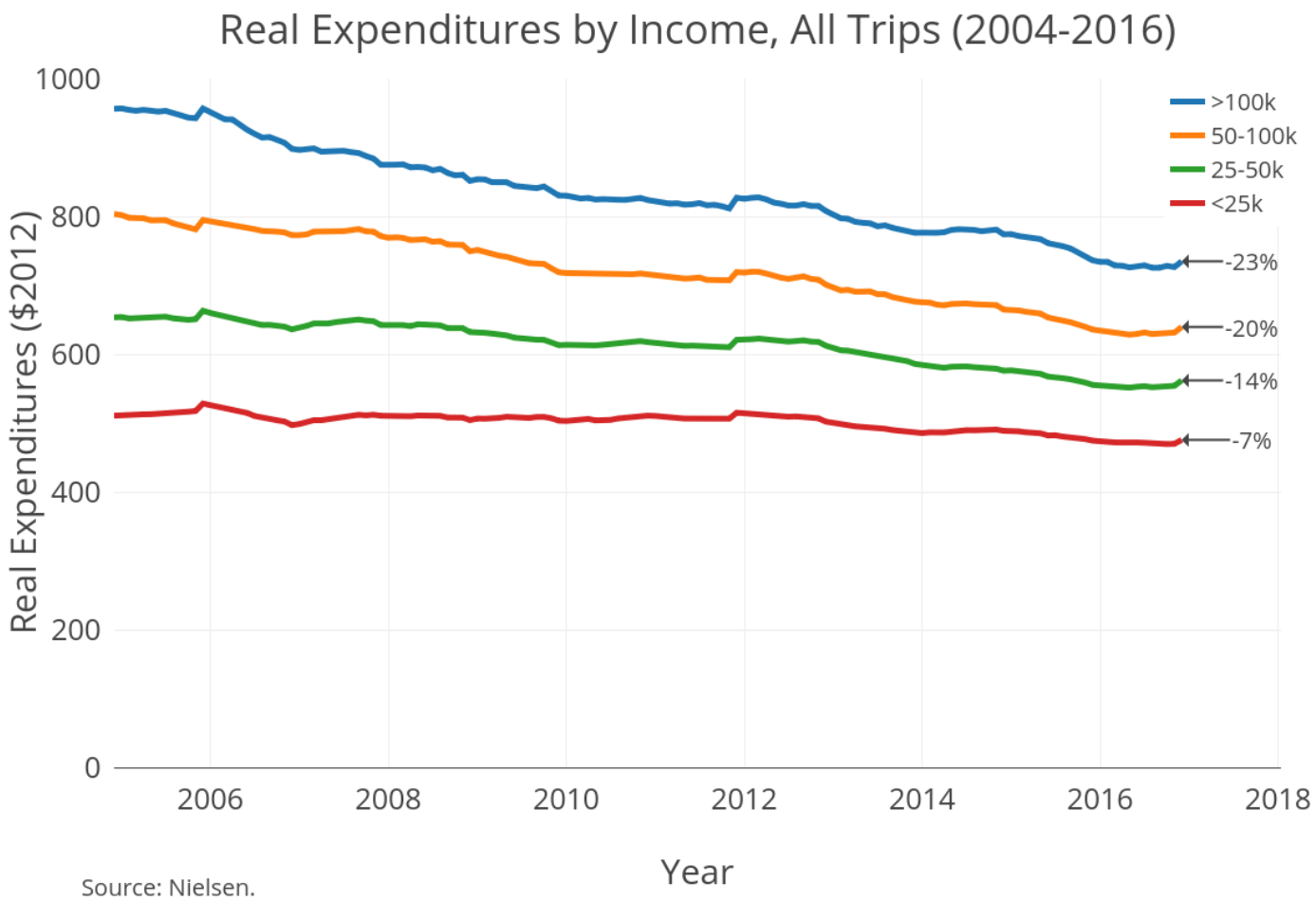
Warehouse Clubs, Bulk Buying, and Inequality

Mallick Hossain

Overview

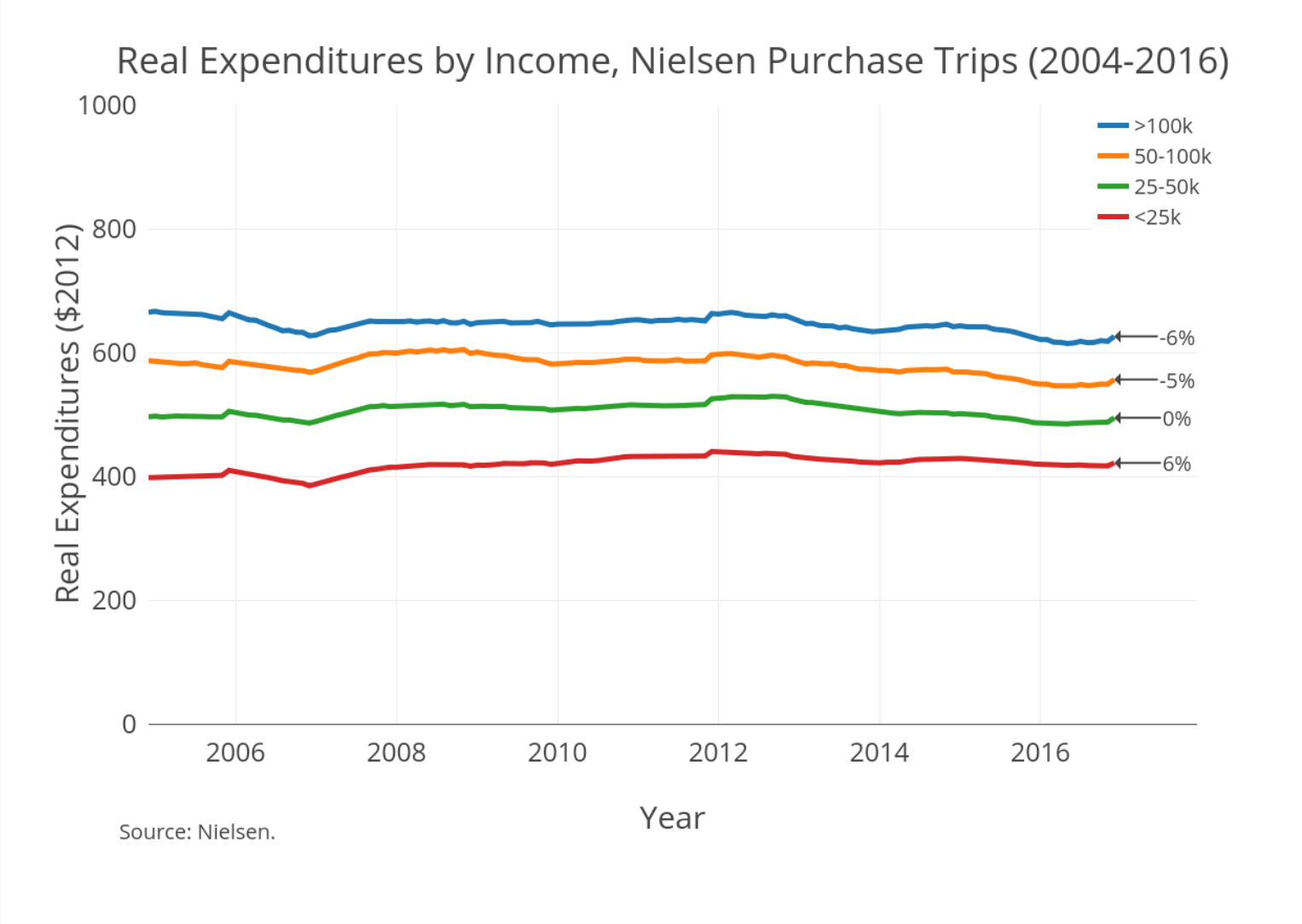
- Spending declines are not robust to analysis

Previously


Real Expenditures by Income, All Trips (2004-2016)
Real Expenditures ($2012)
1000
800
600
400
200
0
2006
2008
2010
2012
2014
2016
2018
Year
>100k
50-100k
25-50k
<25k
-23%
-20%
-14%
-7%
Source: Nielsen.

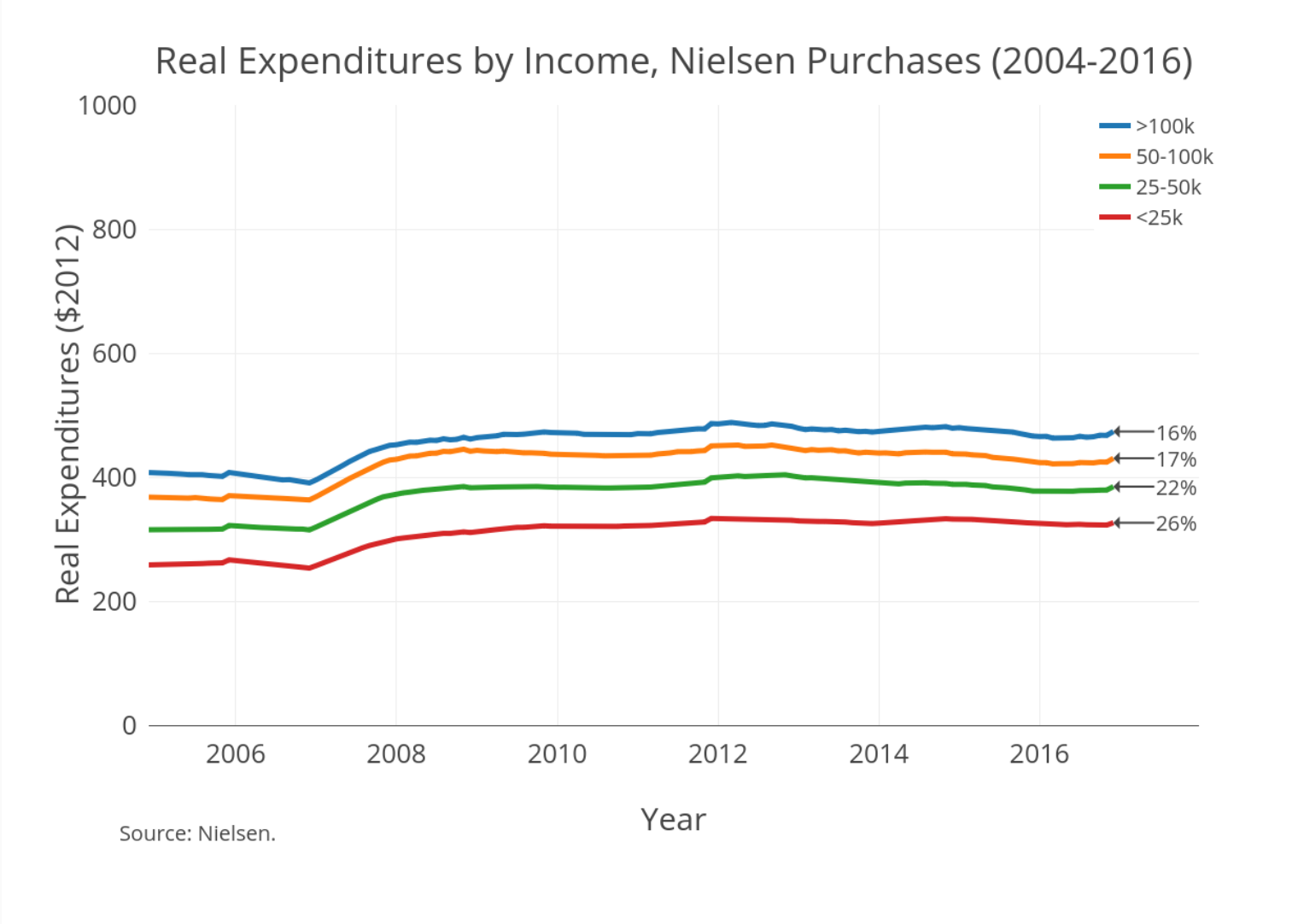
Corrections

- Dropping non-Nielsen trips



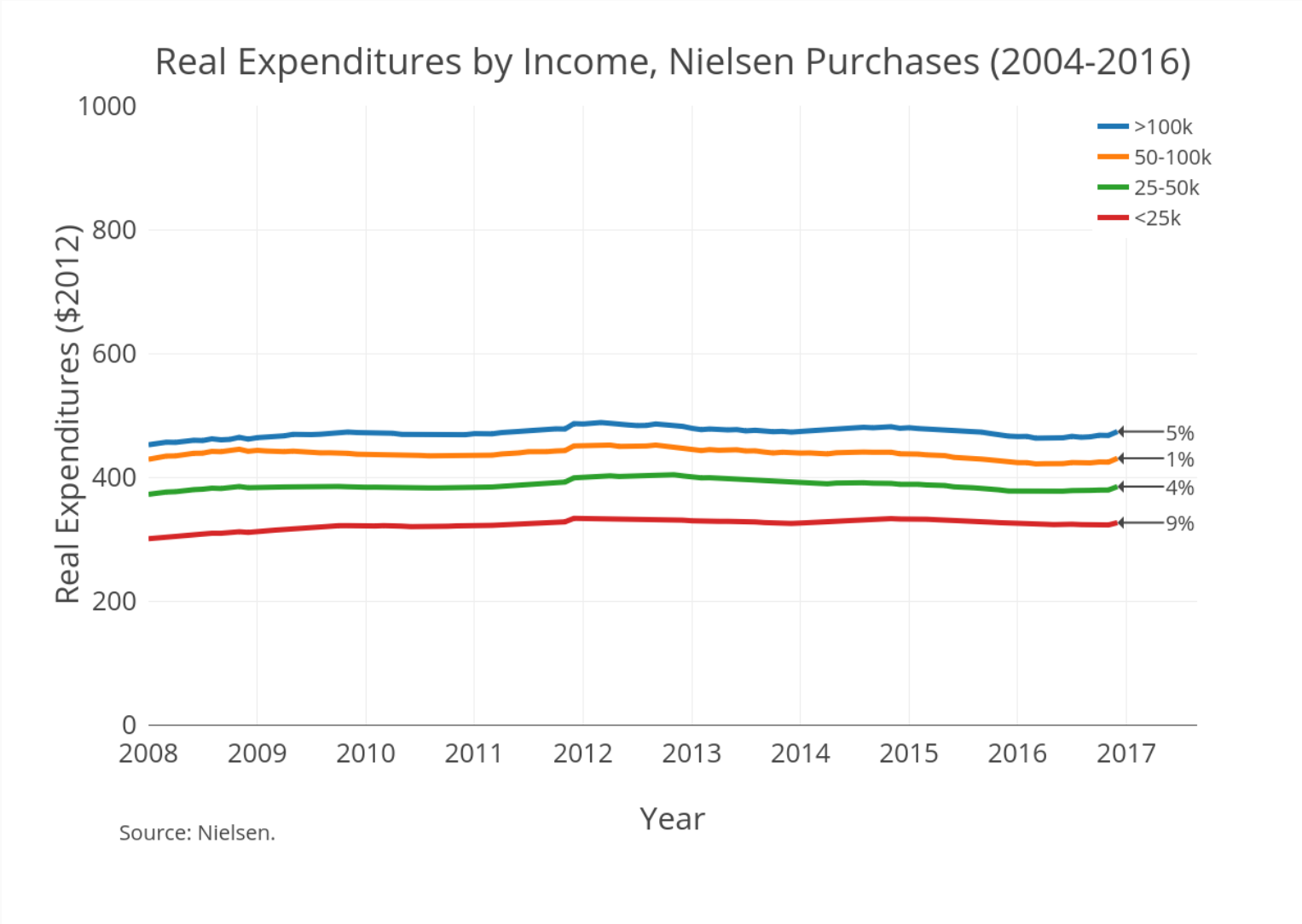
Corrections

- Only spending on Nielsen products

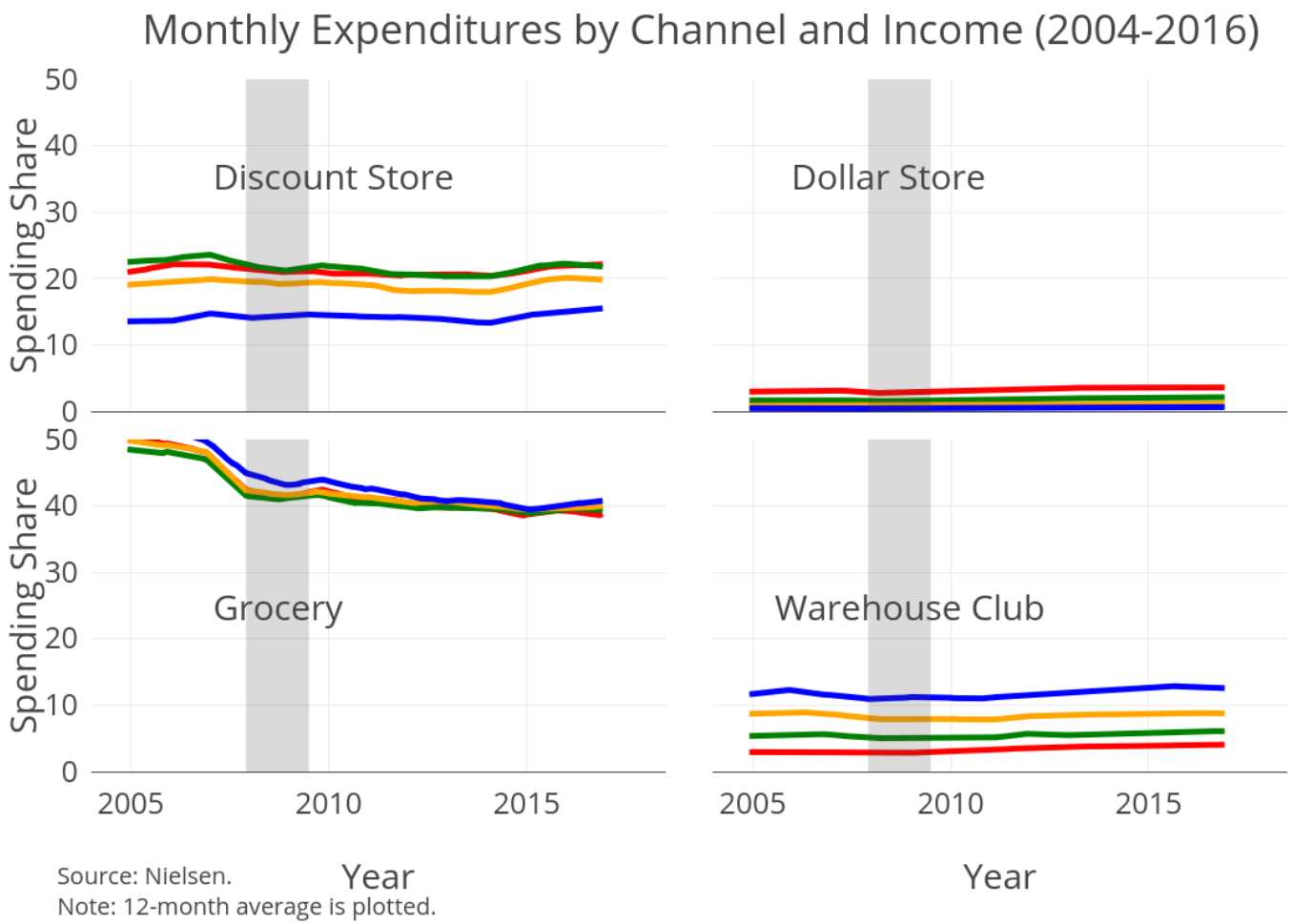


Corrections

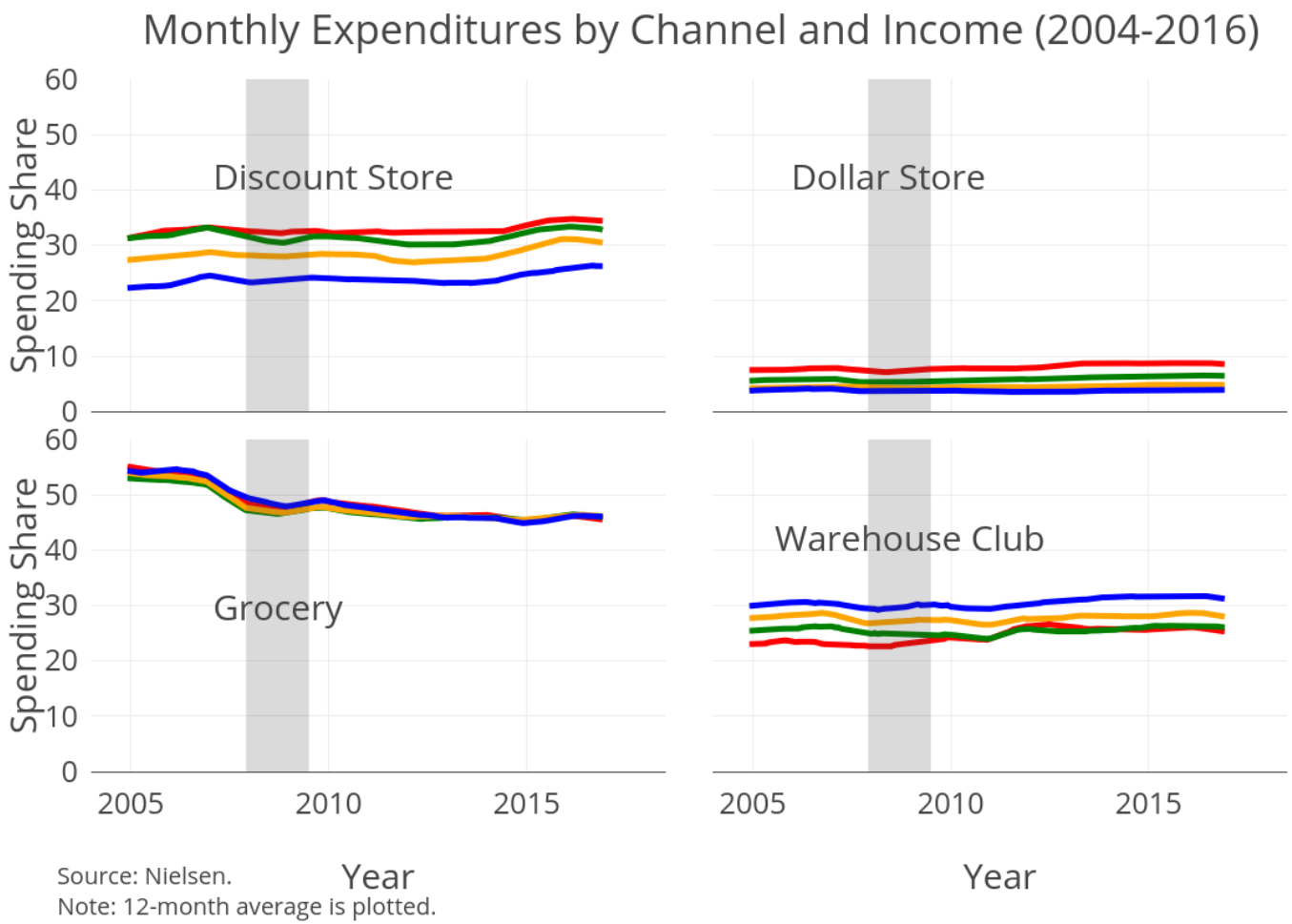
- After 2007 correction for new scanner



Unconditional Shopping Behavior (Adjusted)



Conditional Shopping Behavior (Adjusted)



Price Index (Kaplan and Menzio 2014 / Aguiar and Hurst 2007)

- Different households may pay different prices for the same "good"
- **Goal**: Construct an index that enables comparison of expenditures across households
- Key choice is over the appropriate definition of "good"

Price Index

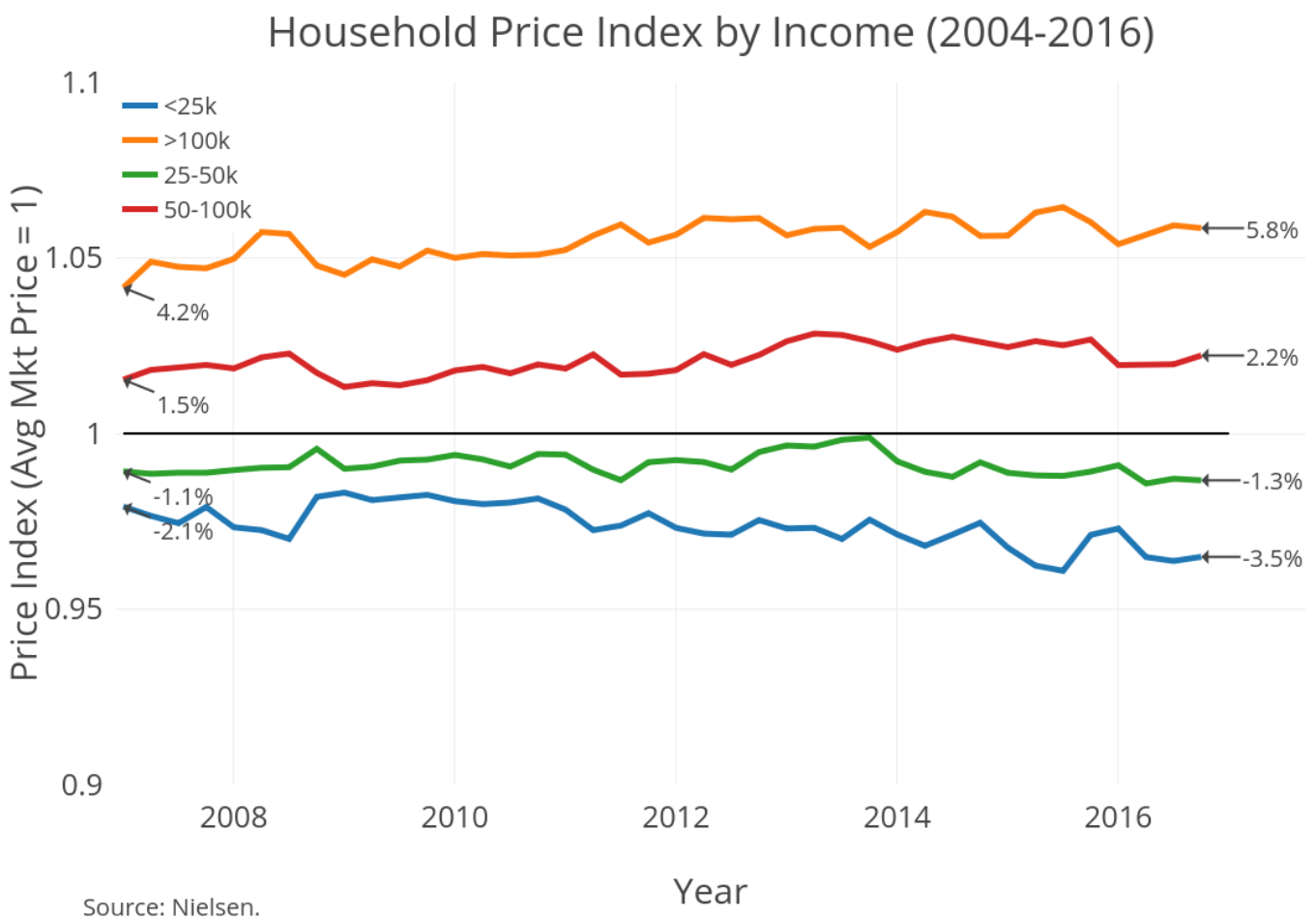
$$X_{it} = \sum_j P_{jit} q_{jit}$$

$$\bar{X}_{it} = \sum_j \bar{P}_{jmt} q_{jit}$$

$$p_{it} = \frac{X_{it}}{\bar{X}_{it}}$$

- P is the price paid for good j by household i at time t
- $\bar{P}$ is the average price of good j in market m at time t
- q is the quantity of j purchased by household i at time t
- X is total expenditures by household i at time t
- $\bar{X}$ is household expenditures if purchased at the average market price
- p is the relative price index for household i at time t

Price Index


Household Price Index by Income (2004-2016)
Price Index (Avg Mkt Price = 1)
1.1
1.05
1
0.95
0.9
<25k
>100k
25-50k
50-100k
4.2%
1.5%
-1.1%
-2.1%
5.8%
2.2%
-1.3%
-3.5%
2008
2010
2012
2014
2016
Year
Source: Nielsen.

Price Index Takeaways

- Households making over $50k are paying above average prices for the same good
- Households making less than $50k are paying lower than average prices for the same good
- Gap has been increasing over time

Relationship Between Index and Shopping Behavior

Table 1: Effect of Shopping Behavior on Price Index

	Household Price Index		
	(1)	(2)	(3)
Shopping Trips	-0.002^{***}		-0.001^{***}
	(0.00001)		(0.00001)
Stores Visited		-0.009^{***}	-0.004^{***}
		(0.00005)	(0.0001)
Observations	2,901,150	2,901,150	2,901,150
R^2	0.018	0.013	0.019
Adjusted R^2	0.018	0.013	0.019
Note:	*p<0.1; **p<0.05; ***p<0.01		

Relationship by Income

Table 2: Effect of Shopping Behavior on Price Index

	Household Price Index		
	(1)	(2)	(3)
Shopping Trips	−0.002***		−0.001***
	(0.00001)		(0.00001)
Stores Visited		−0.009***	−0.004***
		(0.0001)	(0.0001)
>50k	0.037***	0.037***	0.035***
	(0.0004)	(0.0005)	(0.0005)
Trips * >50k	0.0001***		0.0001***
	(0.00001)		(0.00002)
Stores * >50k		0.001***	
		(0.0001)	
Stores * >50k			0.0005***
			(0.0001)
Observations	2,901,150	2,901,150	2,901,150
R^2	0.030	0.025	0.031
Adjusted R^2	0.029	0.025	0.031
Note:	*p<0.1; **p<0.05; ***p<0.01		