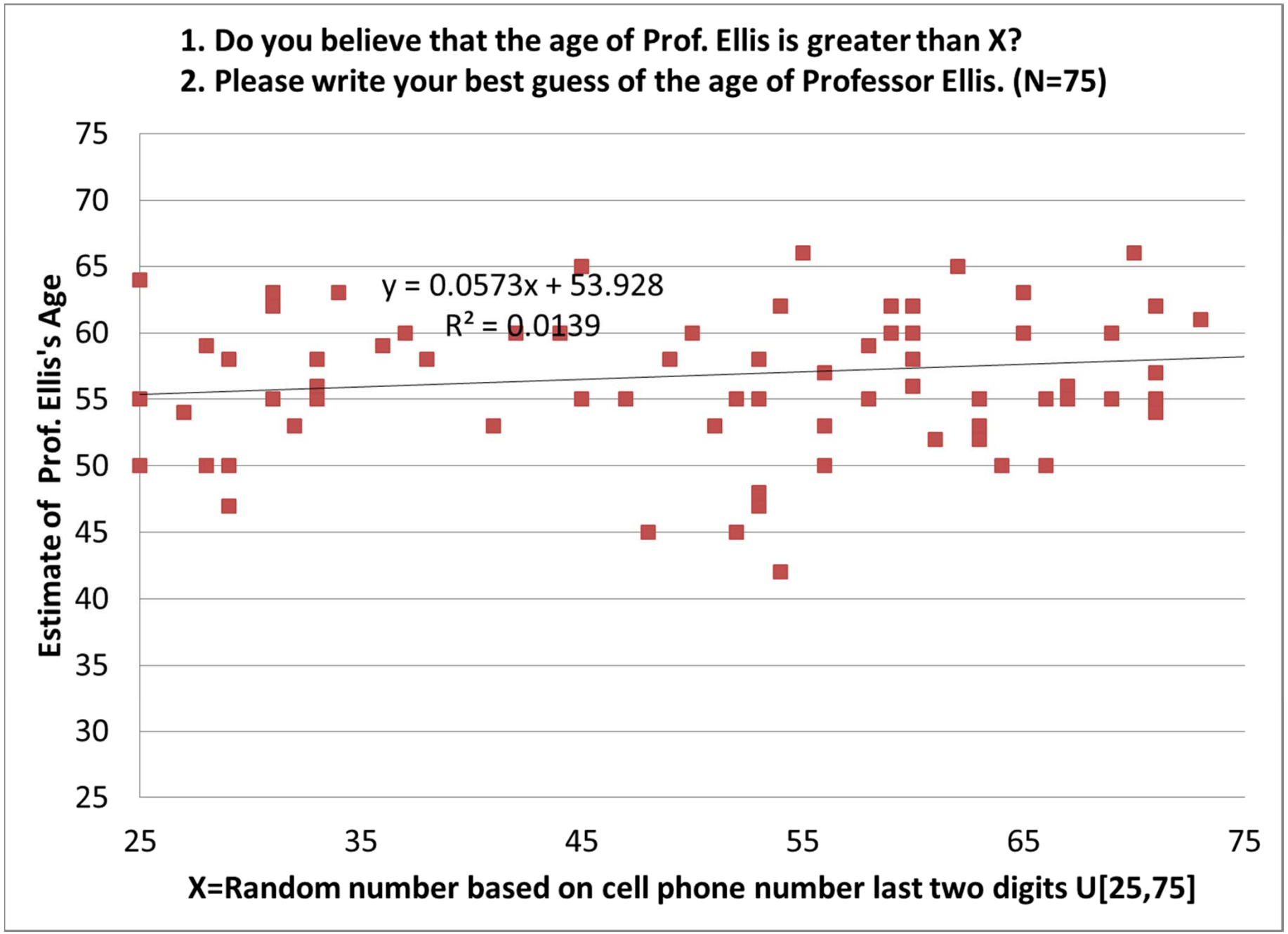
4. Please write your best guess of the total number of students at BU.

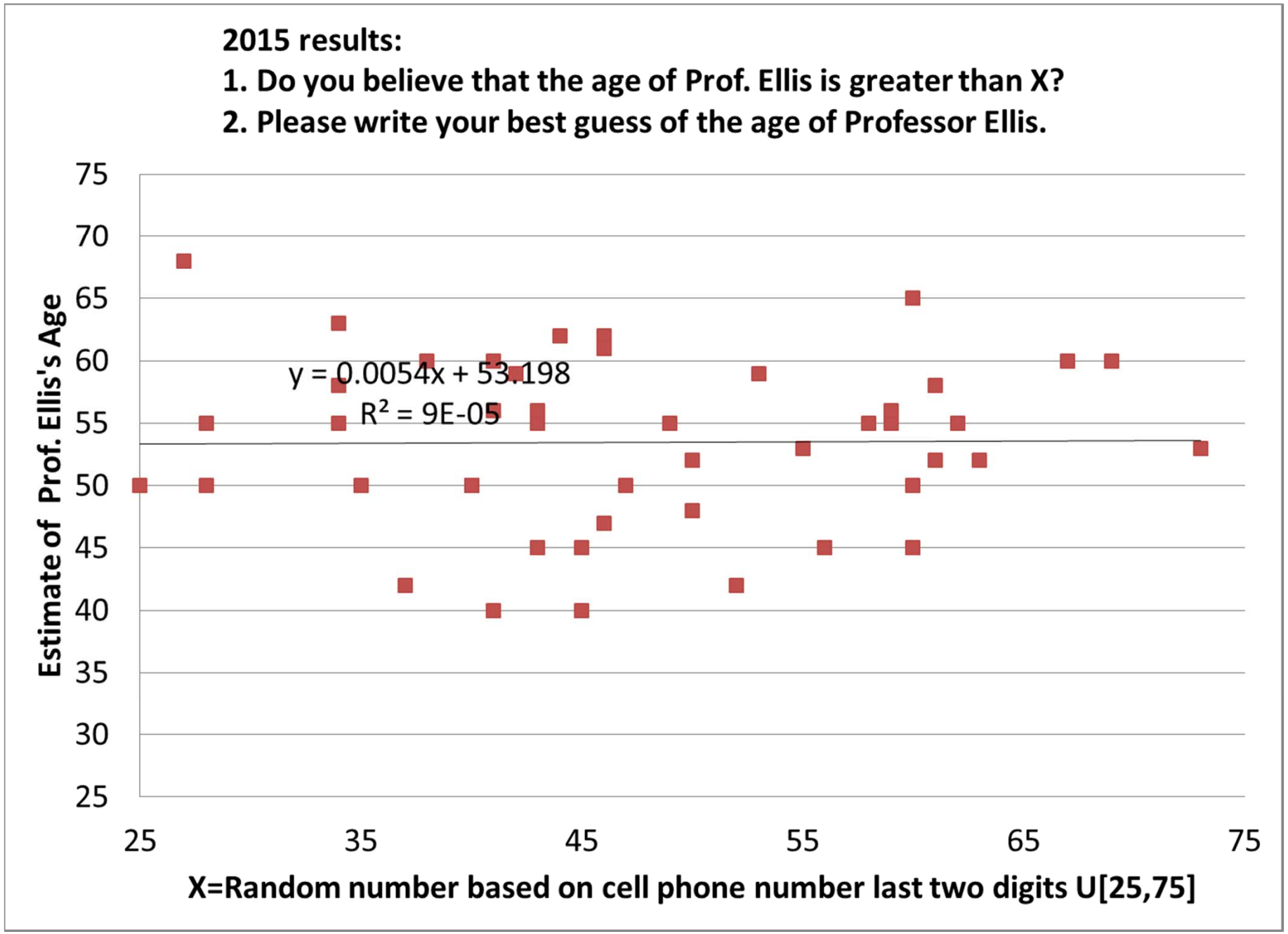
B. X Two different versions of survey, half with X=100, half with X=200

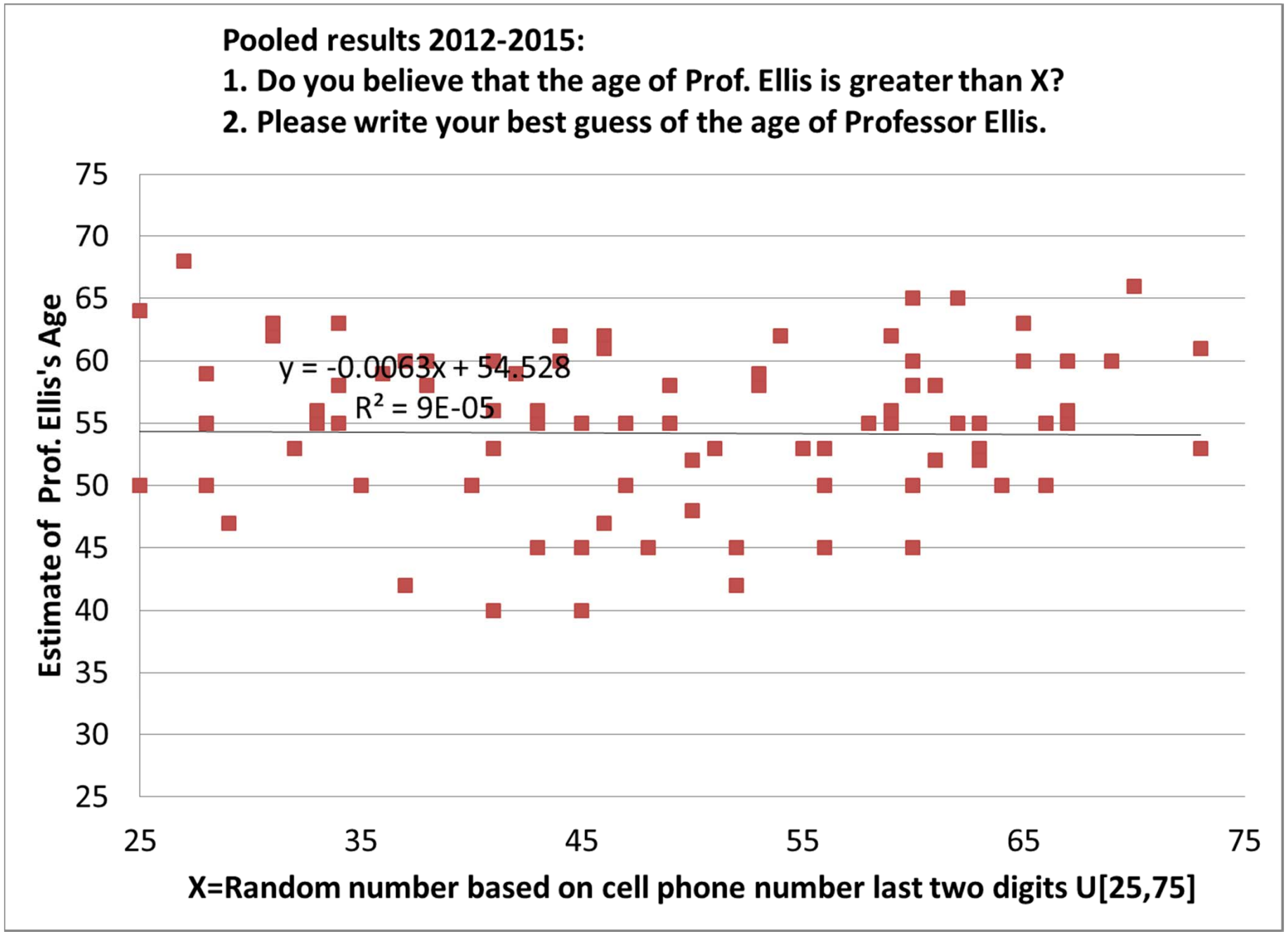
5. Do you think BU is more than X years old?

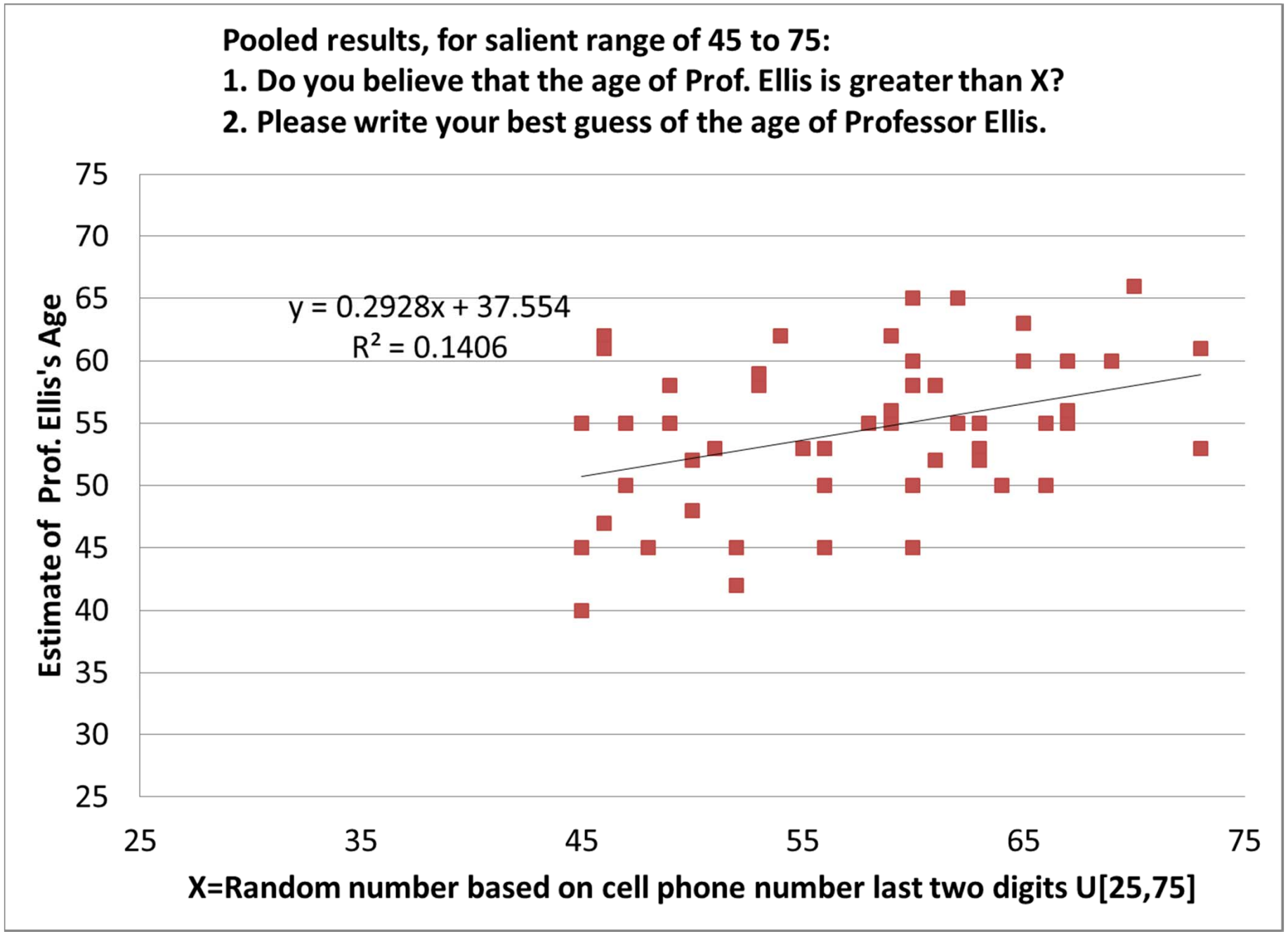
6. Write down your best guess of the age of BU.

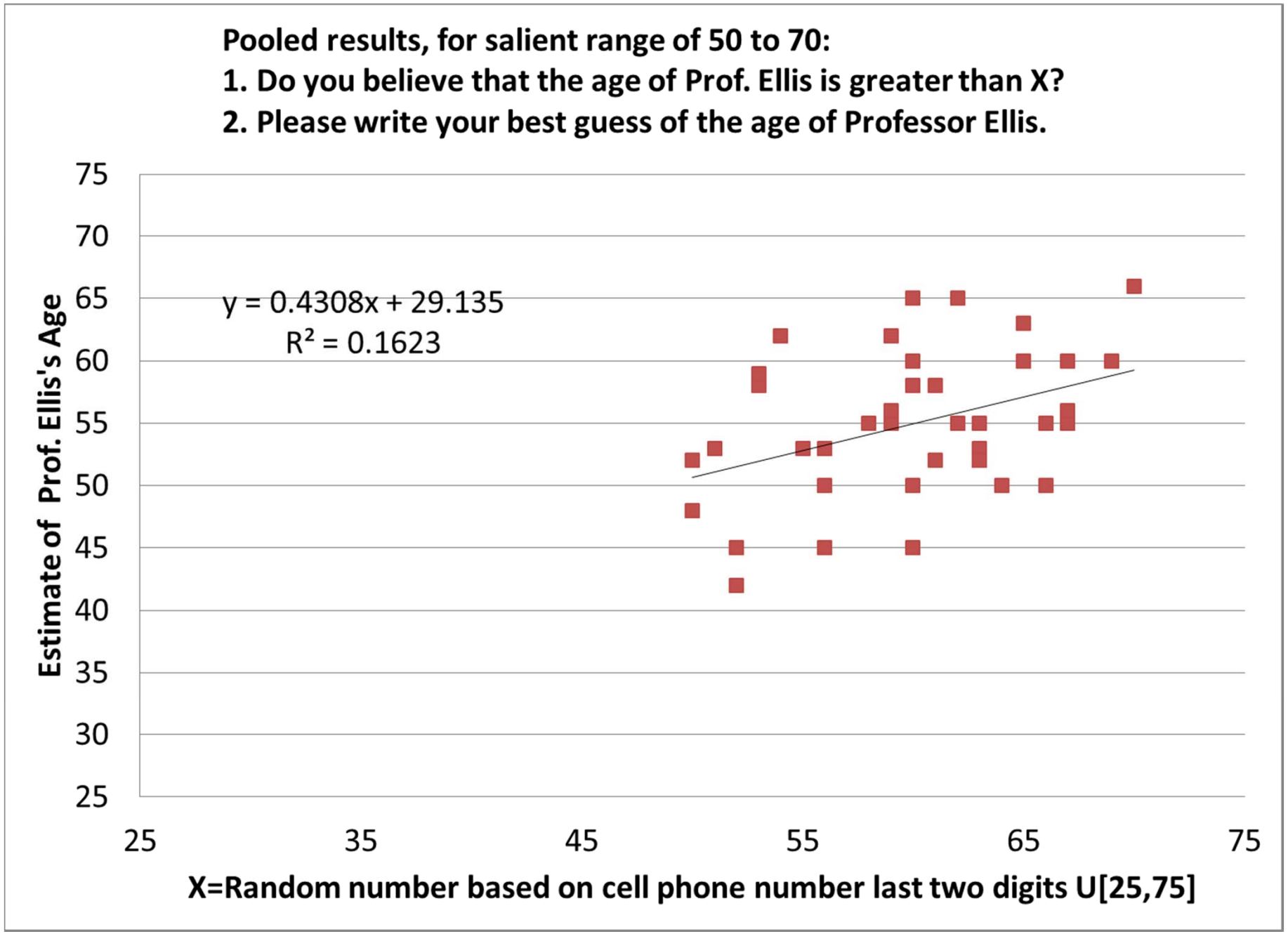

2012
1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis. (N=10)
y = 0.3774x + 33.511
R² = 0.2835
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]

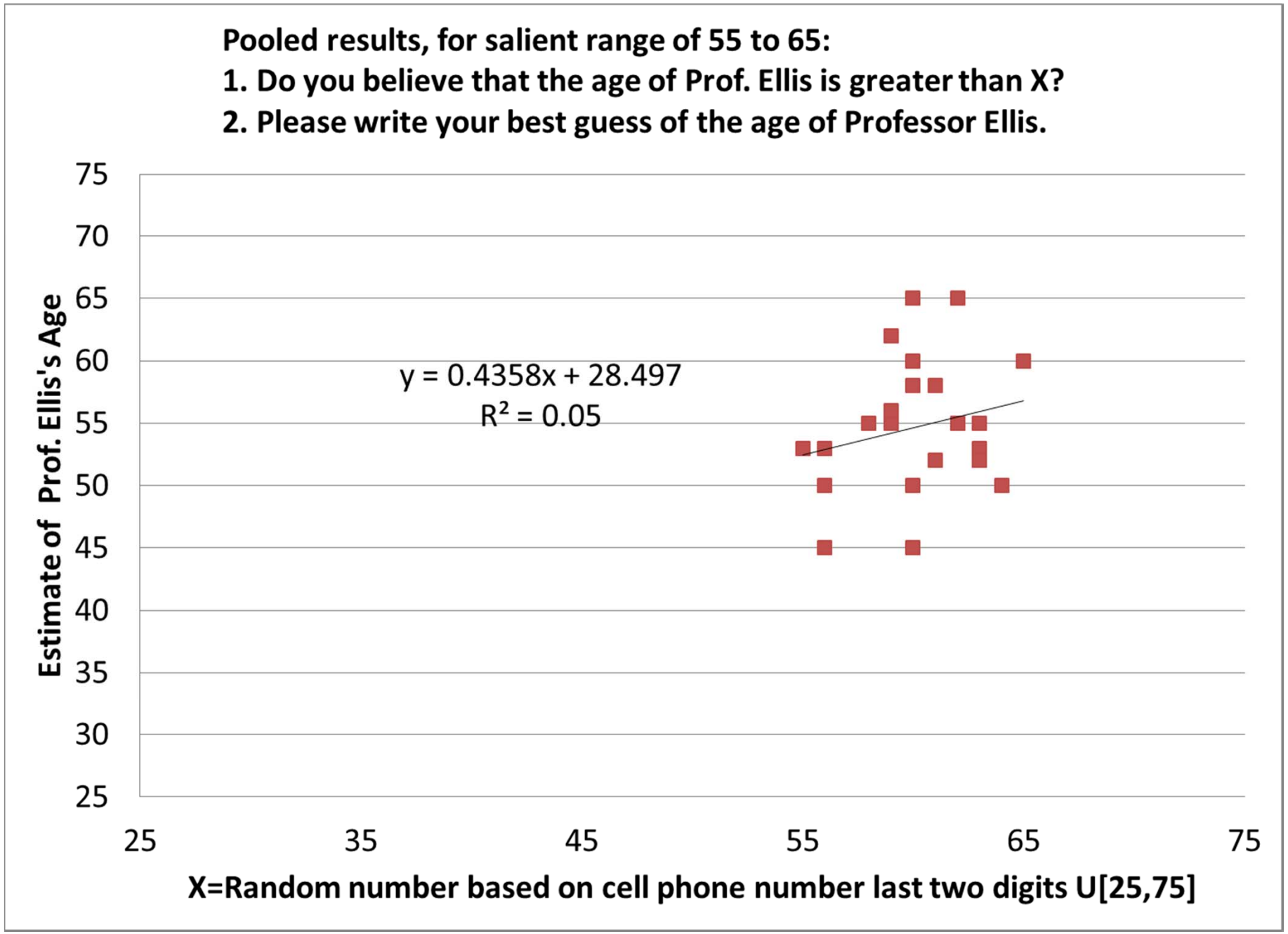

1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis. (N=75)
y = 0.0573x + 53.928
R² = 0.0139
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]


2015 results:
1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis.
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
y = 0.0054x + 53.198
R² = 9E-05
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]


Pooled results 2012-2015:
1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis.
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
y = -0.0063x + 54.528
R² = 9E-05
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]


Pooled results, for salient range of 45 to 75:
1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis.
y = 0.2928x + 37.554
R² = 0.1406
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]

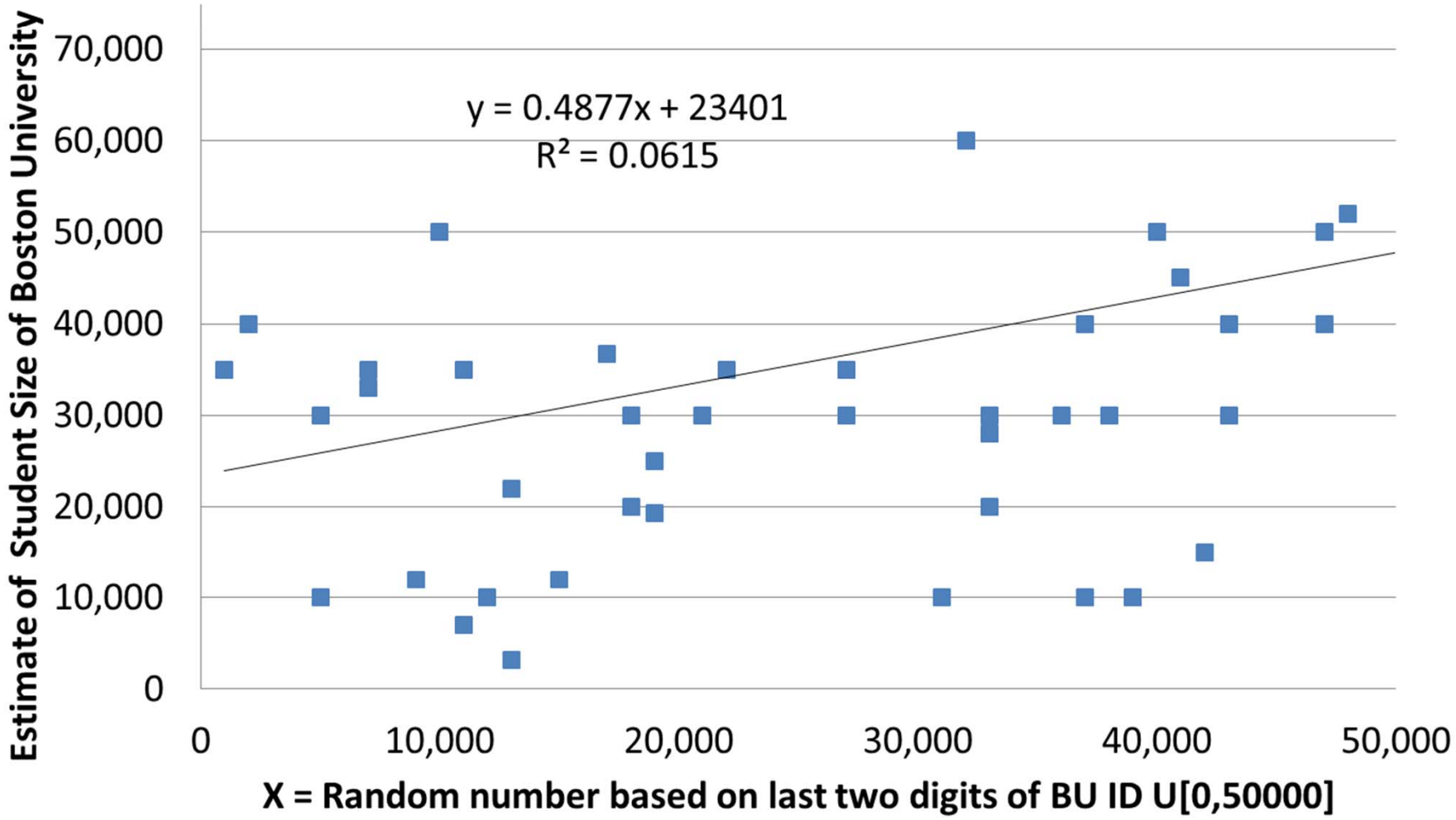

Pooled results, for salient range of 50 to 70:
1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis.
y = 0.4308x + 29.135
R² = 0.1623
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]


Pooled results, for salient range of 55 to 65:
1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis.
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
y = 0.4358x + 28.497
R² = 0.05
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]

2015 results, N=46

1. Do you think the total number of students at BU (including part-time, undergraduate and graduate students) is greater than X?

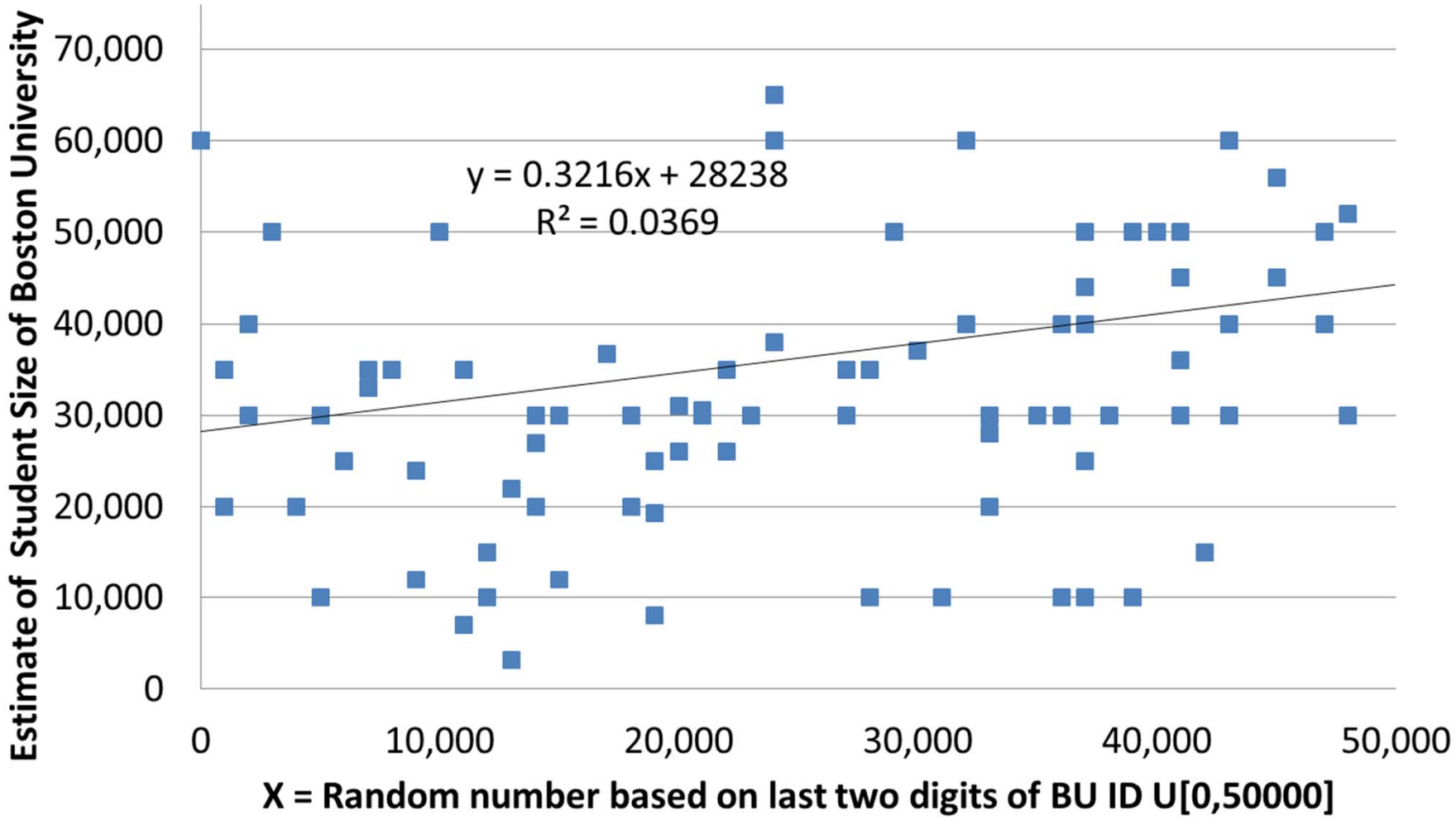
2. Please write your best guess of the total number of students at BU.

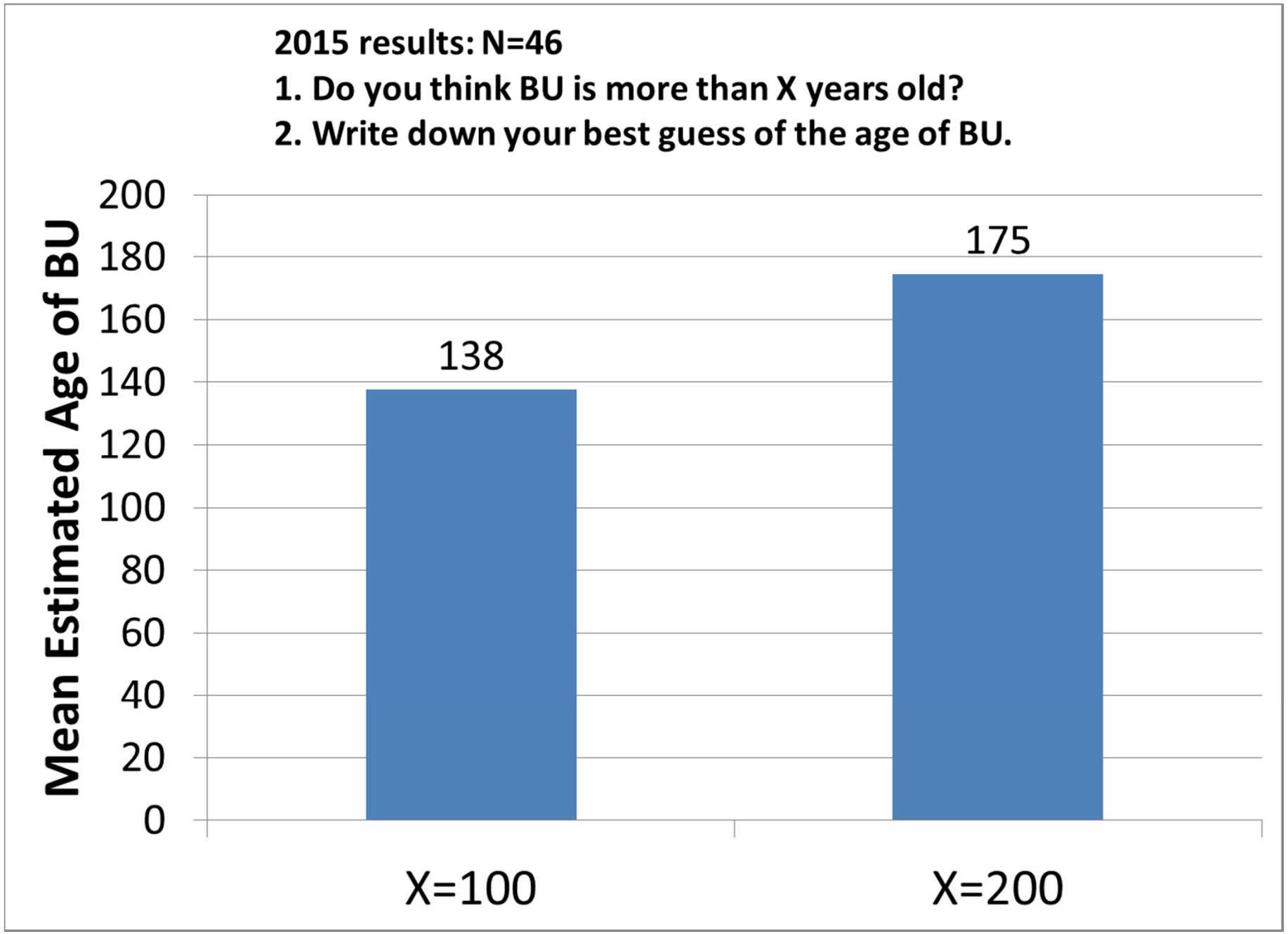


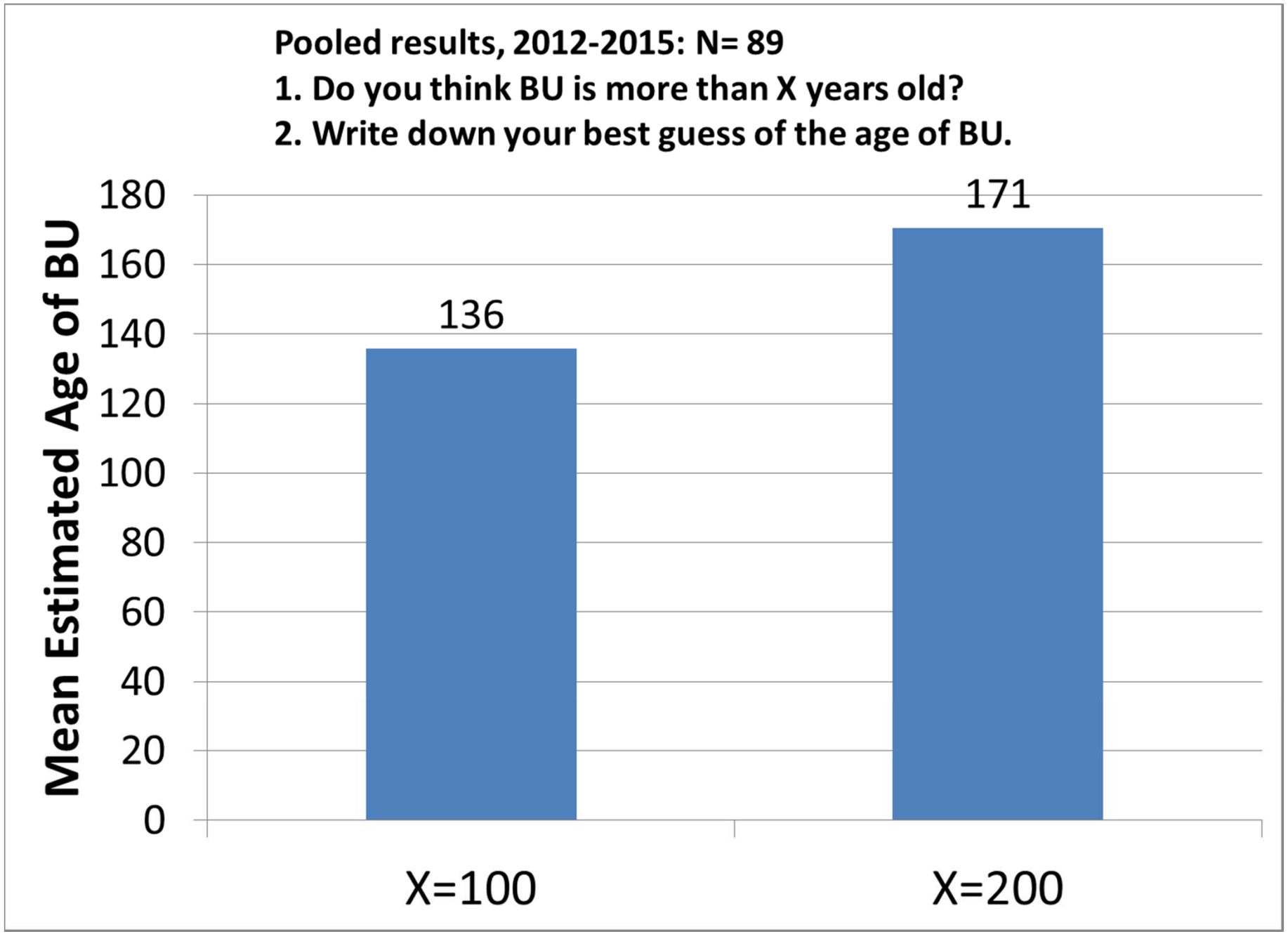
Pooled results, 2012-2015, N=89

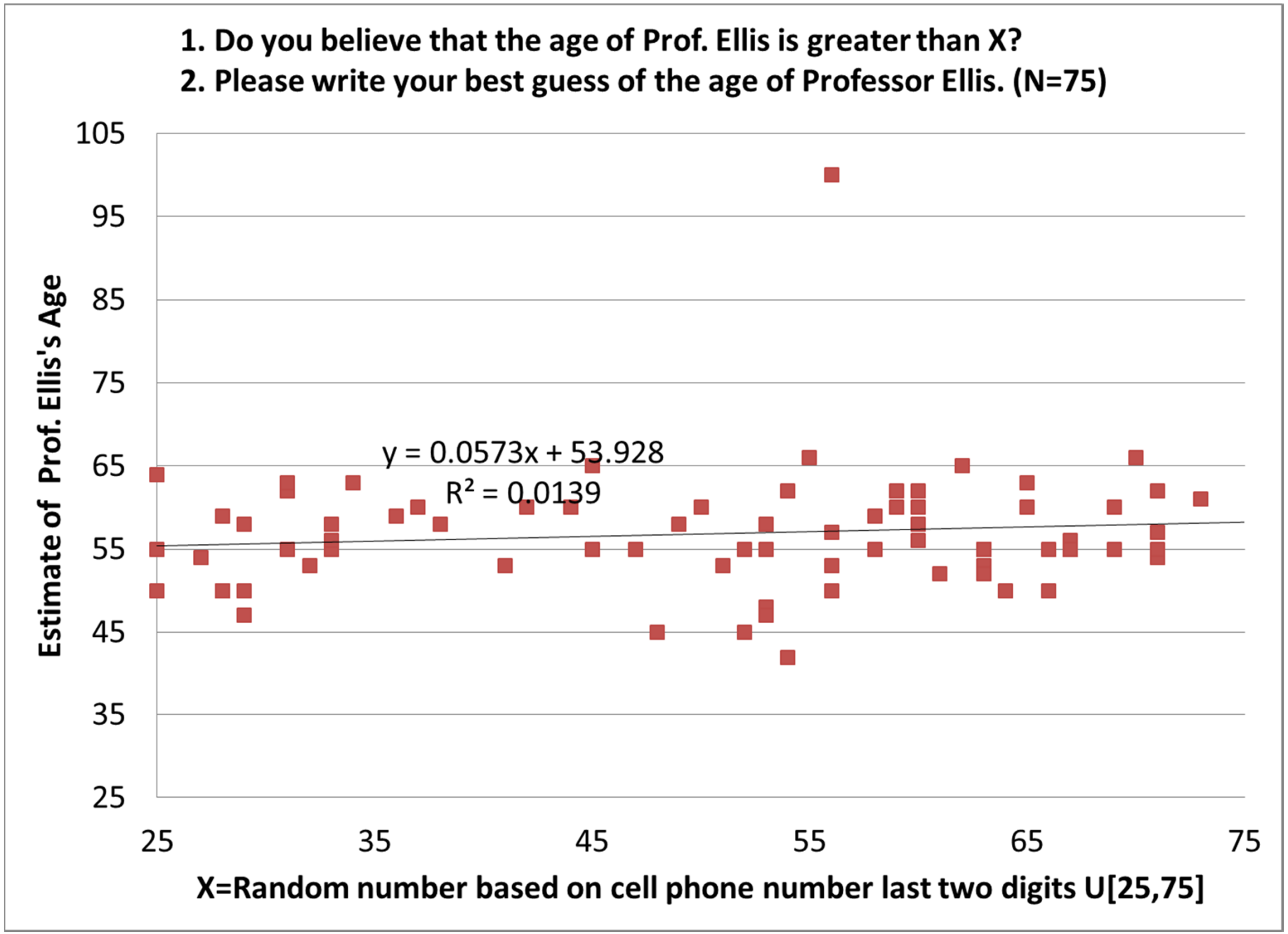
1. Do you think the total number of students at BU (including part-time, undergraduate and graduate students) is greater than X?

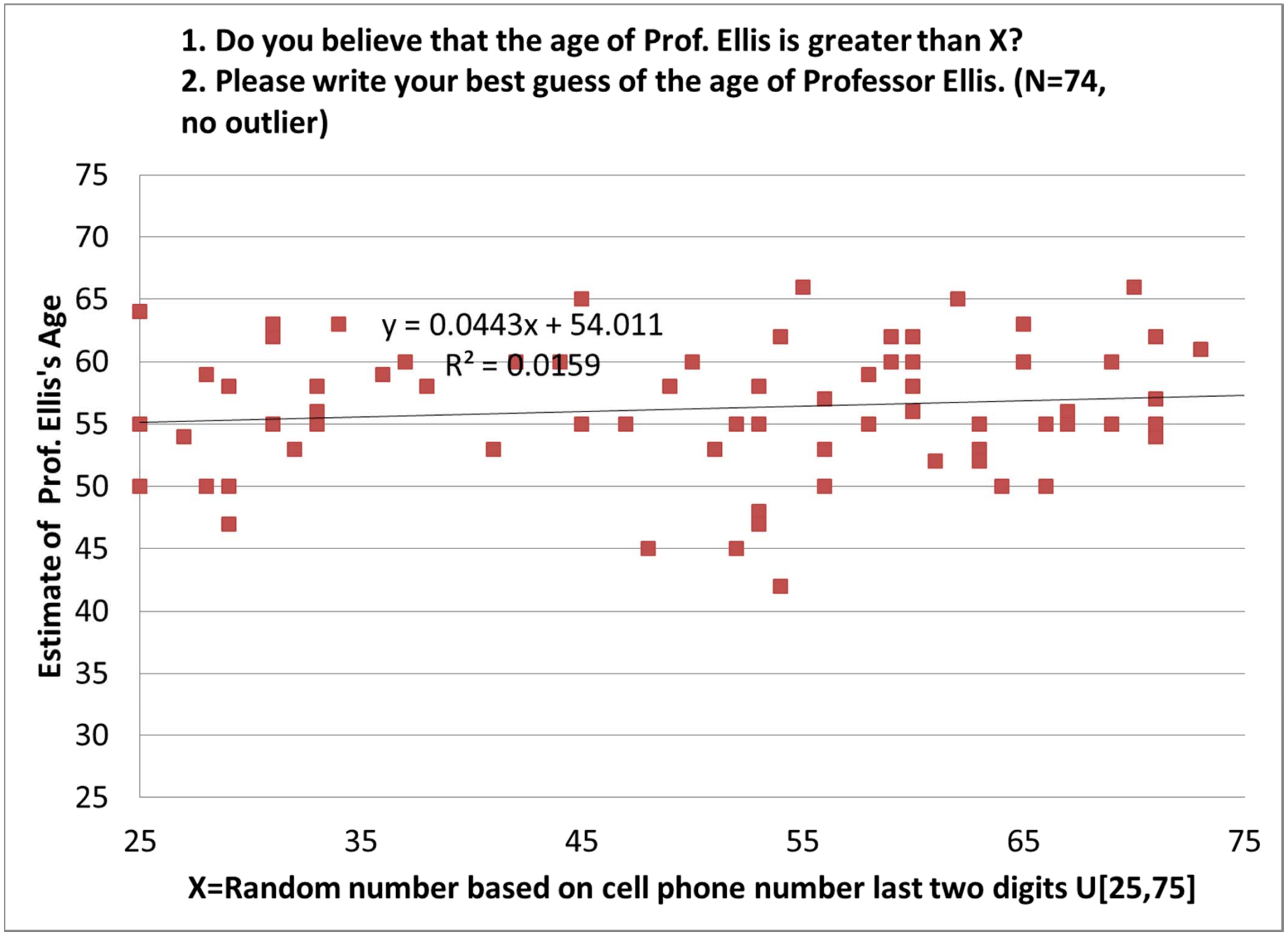
2. Please write your best guess of the total number of students at BU.

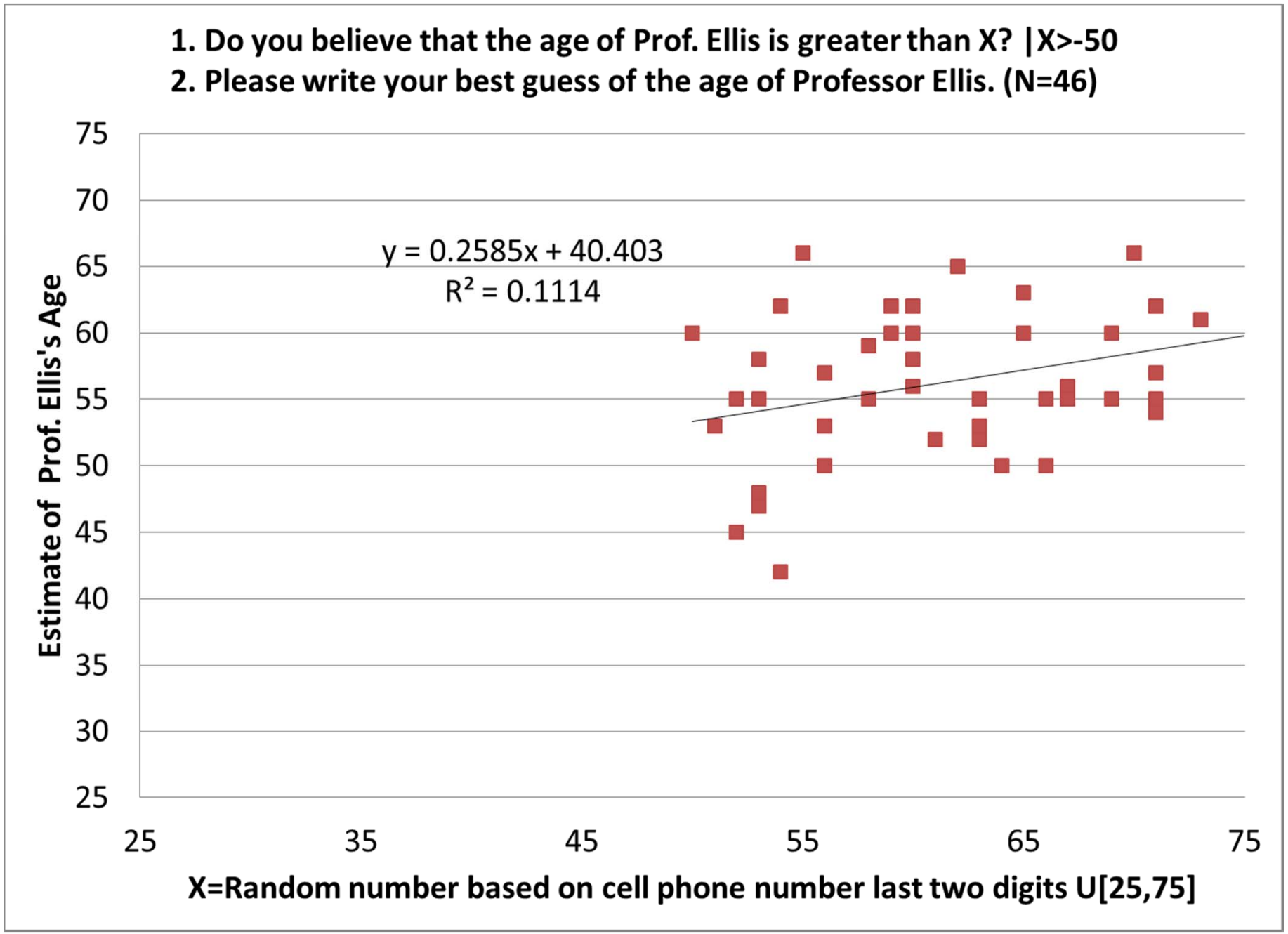


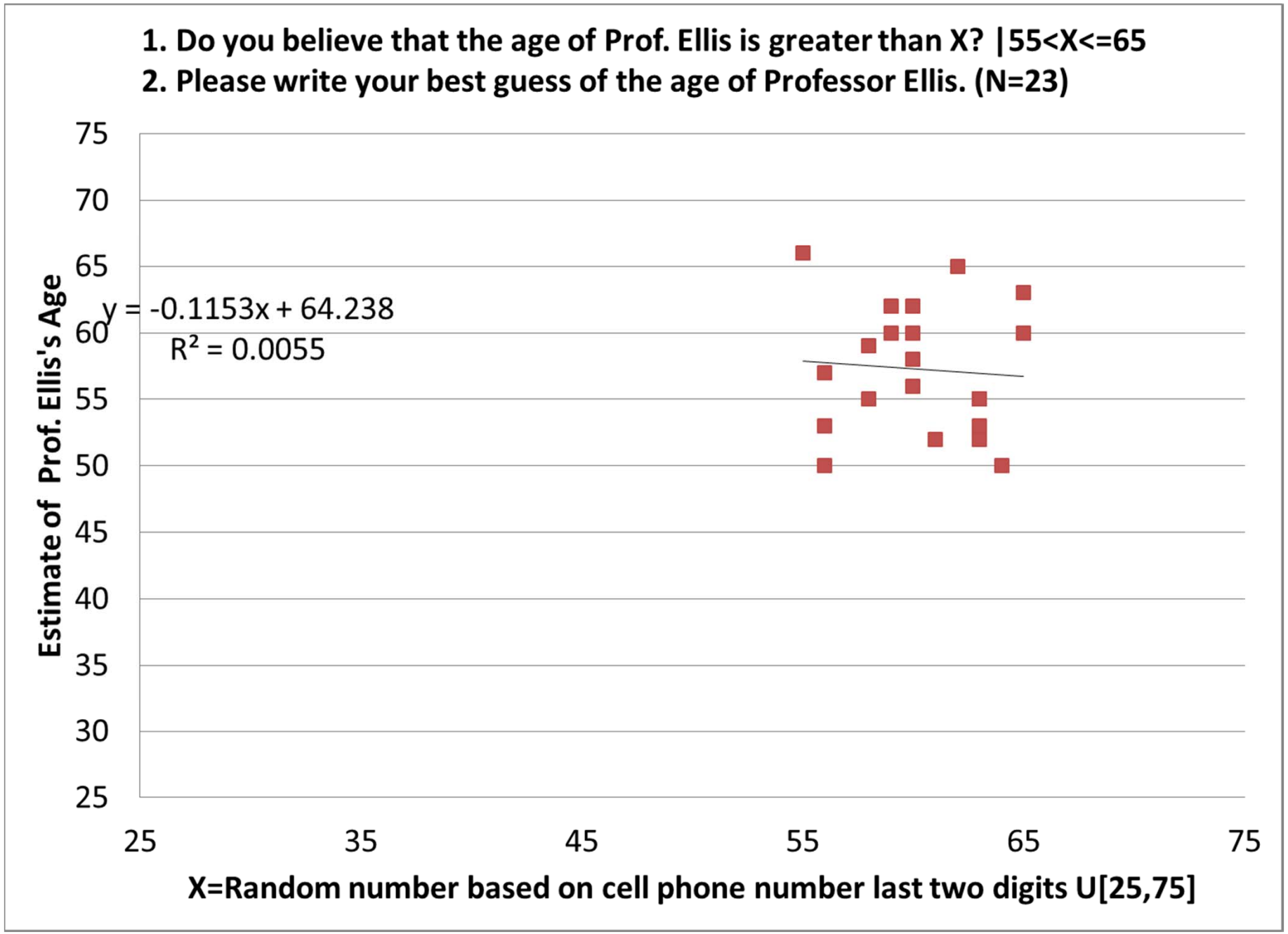

2015 results: N=46
1. Do you think BU is more than X years old?
2. Write down your best guess of the age of BU.
Mean Estimated Age of BU
200
180
160
140
120
100
80
60
40
20
0
138
175
X=100
X=200

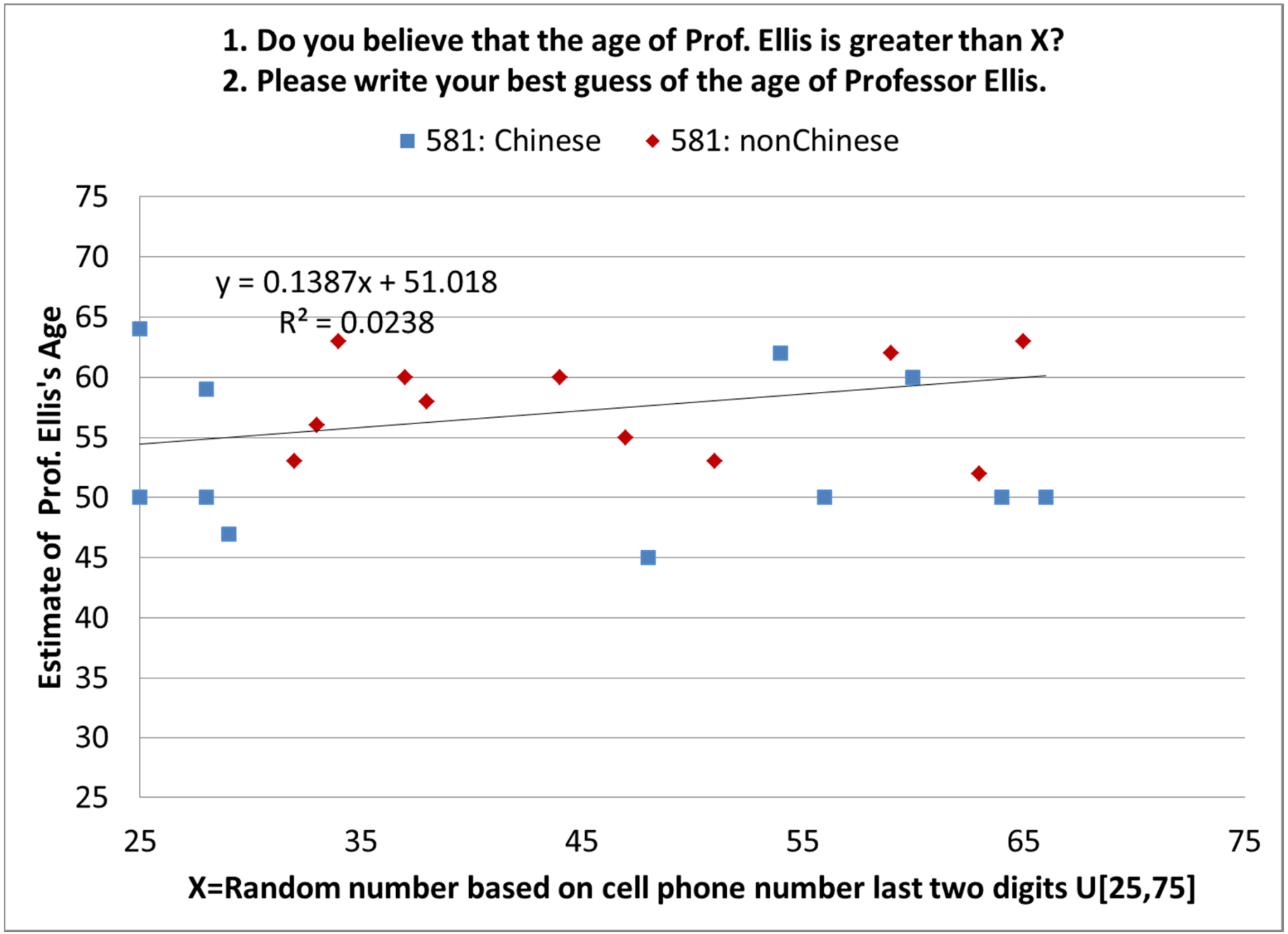

Pooled results, 2012-2015: N= 89
1. Do you think BU is more than X years old?
2. Write down your best guess of the age of BU.
Mean Estimated Age of BU
180
160
140
120
100
80
60
40
20
0
136
171
X=100
X=200

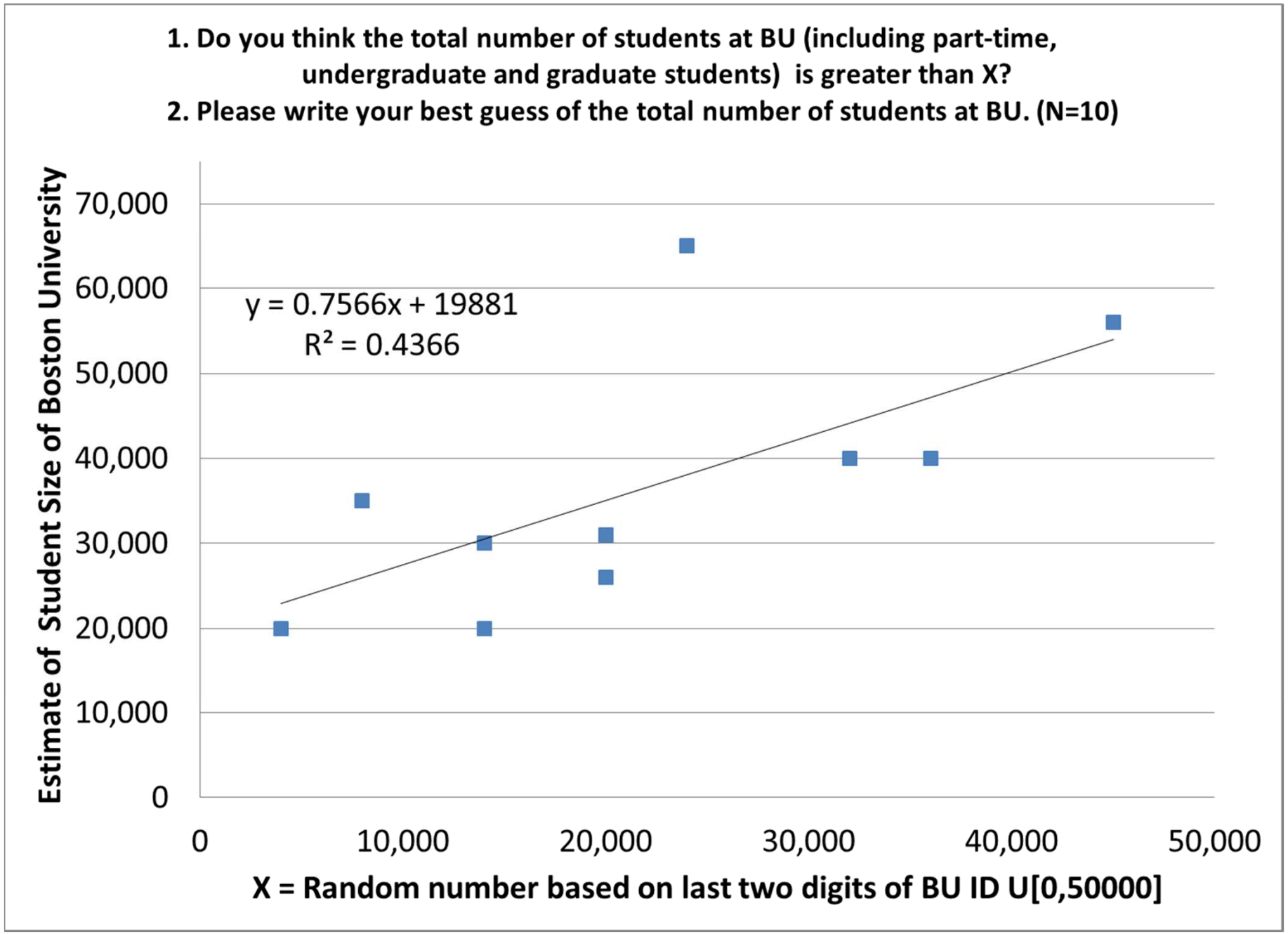

1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis. (N=75)
Estimate of Prof. Ellis's Age
105
95
85
75
65
55
45
35
25
y = 0.0573x + 53.928
R² = 0.0139
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]


1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis. (N=74, no outlier)
y = 0.0443x + 54.011
R² = 0.0159
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]

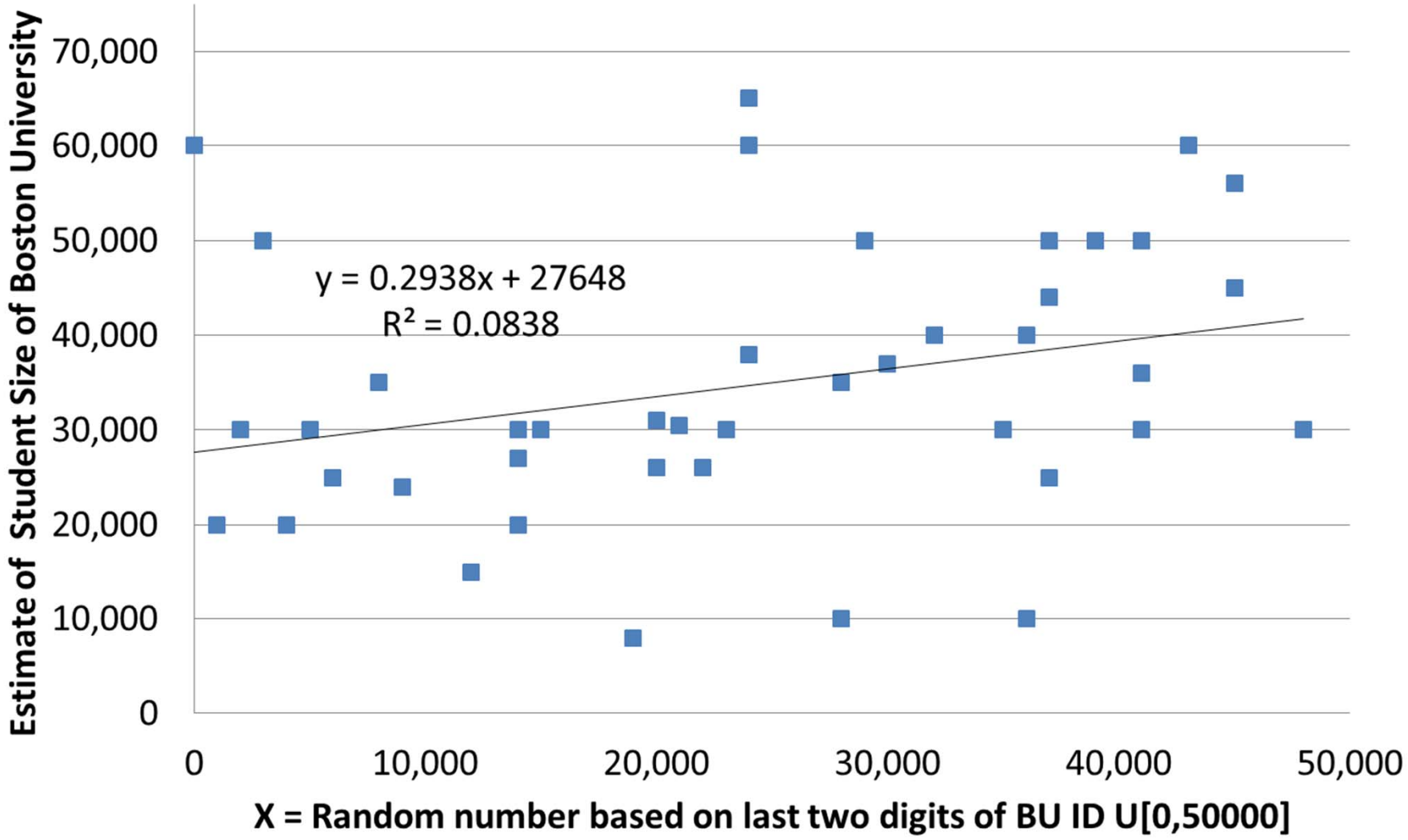

1. Do you believe that the age of Prof. Ellis is greater than X? |X>-50
2. Please write your best guess of the age of Professor Ellis. (N=46)
y = 0.2585x + 40.403
R² = 0.1114
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]


1. Do you believe that the age of Prof. Ellis is greater than X? |55<X<=65
2. Please write your best guess of the age of Professor Ellis. (N=23)
Estimate of Prof. Ellis's Age
y = -0.1153x + 64.238
R² = 0.0055
75
70
65
60
55
50
45
40
35
30
25
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]

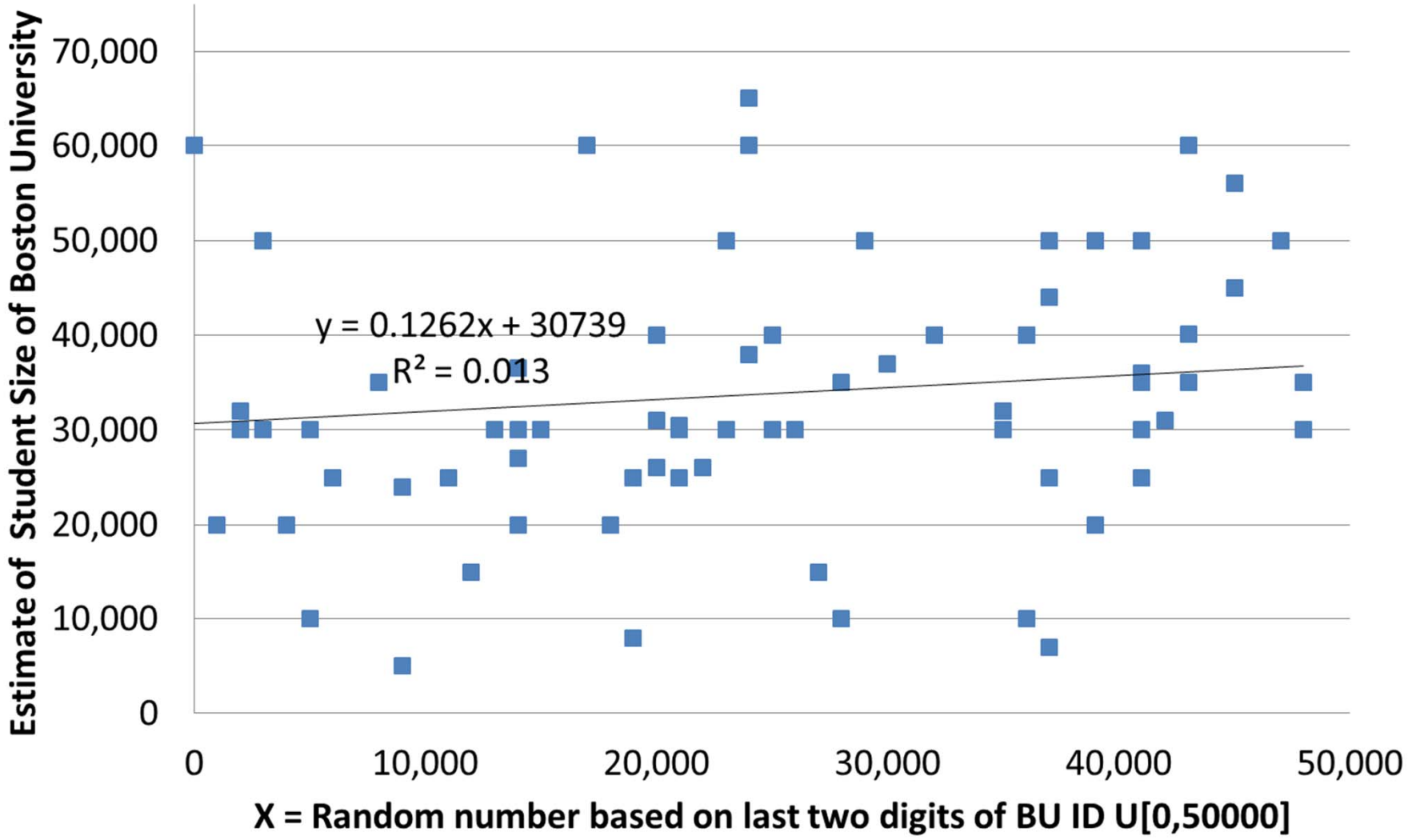

1. Do you believe that the age of Prof. Ellis is greater than X?
2. Please write your best guess of the age of Professor Ellis.
581: Chinese
581: nonChinese
y = 0.1387x + 51.018
R² = 0.0238
Estimate of Prof. Ellis's Age
75
70
65
60
55
50
45
40
35
30
25
25
35
45
55
65
75
X=Random number based on cell phone number last two digits U[25,75]


1. Do you think the total number of students at BU (including part-time, undergraduate and graduate students) is greater than X?
2. Please write your best guess of the total number of students at BU. (N=10)
Estimate of Student Size of Boston University
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
y = 0.7566x + 19881
R² = 0.4366
0
10,000
20,000
30,000
40,000
50,000
X = Random number based on last two digits of BU ID U[0,50000]

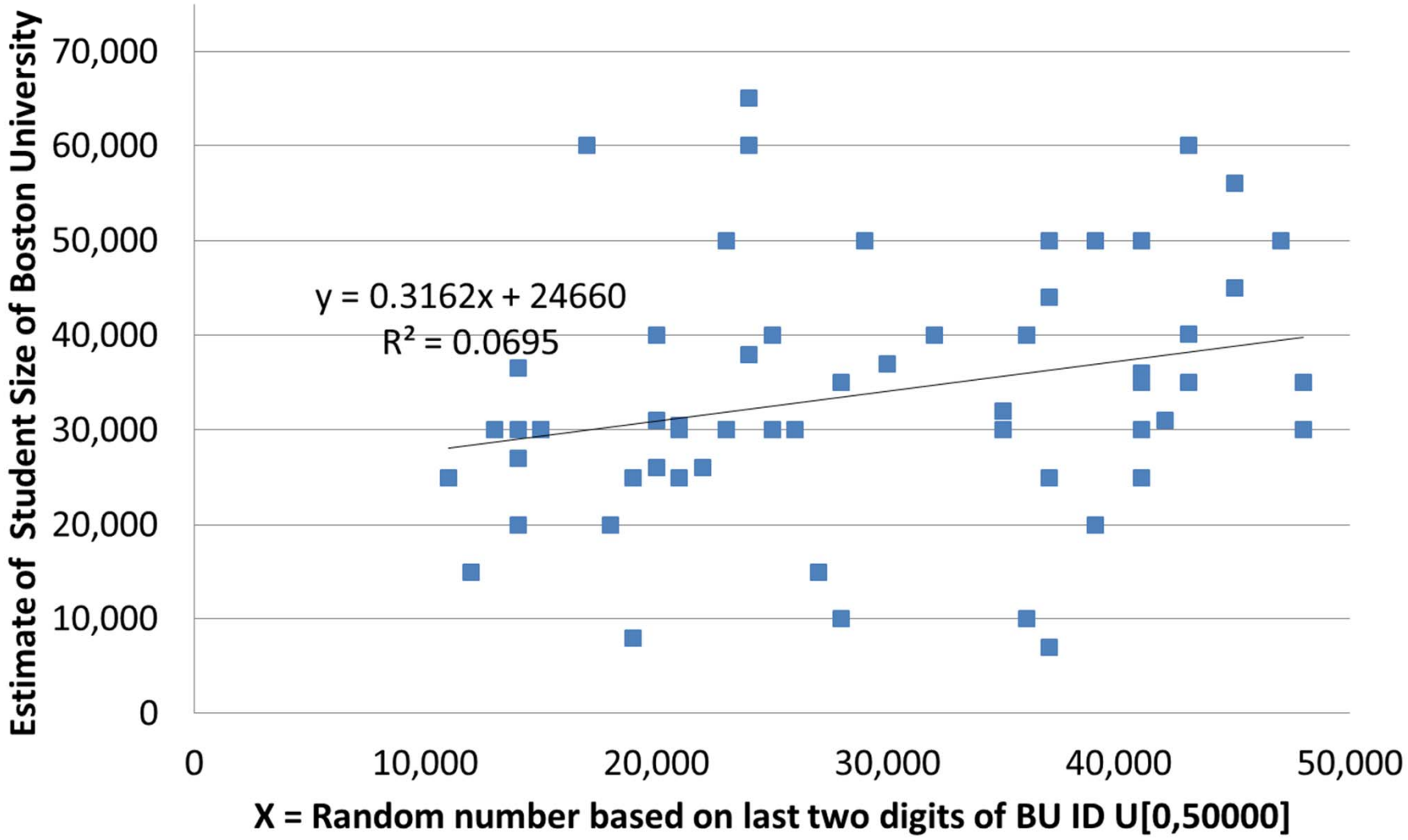
1. Do you think the total number of students at BU (including part-time, undergraduate and graduate students) is greater than X?
2. Please write your best guess of the total number of students at BU.

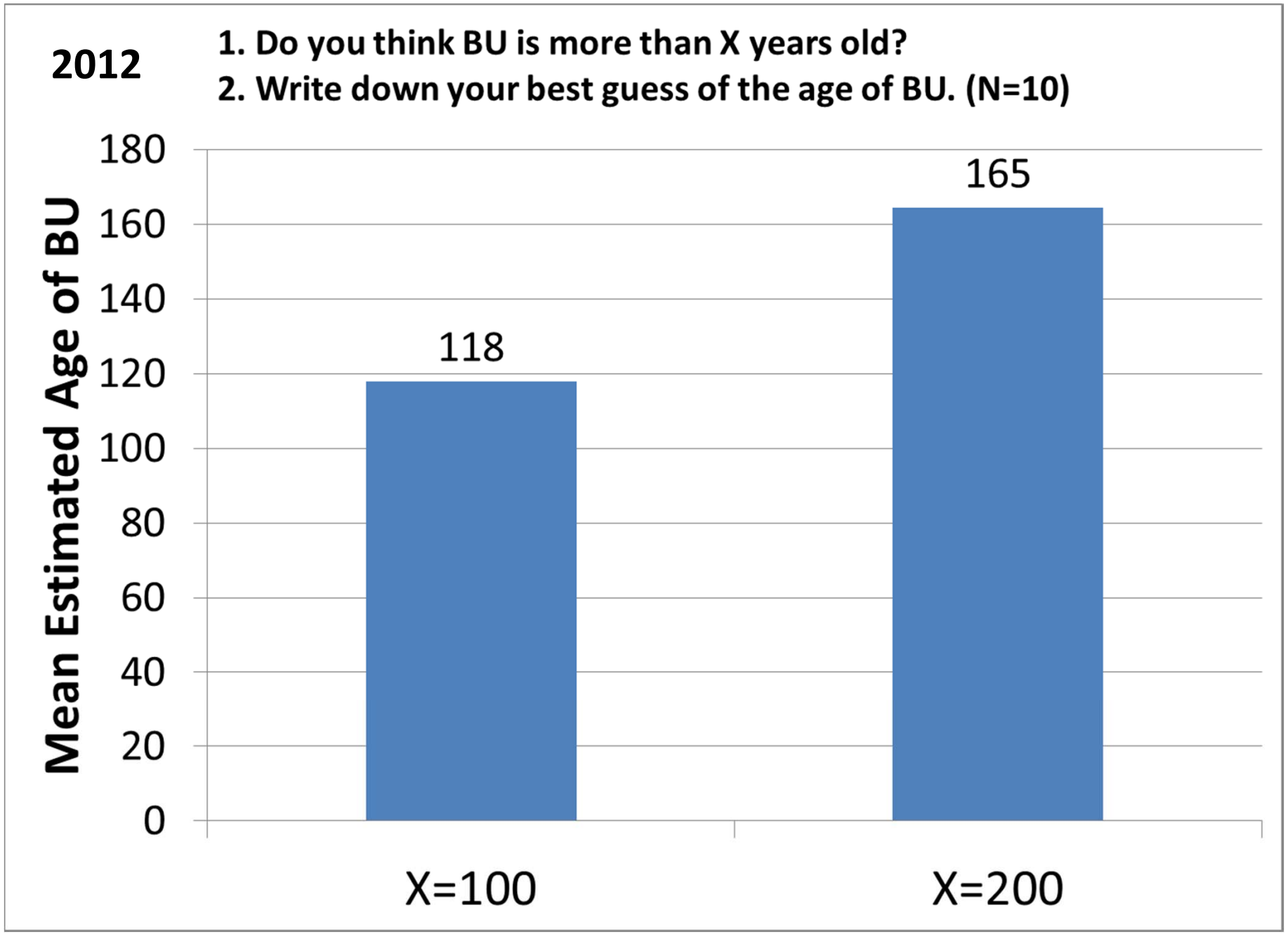


1. Do you think the total number of students at BU (including part-time, undergraduate and graduate students) is greater than X?
2. Please write your best guess of the total number of students at BU.



1. Do you think the total number of students at BU (including part-time, undergraduate and graduate students) is greater than X?
2. Please write your best guess of the total number of students at BU.



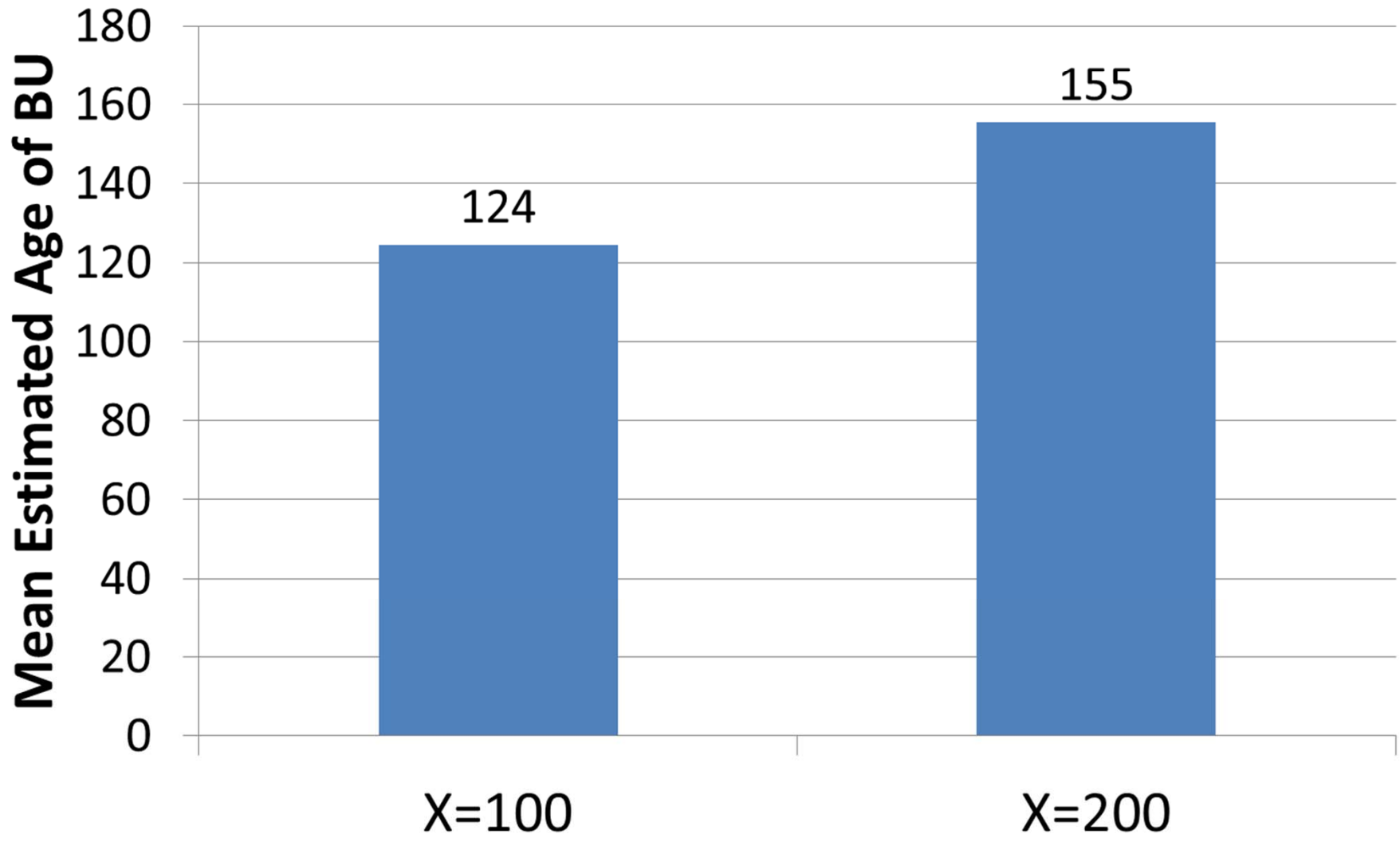

2012
1. Do you think BU is more than X years old?
2. Write down your best guess of the age of BU. (N=10)
Mean Estimated Age of BU
180
160
140
120
100
80
60
40
20
0
118
165
X=100
X=200

2012-14

Three year sample.

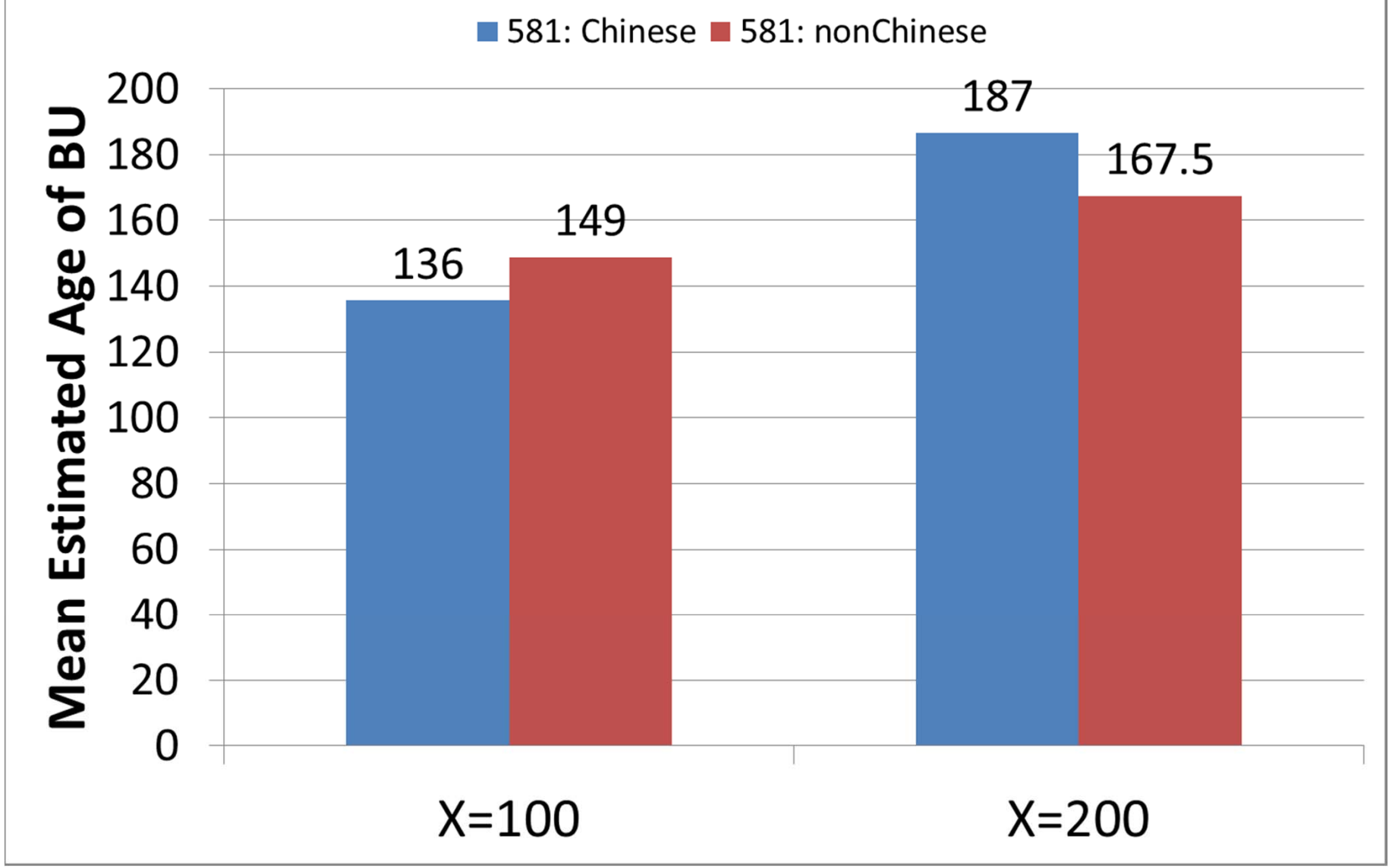
1. Do you think BU is more than X years old?

2. Write down your best guess of the age of BU. (N=75)



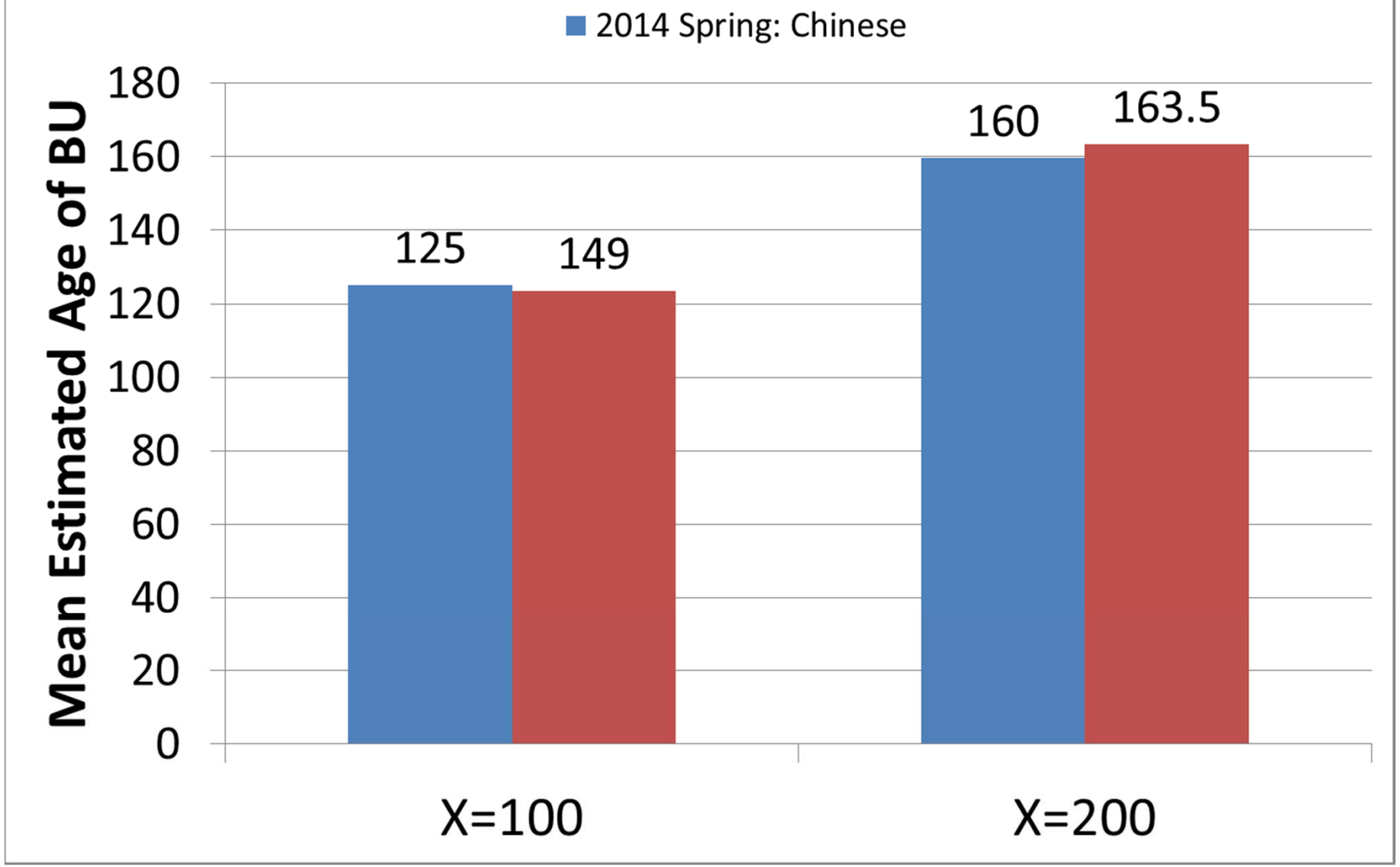
2013-14

1. Do you think BU is more than X years old?
2. Write down your best guess of the age of BU.



2014

1. Do you think BU is more than X years old?
2. Write down your best guess of the age of BU.



Remarkable array of “irrational” behavior documented by Kahneman

i) Priming
ii) Framing
iii) Base rate neglect
iv) Cognitive ease
v) Anchors
vi) Availability bias
vii) Intuitive prediction
viii) Optimism bias
ix) Prospect theory
x) The endowment effect
xi) The possibility effect
xii) The certainty effect
xiii) Overestimation/over-weighting rare events
xiv) Avoiding regret
xv) WYSIATI

Behavioral economics

Studies of the effects of social, cognitive, and emotional factors on the economic decisions of individuals and institutions.

Themes:

Bounded rationality *or irrationality* of economic agents: consumers do not always optimize

Heuristics: decisions use approximate rules of thumb and not strict logic.

Framing: The information and emotional filters individuals rely on to understand and respond to events.

Market inefficiencies: These include mispricings and non-rational decision making.

Especially important in **health economics.** (why?)

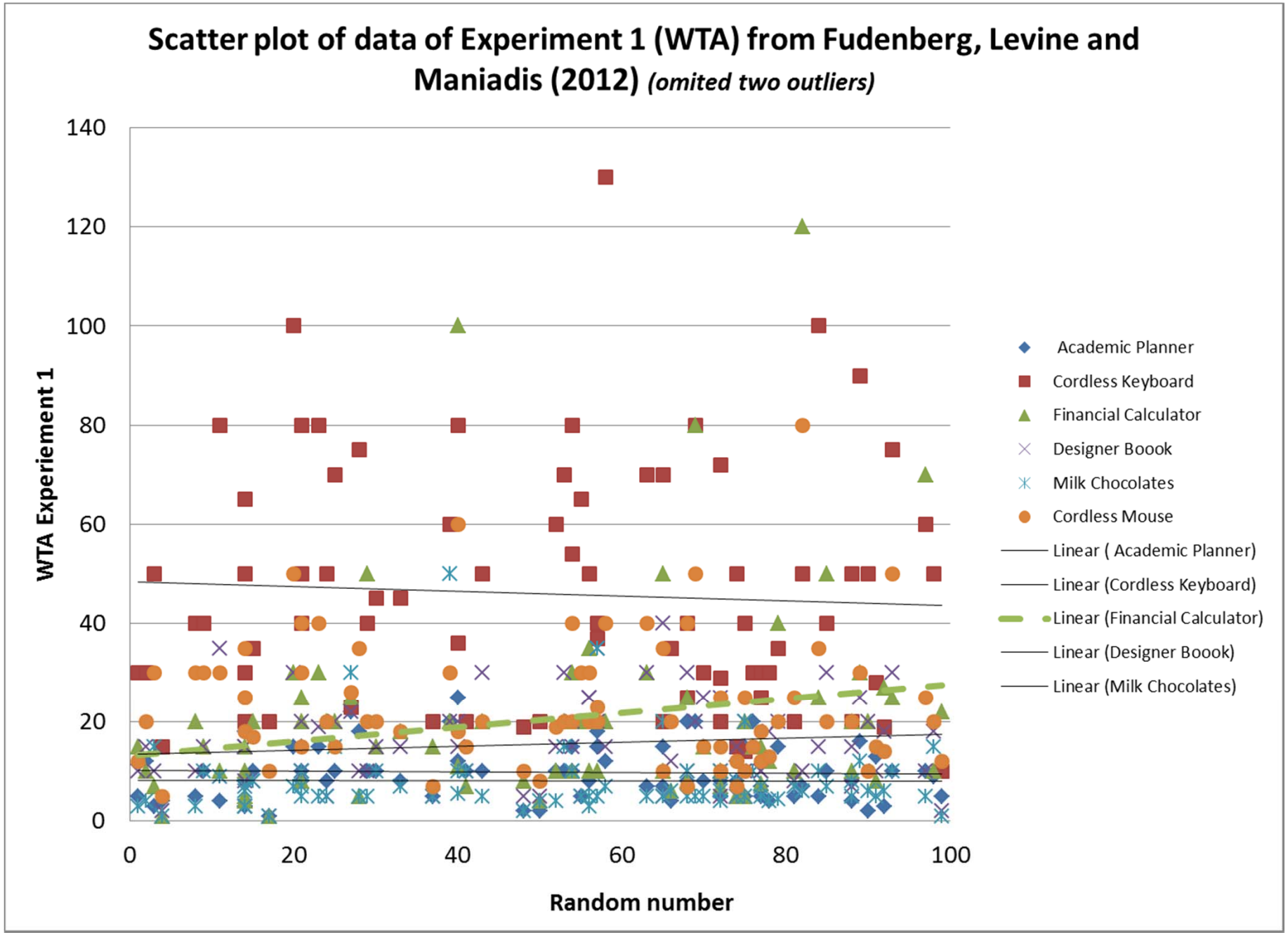
Another example where salience might be the key.

- Fudenberg, Drew, David K. Levine, and Zacharias Maniadis. 2012. "On the Robustness of Anchoring Effects in WTP and WTA Experiments." *American Economic Journal: Microeconomics*, 4(2): 131-45.

  http://www.aeaweb.org/articles.php?doi=10.1257/mic.4.2.131

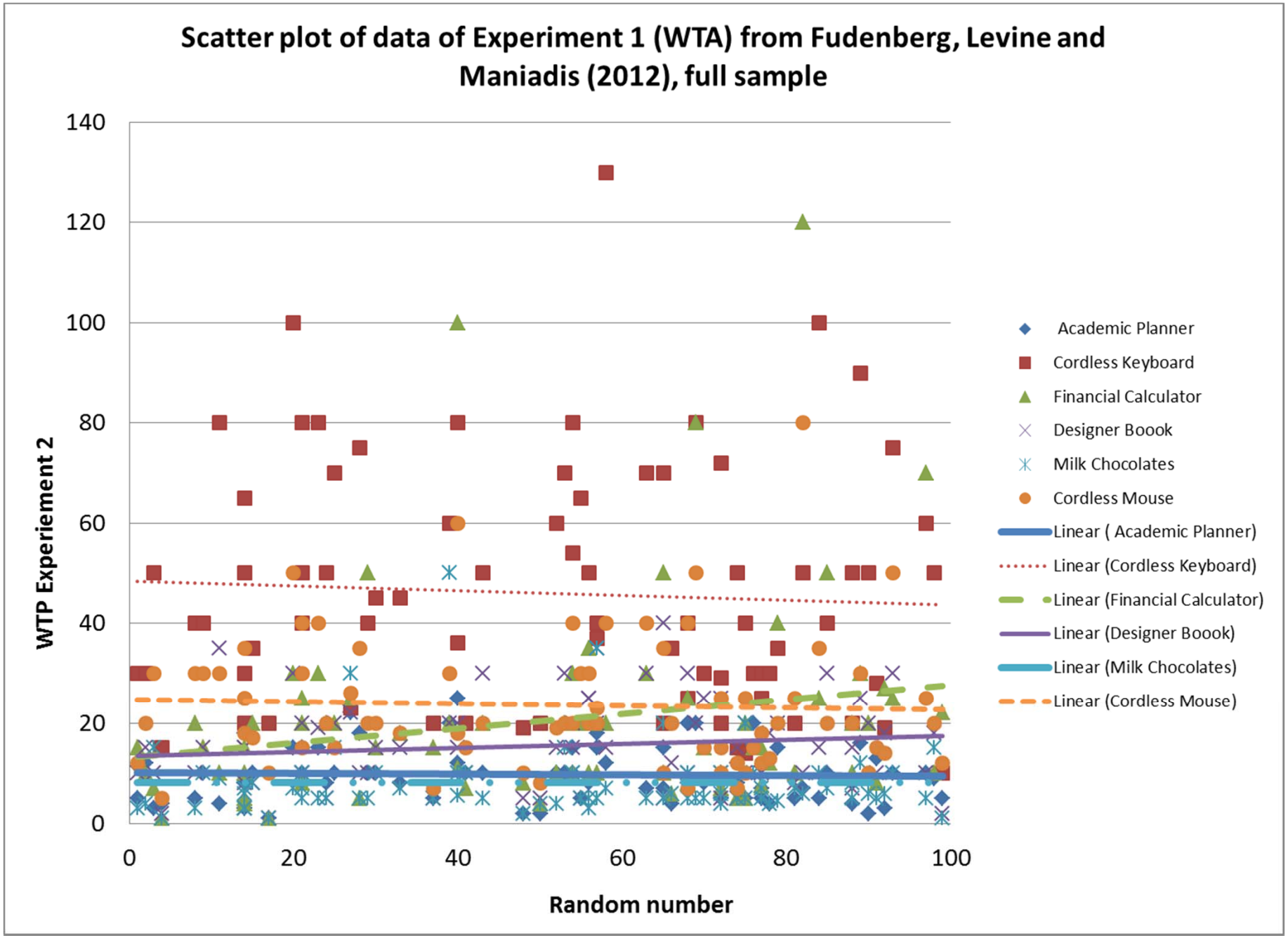
  "We reexamine the effects of the anchoring manipulation of Ariely, Loewenstein, and Prelec (2003) on the evaluation of common market goods and find very weak anchoring effects. We perform the same manipulation on the evaluation of binary lotteries, and find no anchoring effects at all. This suggests limits on the robustness of anchoring effects. (JEL C91, D12, D44)"

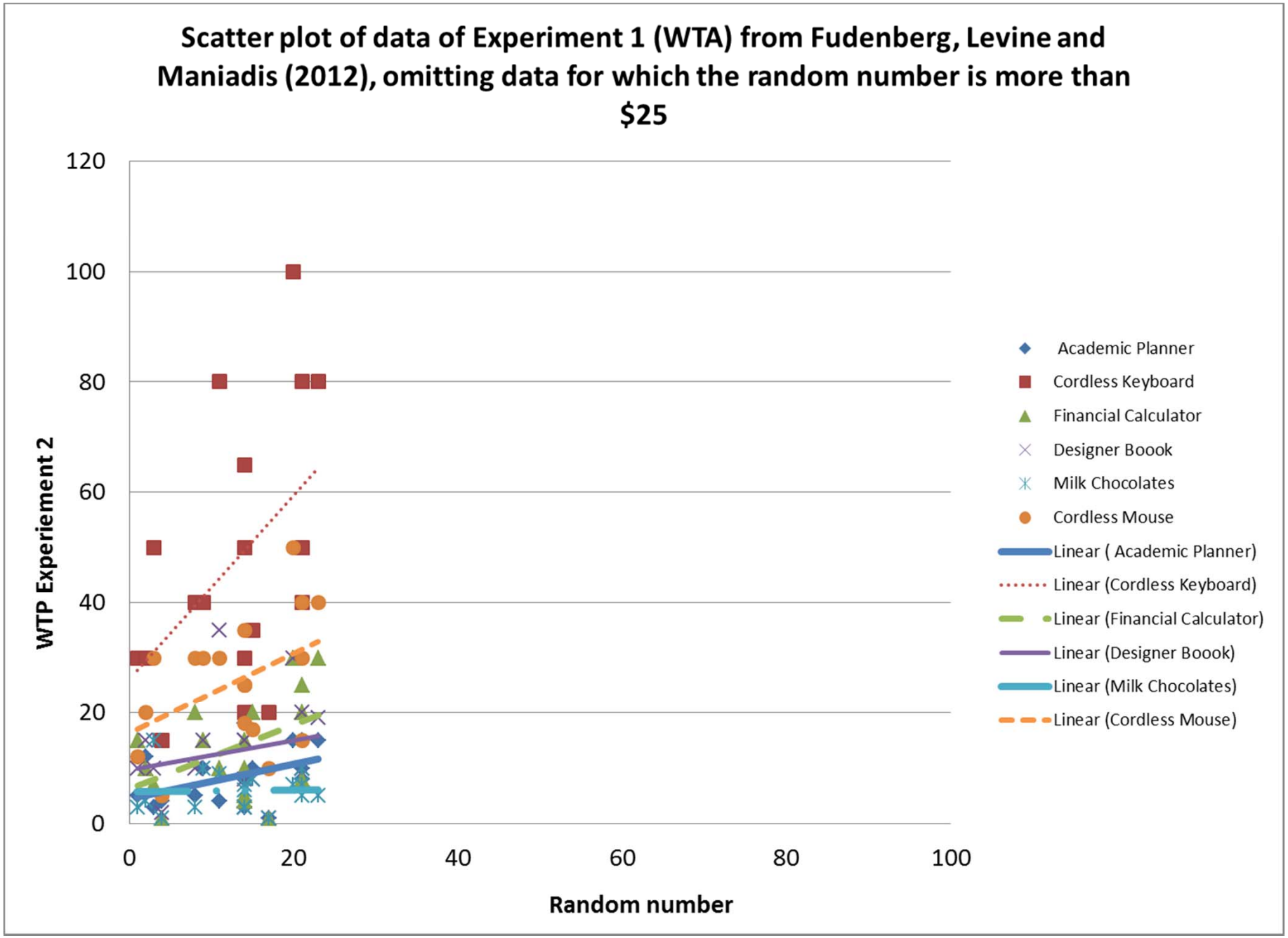
- Asked about both willingness to pay (WTP) and willingness to accept (WTA) five goods possibly valued by students.

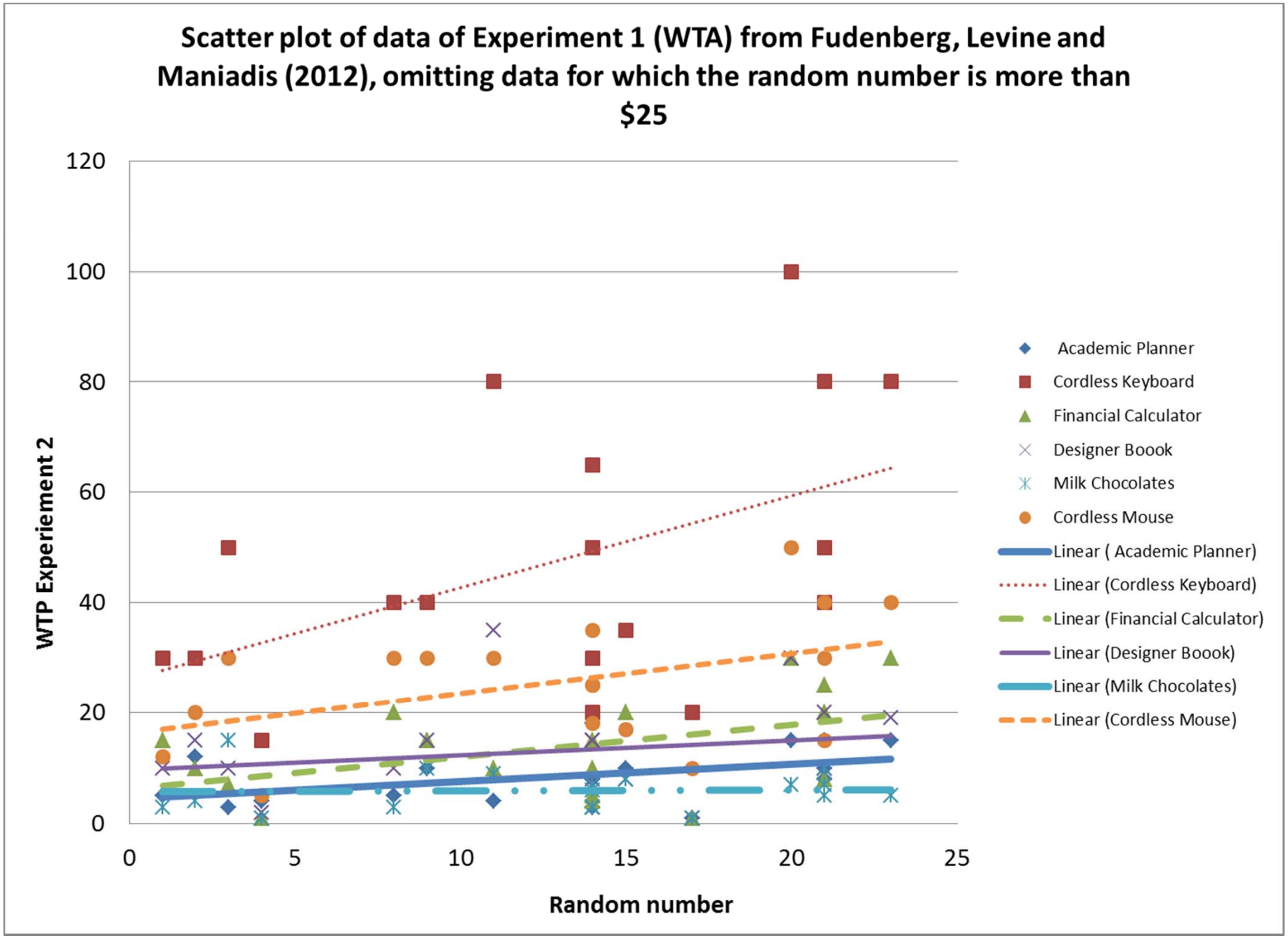

Scatter plot of data of Experiment 1 (WTA) from Fudenberg, Levine and Maniadis (2012) (omited two outliers)
WTA Experiement 1
Random number
0
20
40
60
80
100
120
140
Academic Planner
Cordless Keyboard
Financial Calculator
Designer Boook
Milk Chocolates
Cordless Mouse
Linear (Academic Planner)
Linear (Cordless Keyboard)
Linear (Financial Calculator)
Linear (Designer Boook)
Linear (Milk Chocolates)

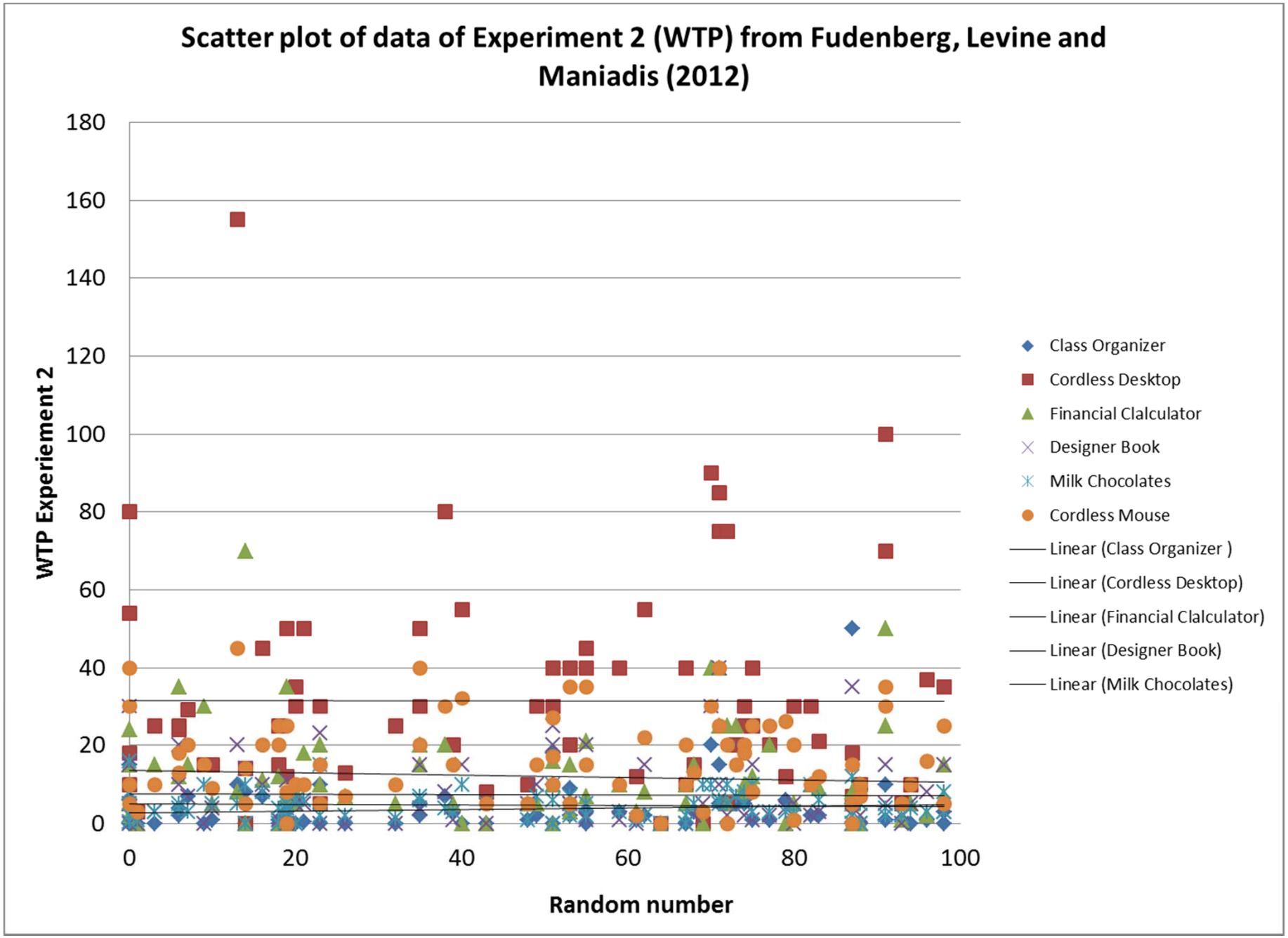
Three flaws to FLM (2012) study

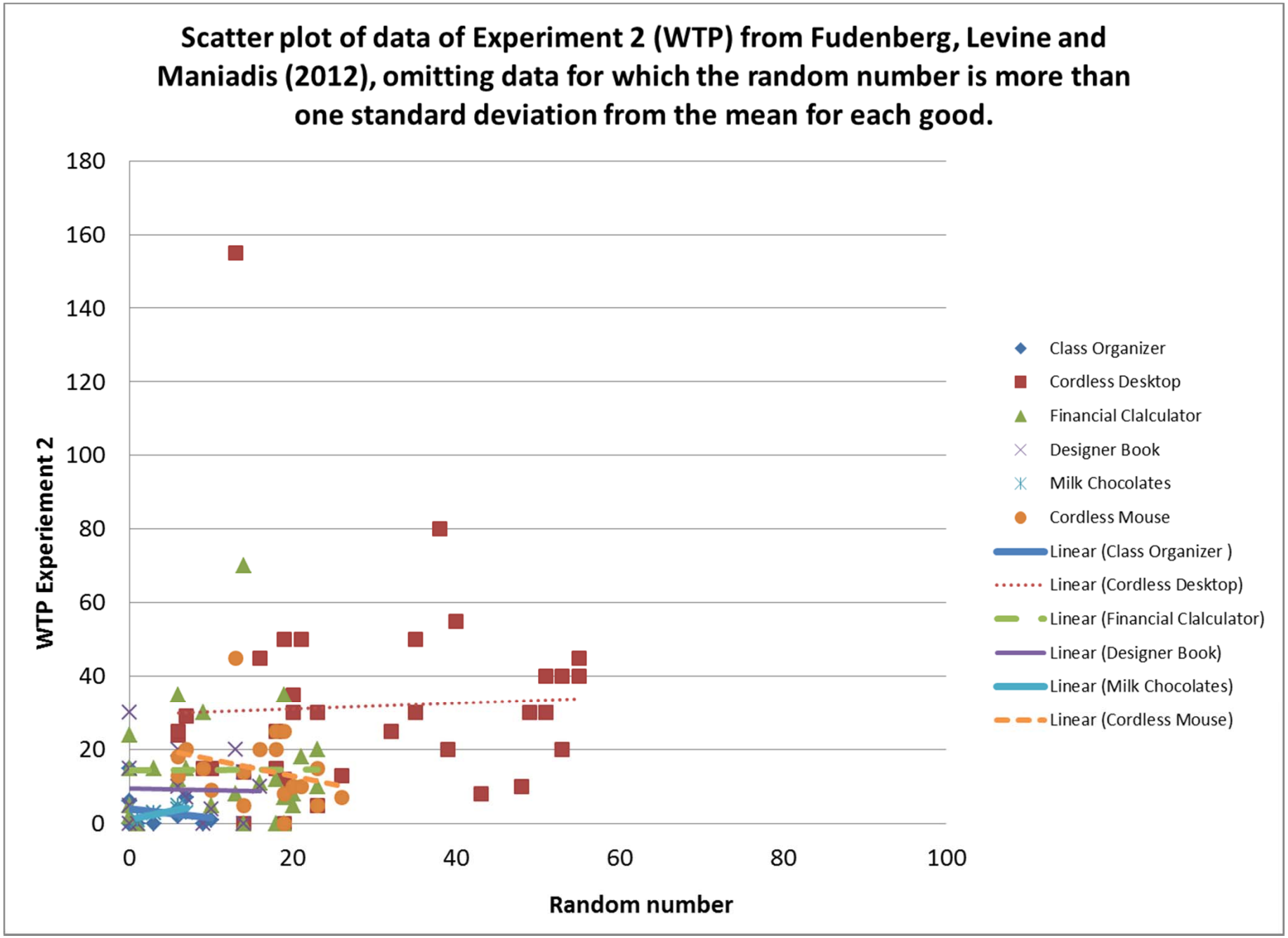
- Goods not particularly valuable to students (average value of WTP =$13, WTA=$19, versus average retail value of goods = $51.70.)
- Range of random values U(0,99) much greater than range of actual values (poor salience)
- Participants were told in advance exactly what they were going to be asked to do: receive a random number and compare, and then do their own “bids” on WTP and WTA. No misinformation.(Not true in real world cases.)

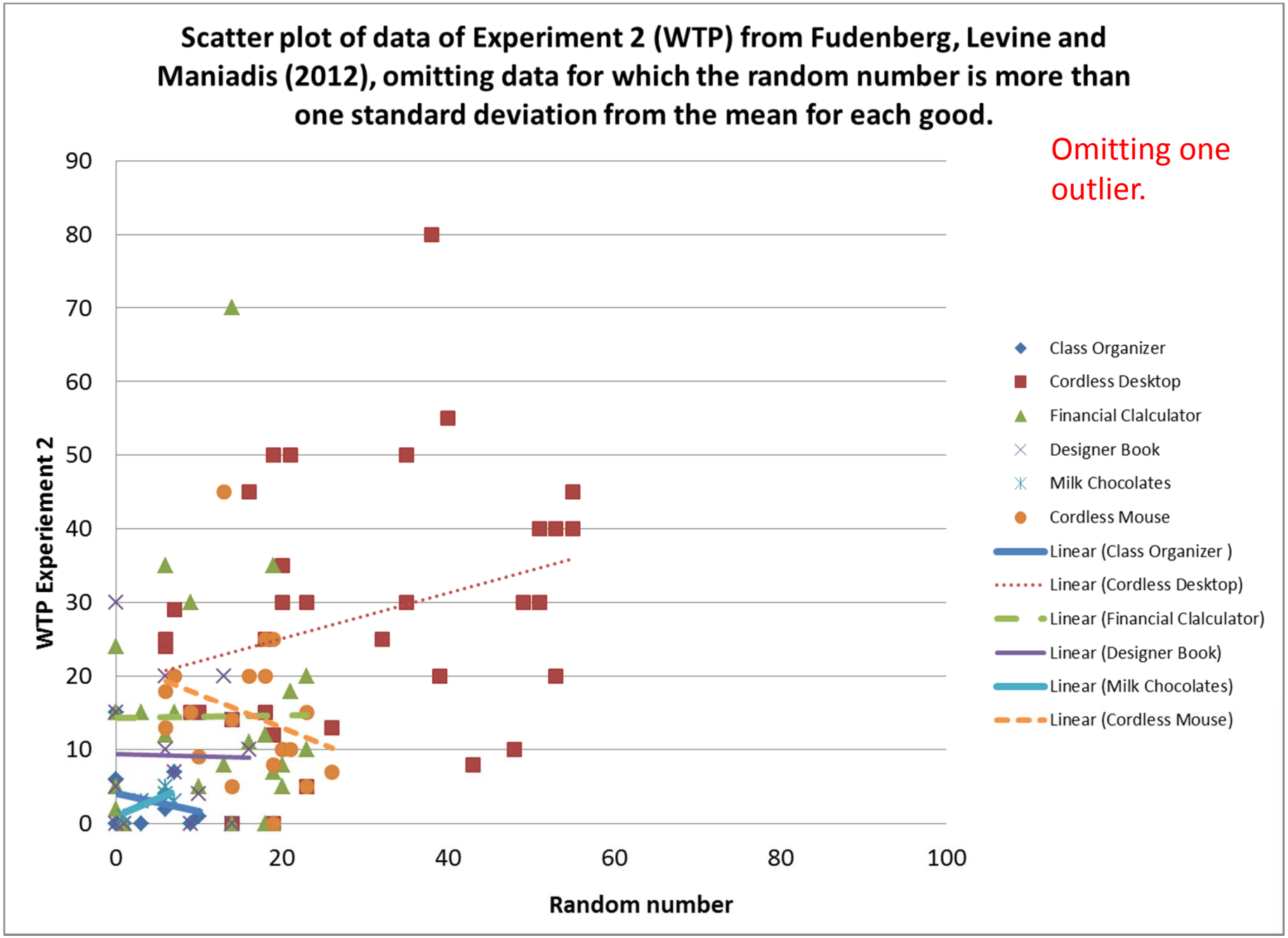

Scatter plot of data of Experiment 1 (WTA) from Fudenberg, Levine and Maniadis (2012), full sample
WTP Experiement 2
Random number
0
20
40
60
80
100
120
140
Academic Planner
Cordless Keyboard
Financial Calculator
Designer Boook
Milk Chocolates
Cordless Mouse
Linear (Academic Planner)
Linear (Cordless Keyboard)
Linear (Financial Calculator)
Linear (Designer Boook)
Linear (Milk Chocolates)
Linear (Cordless Mouse)

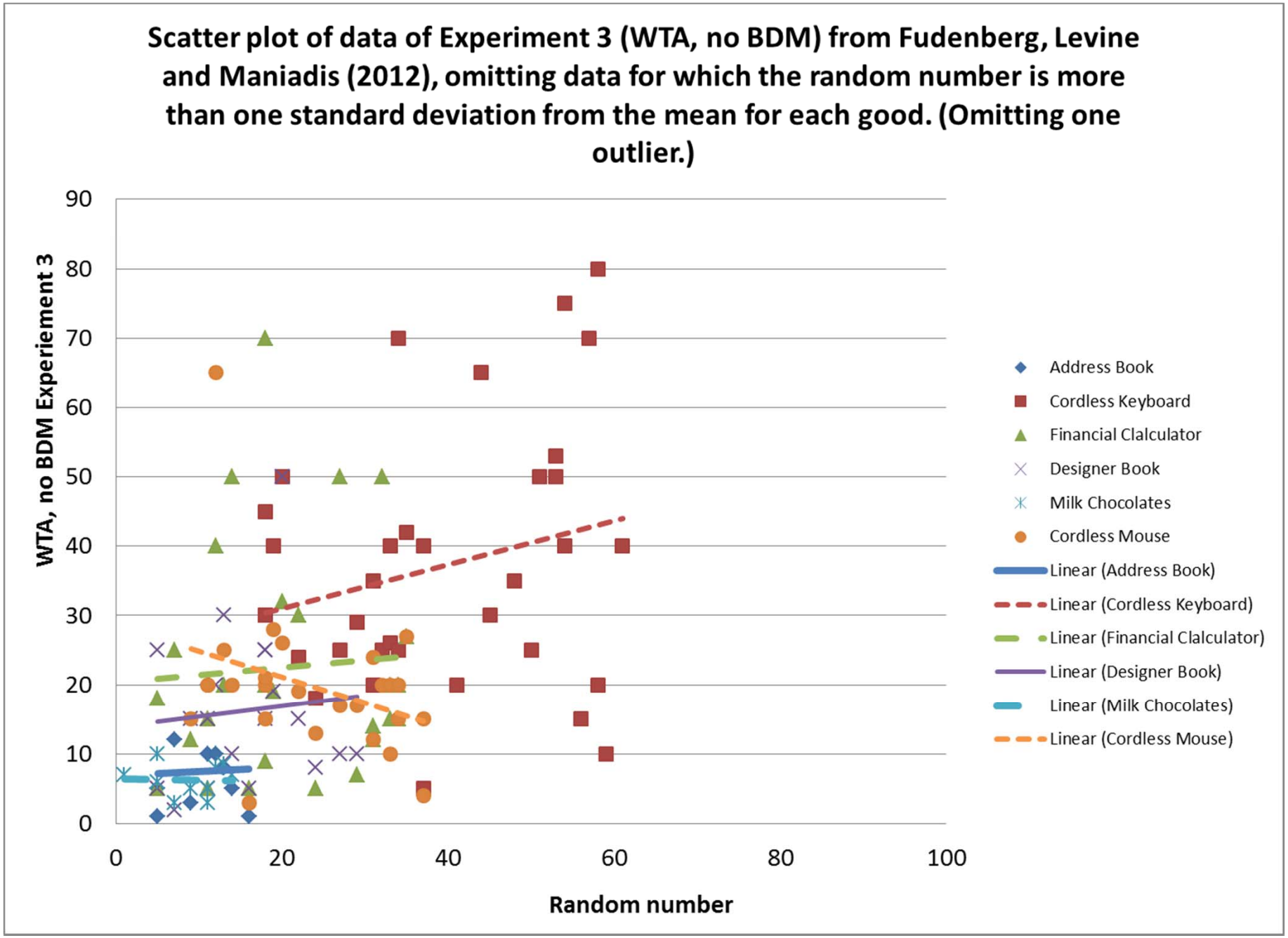

Scatter plot of data of Experiment 1 (WTA) from Fudenberg, Levine and Maniadis (2012), omitting data for which the random number is more than $25
WTP Experiement 2
Random number
0
20
40
60
80
100
120
Academic Planner
Cordless Keyboard
Financial Calculator
Designer Boook
Milk Chocolates
Cordless Mouse
Linear (Academic Planner)
Linear (Cordless Keyboard)
Linear (Financial Calculator)
Linear (Designer Boook)
Linear (Milk Chocolates)
Linear (Cordless Mouse)


Scatter plot of data of Experiment 1 (WTA) from Fudenberg, Levine and Maniadis (2012), omitting data for which the random number is more than $25
WTP Experiement 2
Random number
0
20
40
60
80
100
120
0
5
10
15
20
25
Academic Planner
Cordless Keyboard
Financial Calculator
Designer Boook
Milk Chocolates
Cordless Mouse
Linear (Academic Planner)
Linear (Cordless Keyboard)
Linear (Financial Calculator)
Linear (Designer Boook)
Linear (Milk Chocolates)
Linear (Cordless Mouse)


Scatter plot of data of Experiment 2 (WTP) from Fudenberg, Levine and Maniadis (2012)
WTP Experiement 2
180
160
140
120
100
80
60
40
20
0
0
20
40
60
80
100
Random number
Class Organizer
Cordless Desktop
Financial Clalculator
Designer Book
Milk Chocolates
Cordless Mouse
Linear (Class Organizer)
Linear (Cordless Desktop)
Linear (Financial Clalculator)
Linear (Designer Book)
Linear (Milk Chocolates)


Scatter plot of data of Experiment 2 (WTP) from Fudenberg, Levine and Maniadis (2012), omitting data for which the random number is more than one standard deviation from the mean for each good.
WTP Experiement 2
180
160
140
120
100
80
60
40
20
0
0
20
40
60
80
100
Random number
Class Organizer
Cordless Desktop
Financial Clalculator
Designer Book
Milk Chocolates
Cordless Mouse
Linear (Class Organizer)
Linear (Cordless Desktop)
Linear (Financial Clalculator)
Linear (Designer Book)
Linear (Milk Chocolates)
Linear (Cordless Mouse)


Scatter plot of data of Experiment 2 (WTP) from Fudenberg, Levine and Maniadis (2012), omitting data for which the random number is more than one standard deviation from the mean for each good.
Omitting one outlier.
WTP Experiement 2
Random number
0
10
20
30
40
50
60
70
80
90
0
20
40
60
80
100
Class Organizer
Cordless Desktop
Financial Clalculator
Designer Book
Milk Chocolates
Cordless Mouse
Linear (Class Organizer)
Linear (Cordless Desktop)
Linear (Financial Clalculator)
Linear (Designer Book)
Linear (Milk Chocolates)
Linear (Cordless Mouse)


Scatter plot of data of Experiment 3 (WTA, no BDM) from Fudenberg, Levine and Maniadis (2012), omitting data for which the random number is more than one standard deviation from the mean for each good. (Omitting one outlier.)
WTA, no BDM Experiement 3
Random number
0
10
20
30
40
50
60
70
80
90
0
20
40
60
80
100
Address Book
Cordless Keyboard
Financial Clalculator
Designer Book
Milk Chocolates
Cordless Mouse
Linear (Address Book)
Linear (Cordless Keyboard)
Linear (Financial Clalculator)
Linear (Designer Book)
Linear (Milk Chocolates)
Linear (Cordless Mouse)