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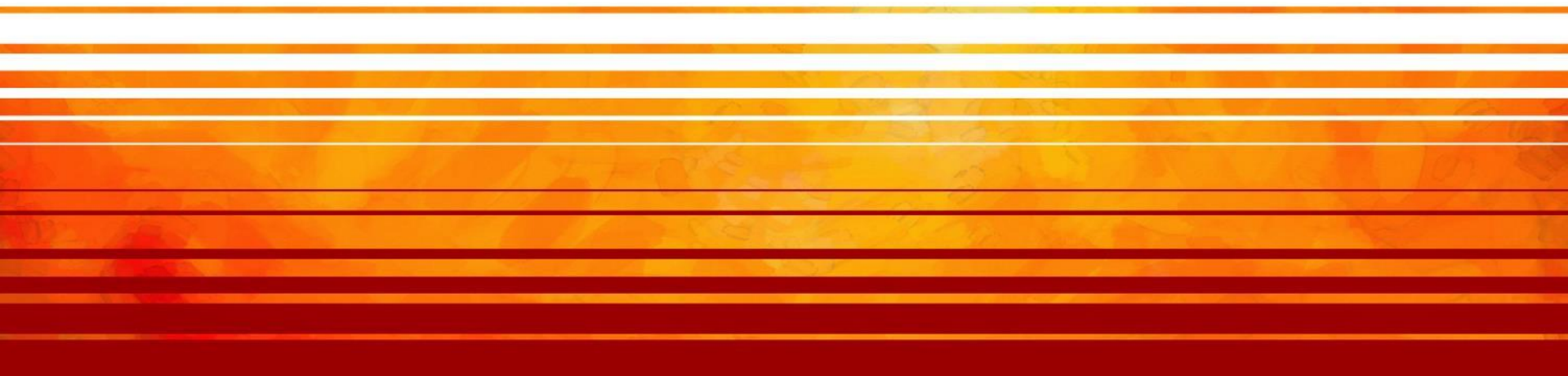
Leonard D. Schaeffer Center  
for Health Policy & Economics

# **Follow the money: The flow of funds in the pharmaceutical distribution system**

**Neeraj Sood**

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**Vice Dean for Research and Professor, USC Price School of Public Policy**



# Disclosures

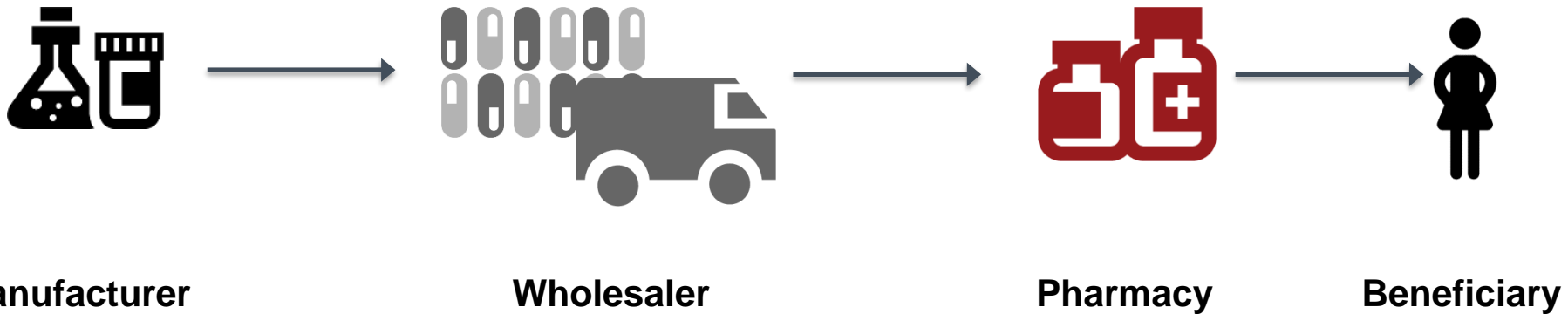
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The views expressed herein are mine and do not represent the views of the funders; the sponsors had no role in the research.

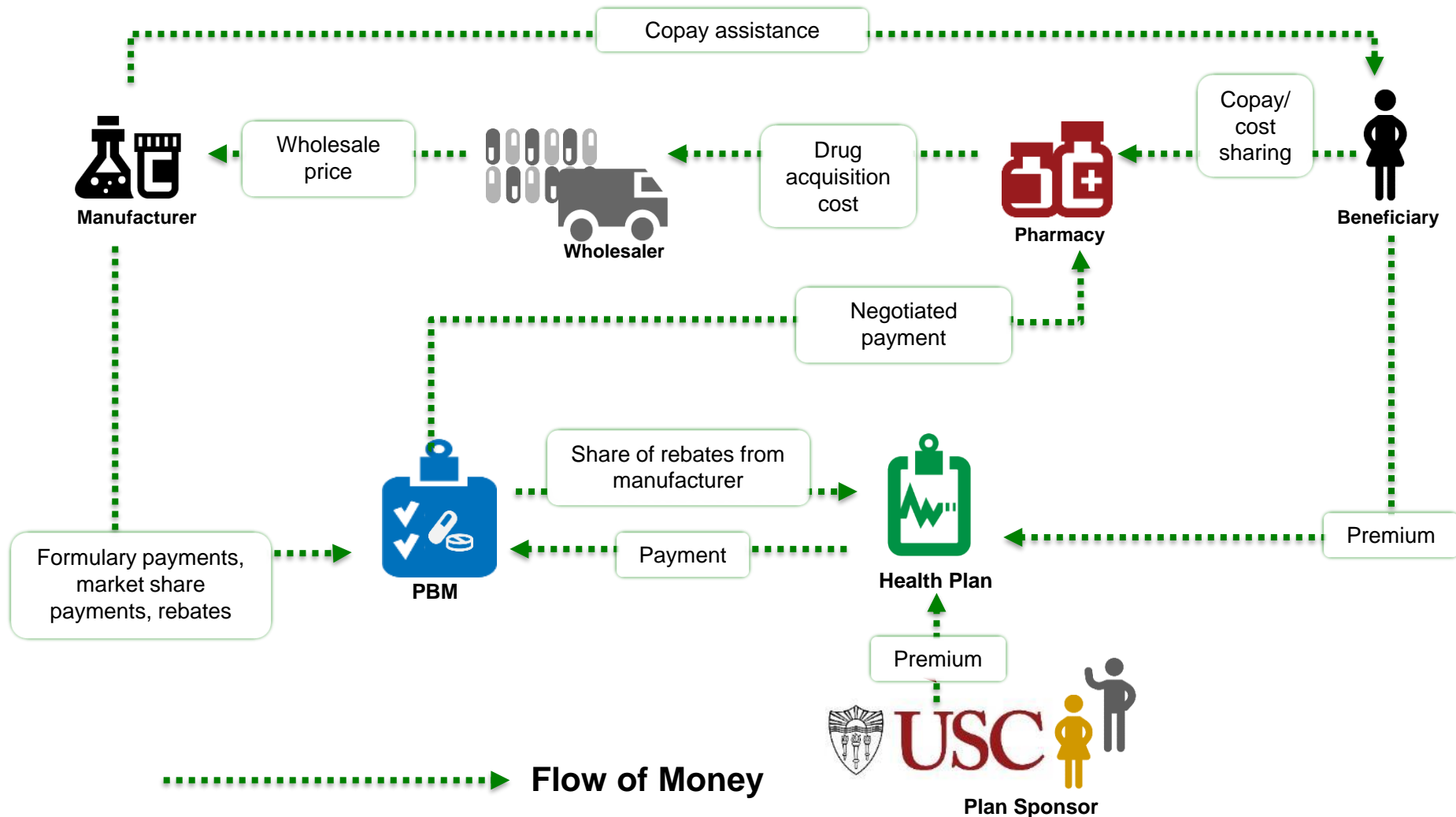
# Today's talk

- **How do drugs reach from manufacturers to consumers?**
  - **Who makes how much money?**
-

# Conceptual framework: Flow of prescription drugs

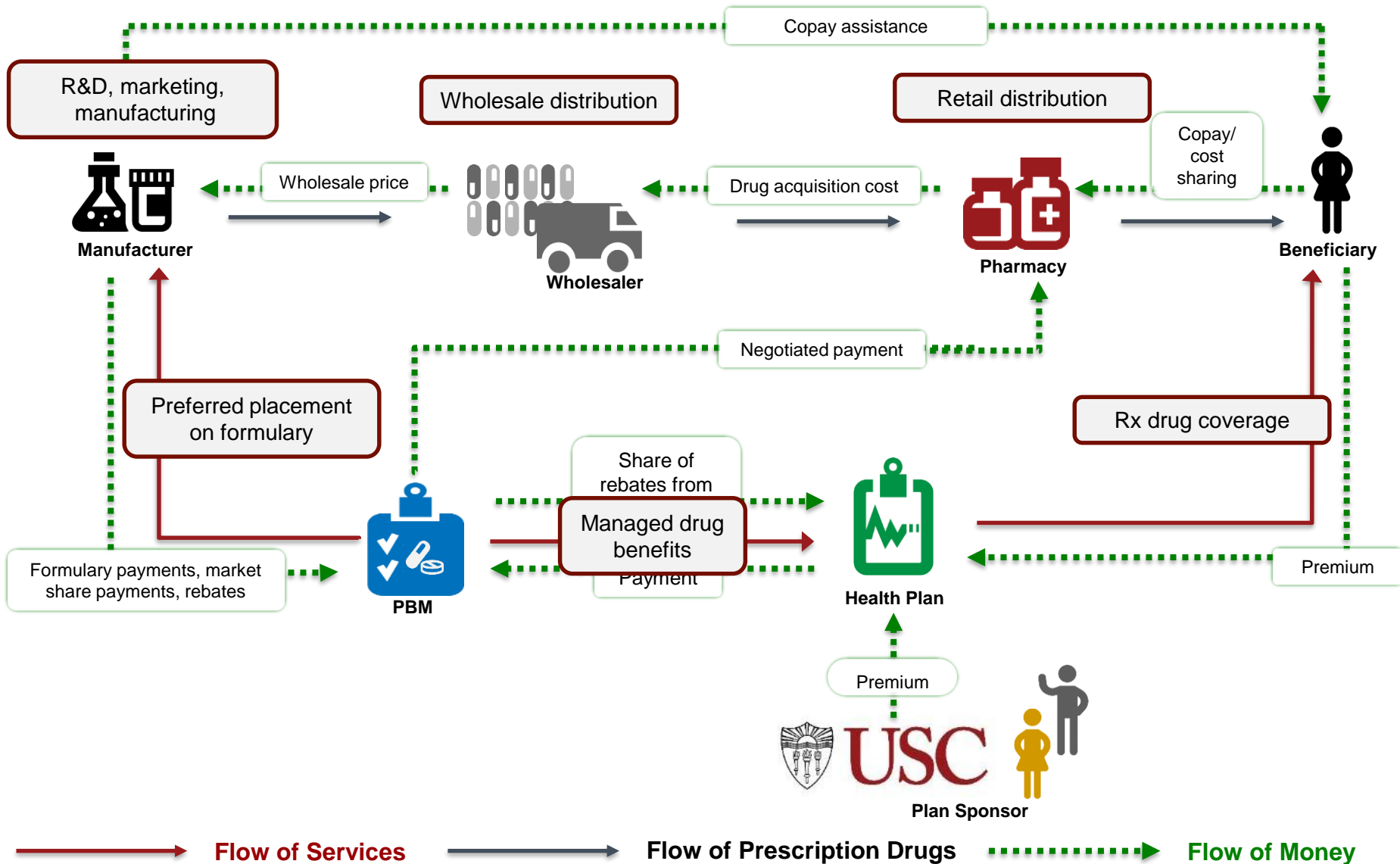


# Conceptual framework: Flow of money



Pharmacies may be mail order or retail, and may be integrated with PBM. Plan sponsors may include employers, unions, managed care orgs, among others.

# Conceptual framework

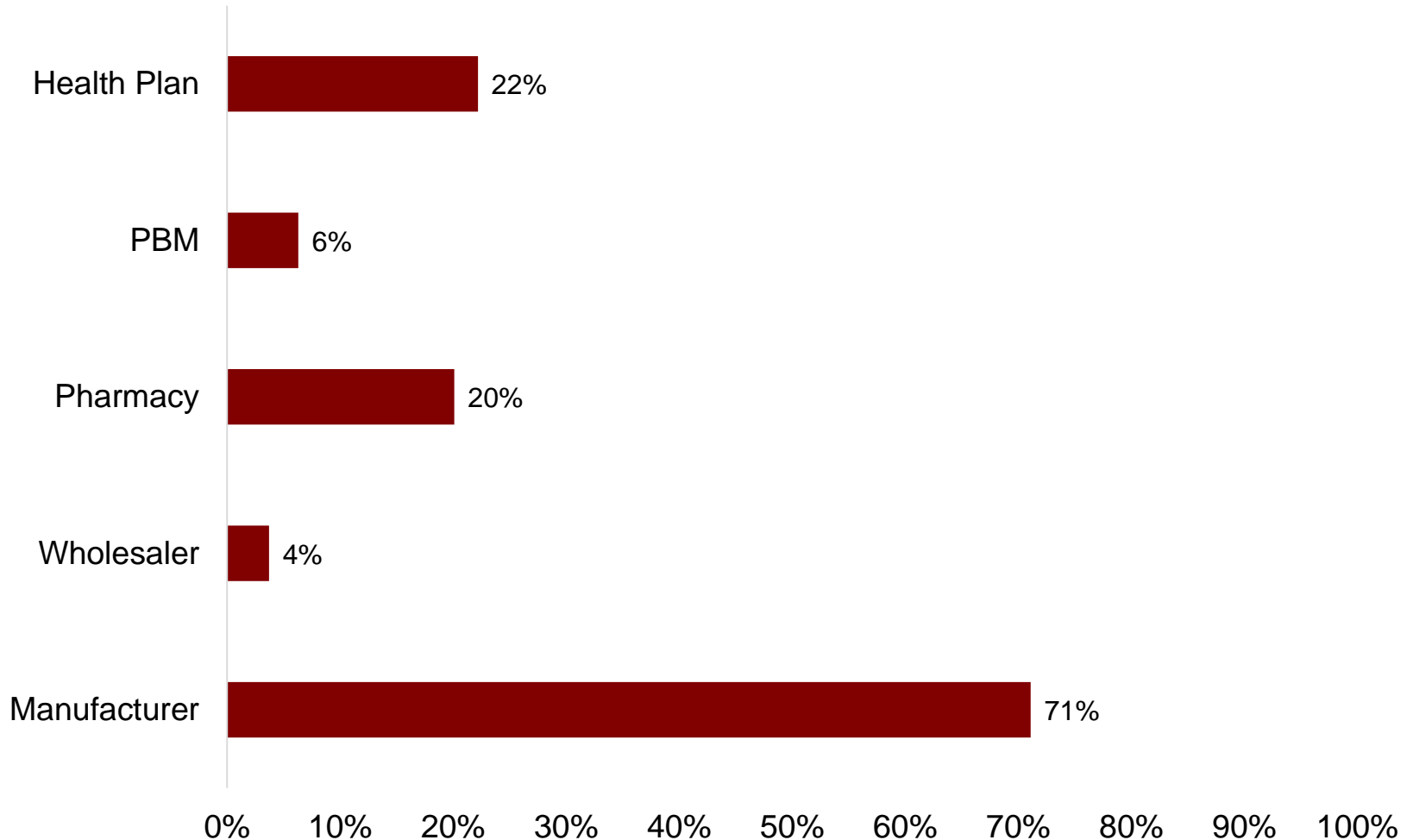


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# How do we estimate the flow of money?

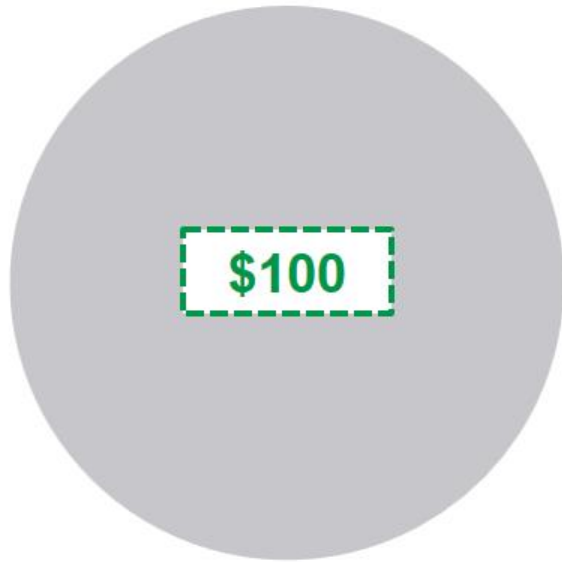
1. Identify top publicly traded firms for each market segment: manufacturers, wholesalers, retailers, pharmacy benefit managers, & health plans
2. Use SEC filings of these firms to estimate:
  - Gross profits: Revenue less cost of goods/services sold
  - Net profits: The profits returned to owners after operating expenses
3. Use the conceptual framework and financial data to illustrate the flow of funds for a drug purchased by an insured consumer at a retail pharmacy

# Gross profit margins





# Flow of \$100 spent on pharmaceutical drugs, overall industry

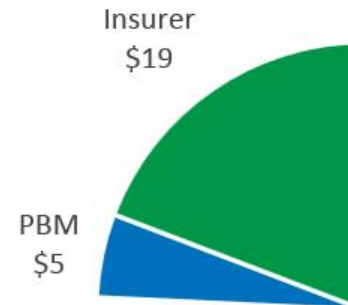


# Flow of \$100 spent on pharmaceutical drugs, overall industry



**Insurers** provide prescription drug coverage and contract with PBMs.

# Flow of \$100 spent on pharmaceutical drugs, overall industry



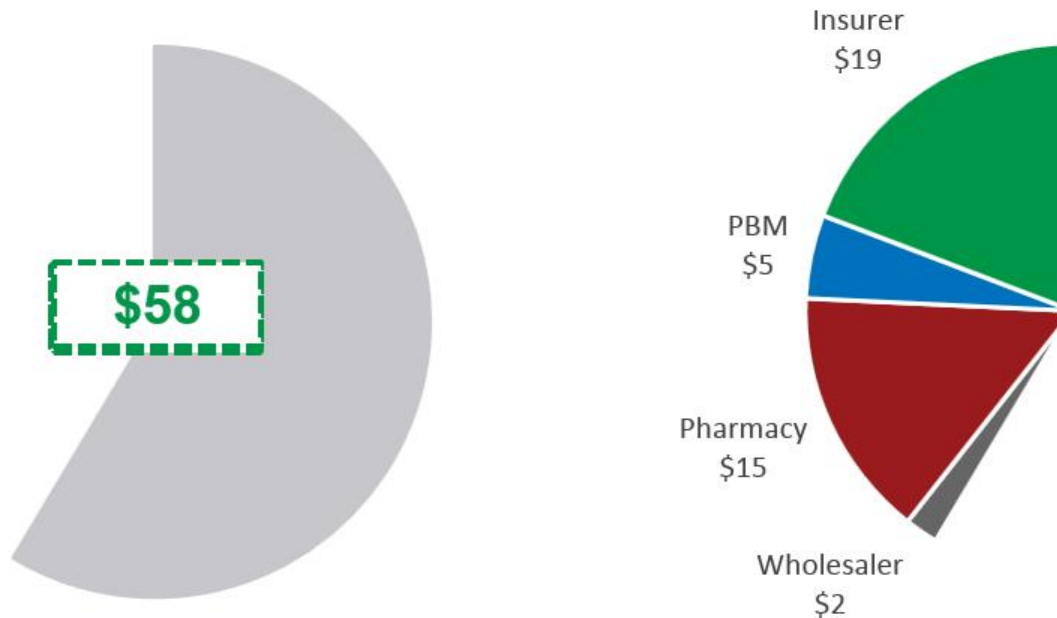
**PBMs** manage claims and set up networks of pharmacies, create drug formularies and negotiate discounts and rebates with drug makers.

# Flow of \$100 spent on pharmaceutical drugs, overall industry



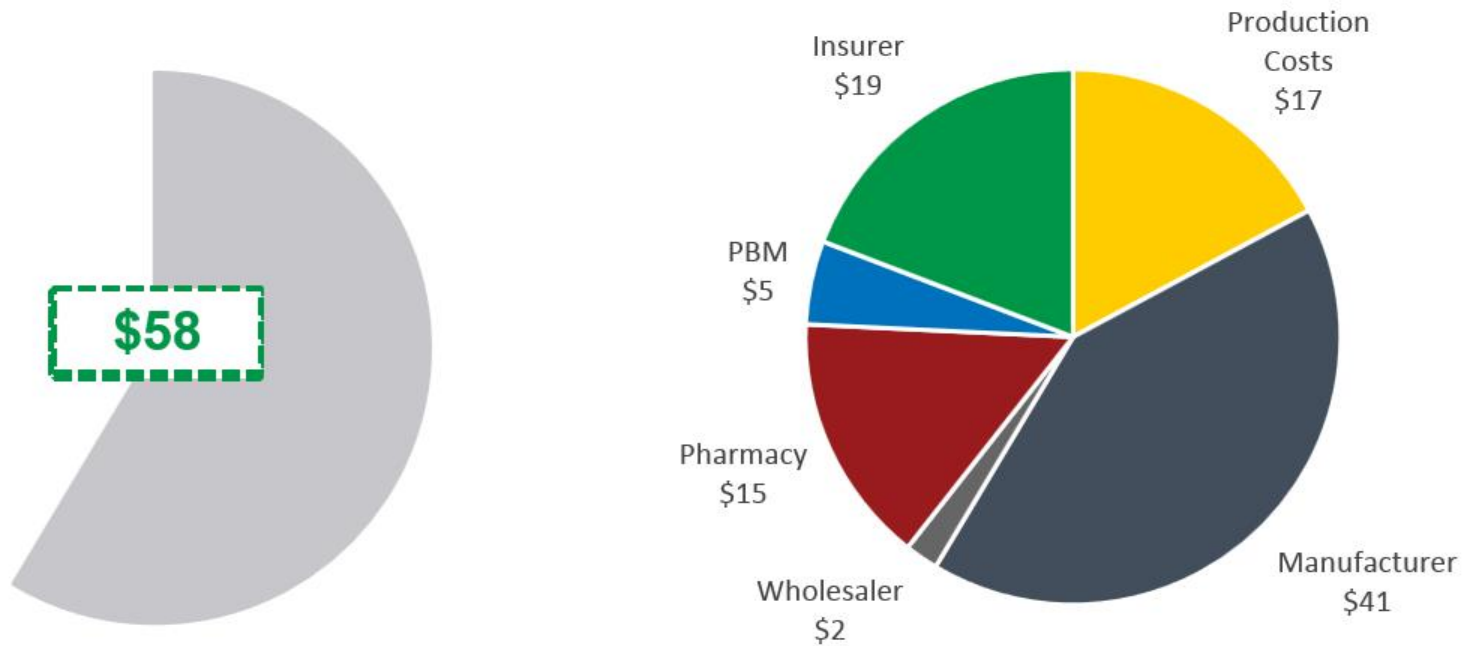
**Pharmacies** purchase drugs from wholesalers and dispense them to patients.

# Flow of \$100 spent on pharmaceutical drugs, overall industry



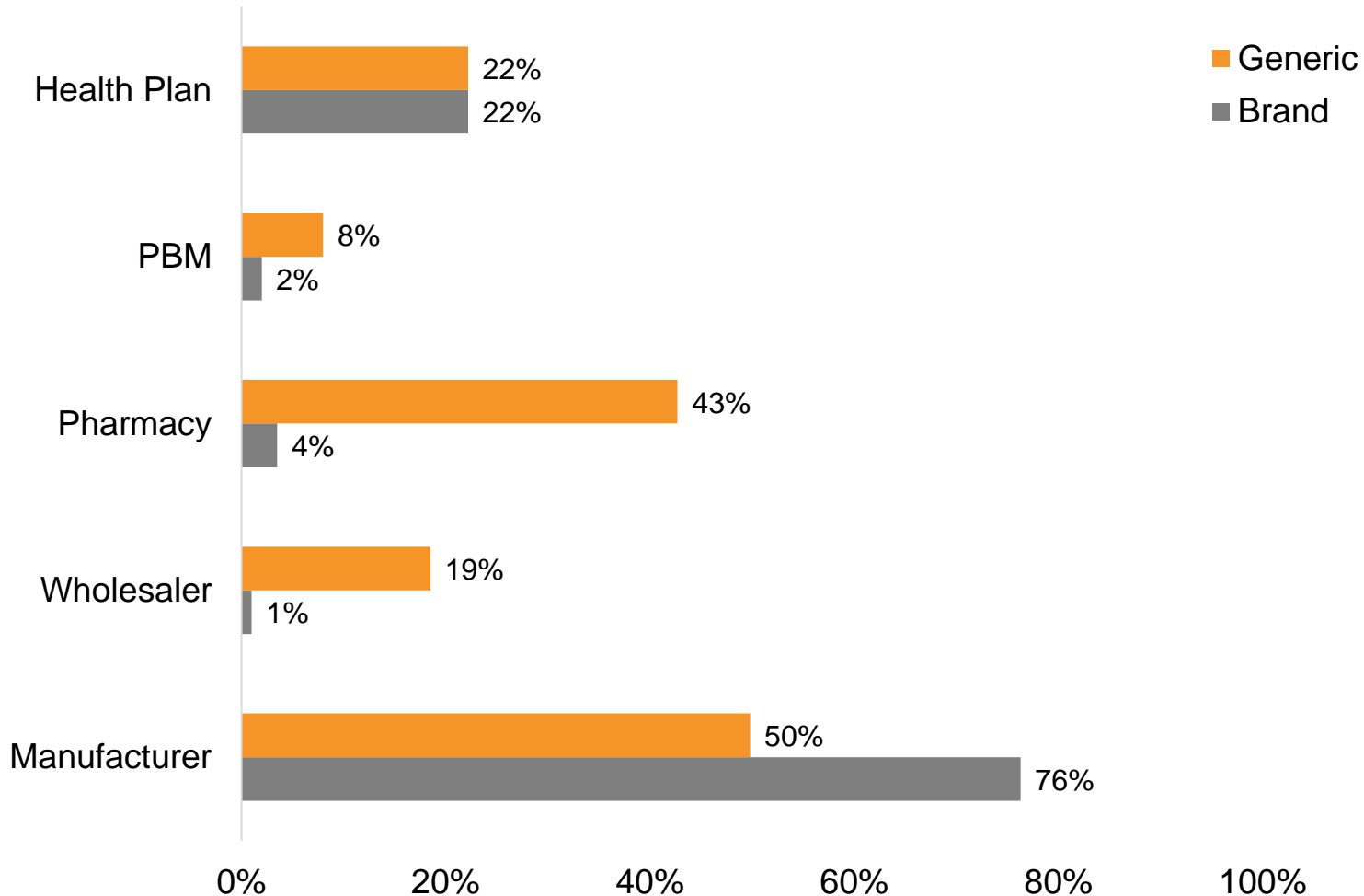
**Wholesalers** purchase drugs from manufacturers and distribute them to pharmacies.

# Flow of \$100 spent on pharmaceutical drugs, overall industry

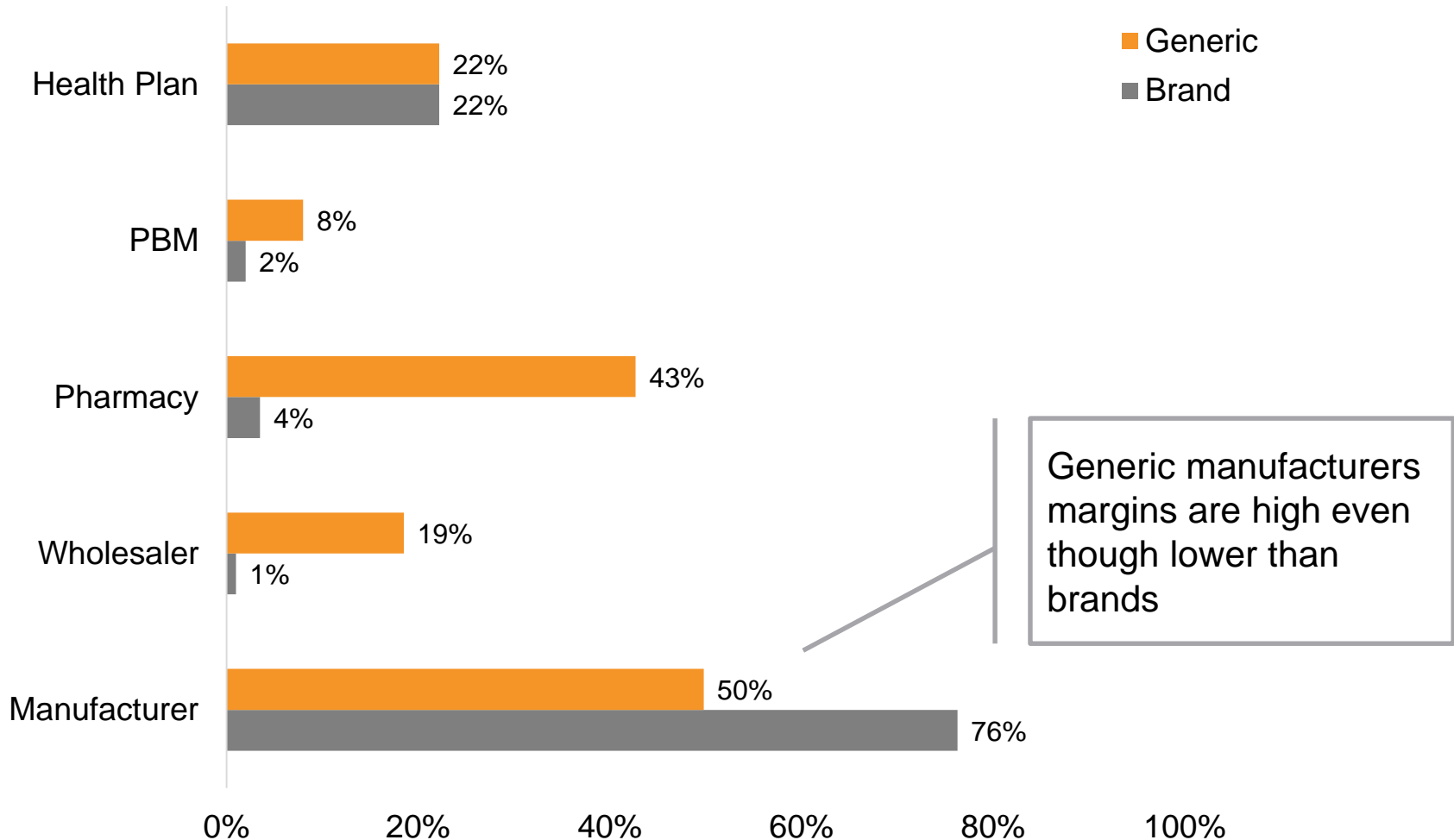


**Manufacturers** conduct R&D, produce and market the drug.

# Gross profit margins: Brands versus generics

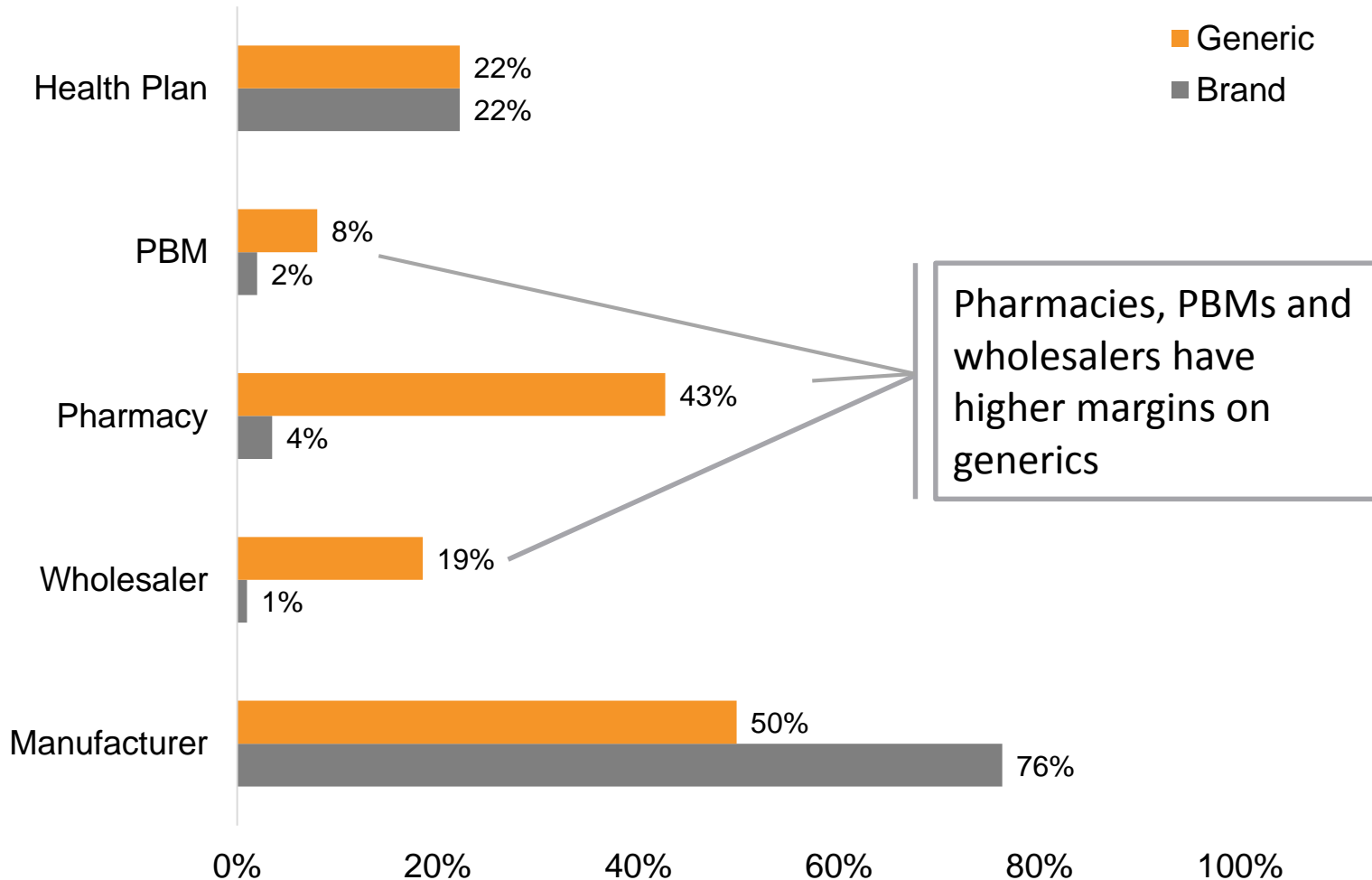


# Gross profit margins: Brands versus generics



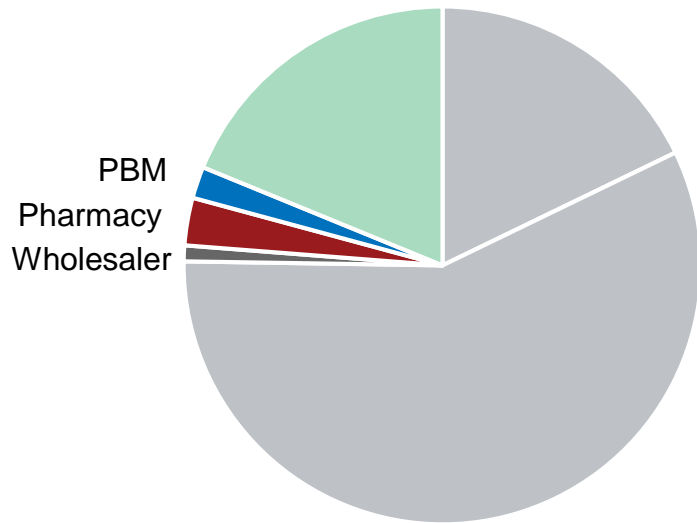


# Gross profit margins: Brands versus generics

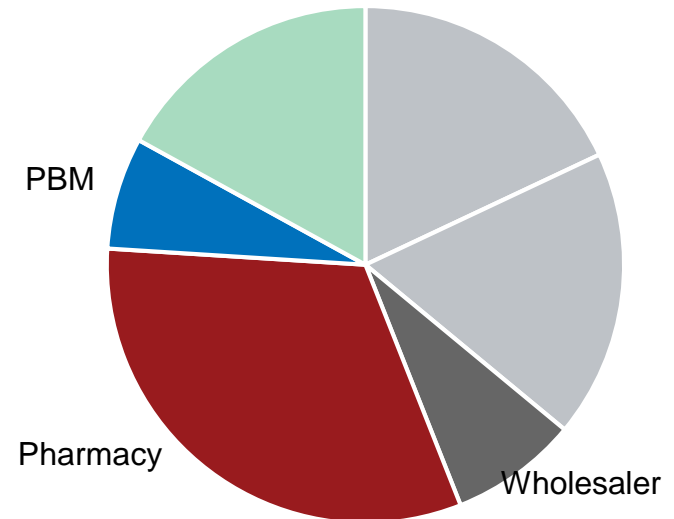


# Flow of \$100 spent on pharmaceutical drugs, brand and generic

## Brand Drugs



## Generic Drugs



PBM's capture \$7 on every \$100 spent on generics, compared to \$2 on brands.

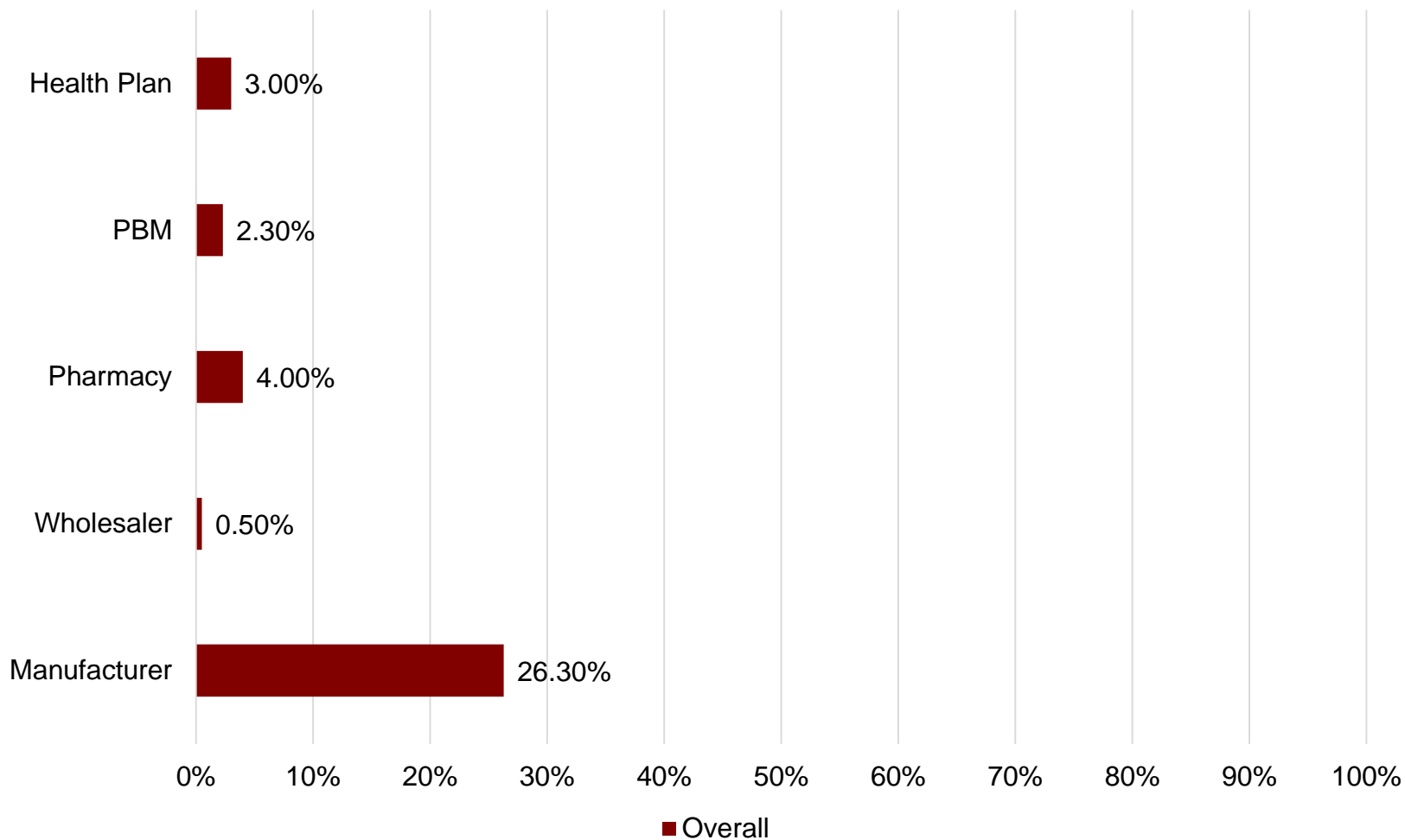


Pharmacies capture \$32 on every \$100 spent on generics, compared to \$3 on brands.



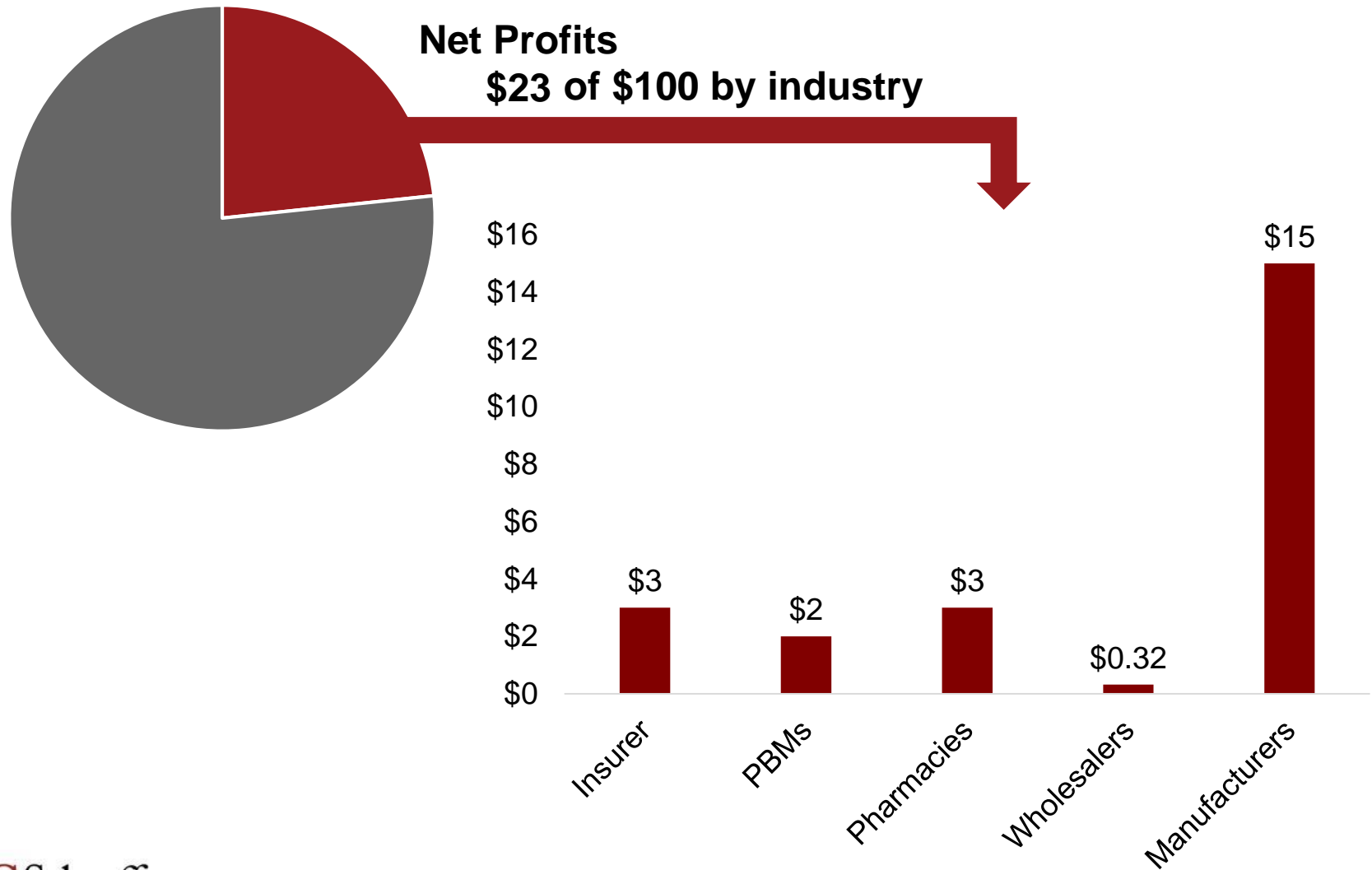
Wholesalers capture \$8 on every \$100 spent on generics, compared to \$3 on brands.

# Net profit margins



All net profit margins are US sales-weighted averages based on data from 2015 SEC 10K filings and annual reports

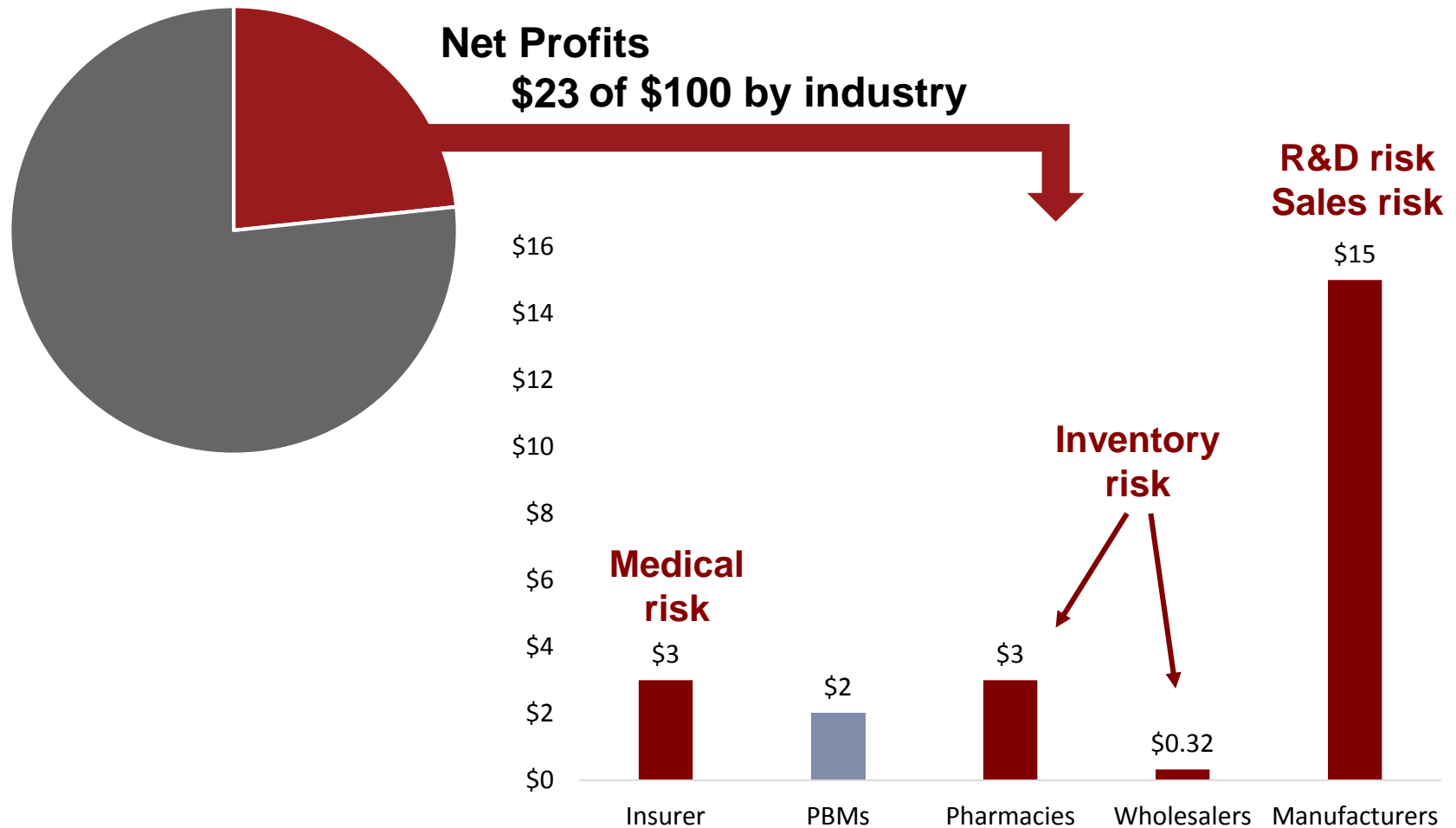
# Net profits, overall industry



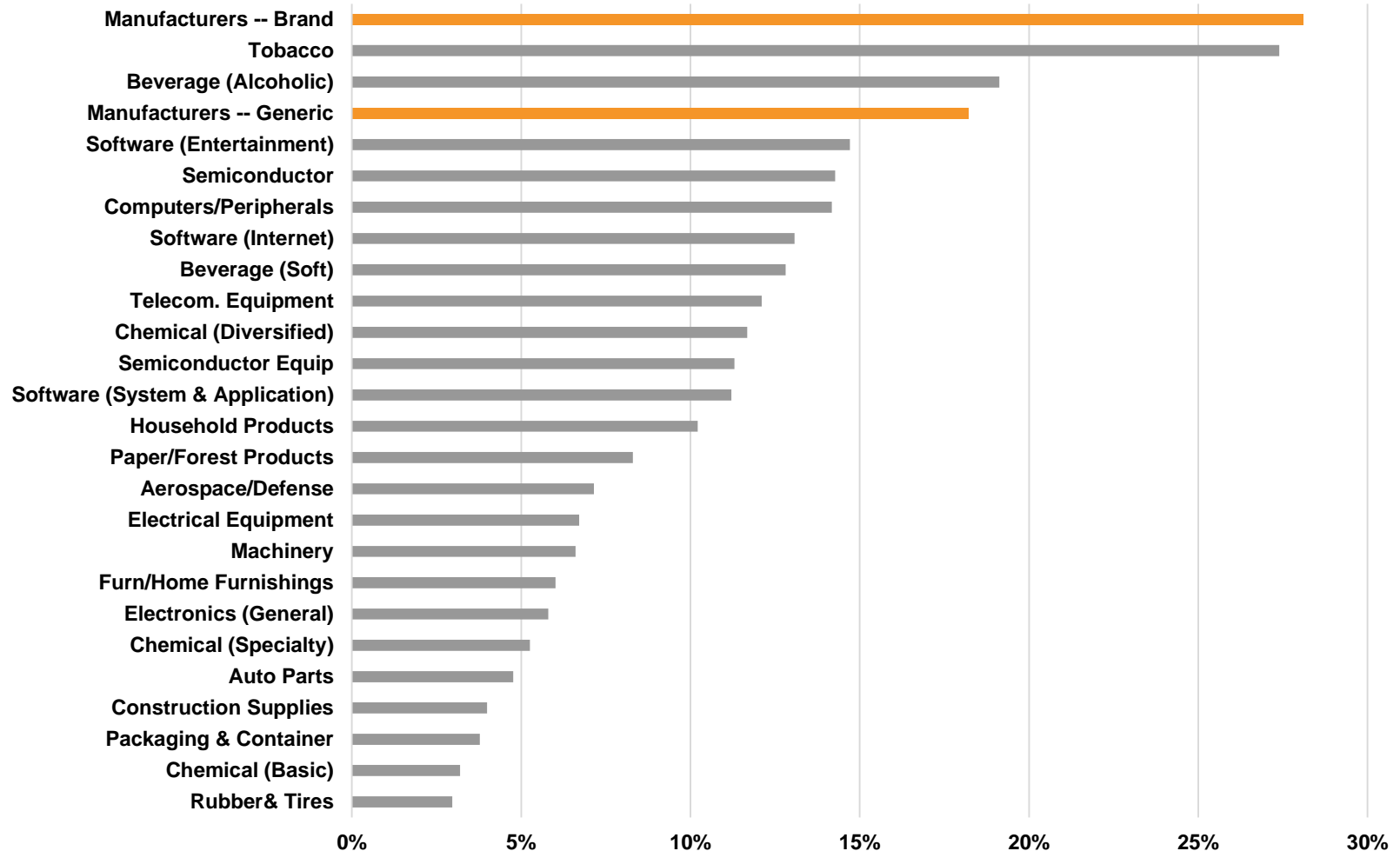
# Is any player making excessive profits?

1. Compare profits to what each player does and the risks they take
2. Compare profits to other “similar” industries
3. Evaluate level of competition or concentration in these markets

# Risk borne by market players



# Net profits, by industry: Manufacturers

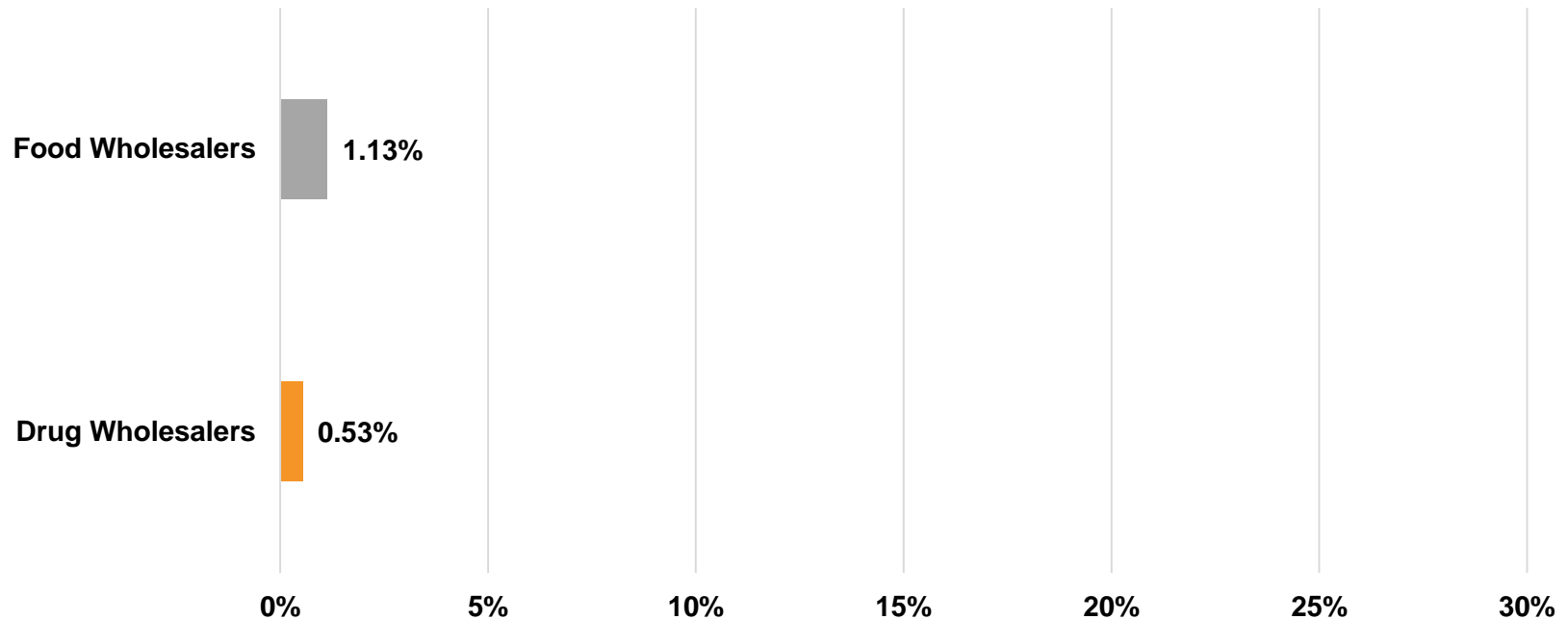


Average sector net margins for players in the pharmaceutical supply chain and comparable industries

■ Comparable Industry (Damadoran Online)

■ Pharma Supply Chain Participant (Source: Authors' Calculations)

# Net profits, by industry: Wholesalers

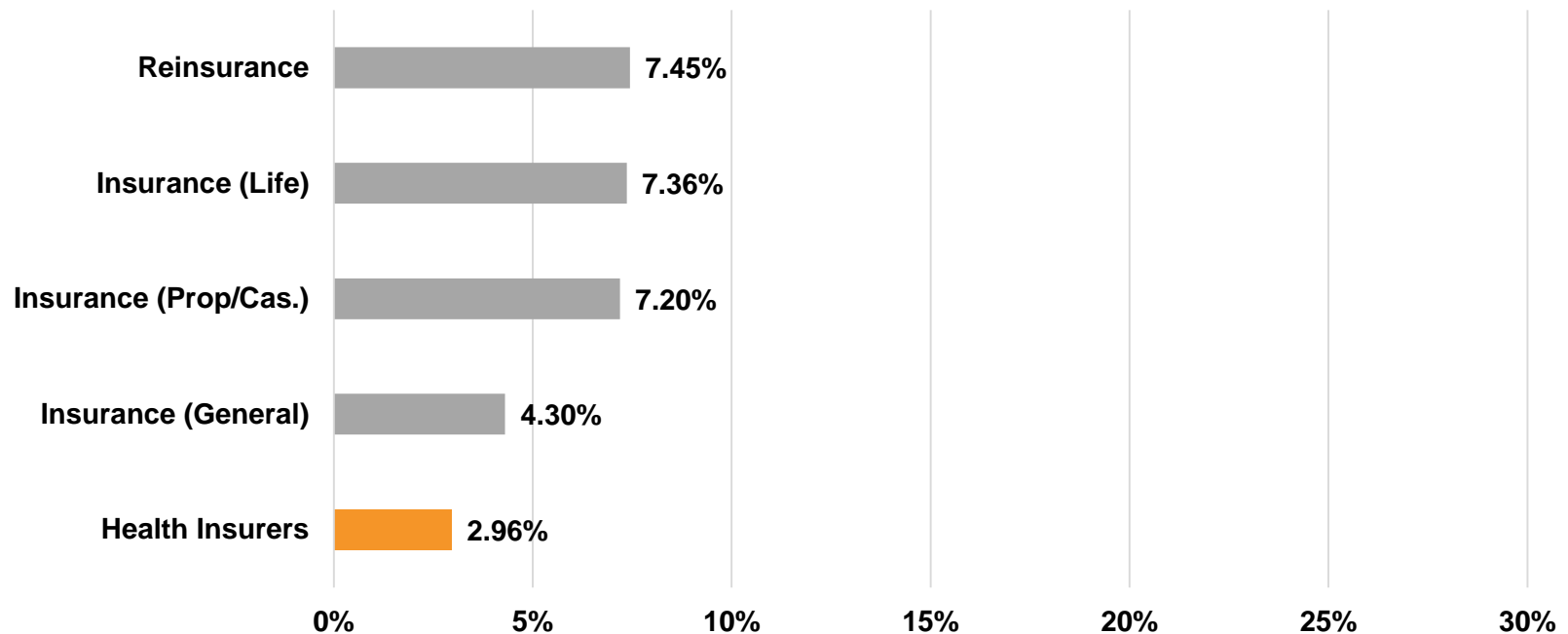


*Average sector net margins for players in the pharmaceutical supply chain and comparable industries*

- Comparable Industry (Damadoran Online)
- Pharma Supply Chain Participant (Source: Authors' Calculations)



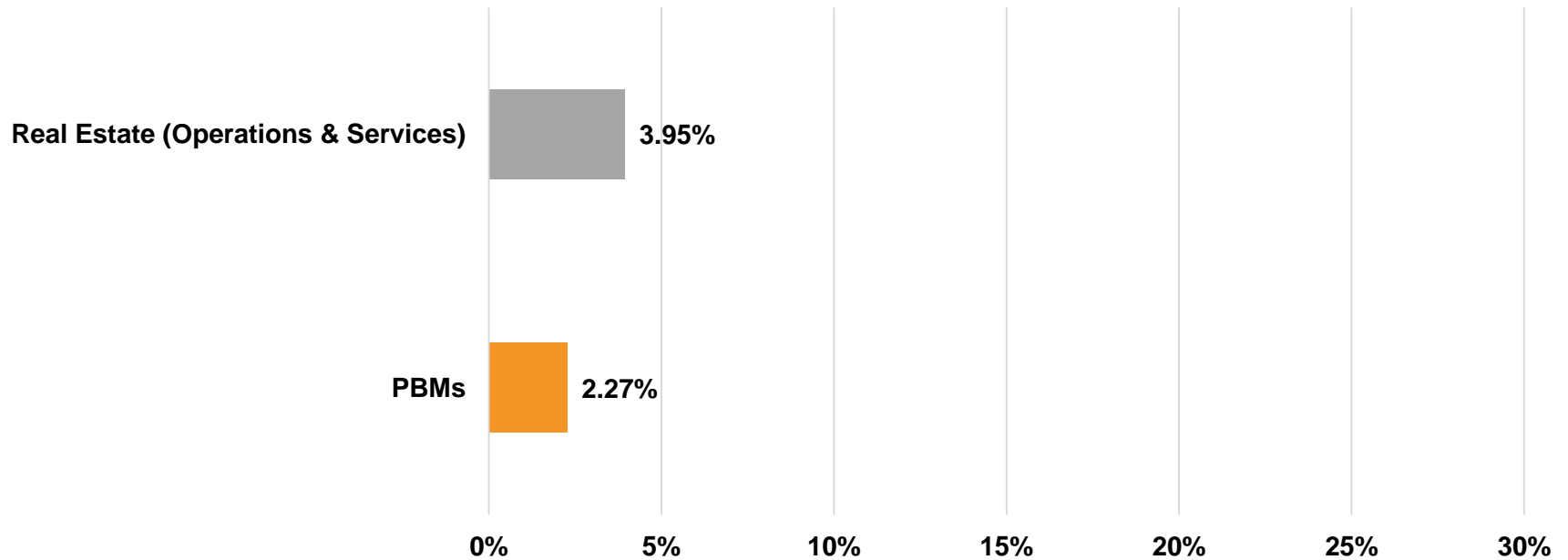
# Net profits, by industry: Insurers



*Average sector net margins for players in the pharmaceutical supply chain and comparable industries*

- Comparable Industry (Damadoran Online)
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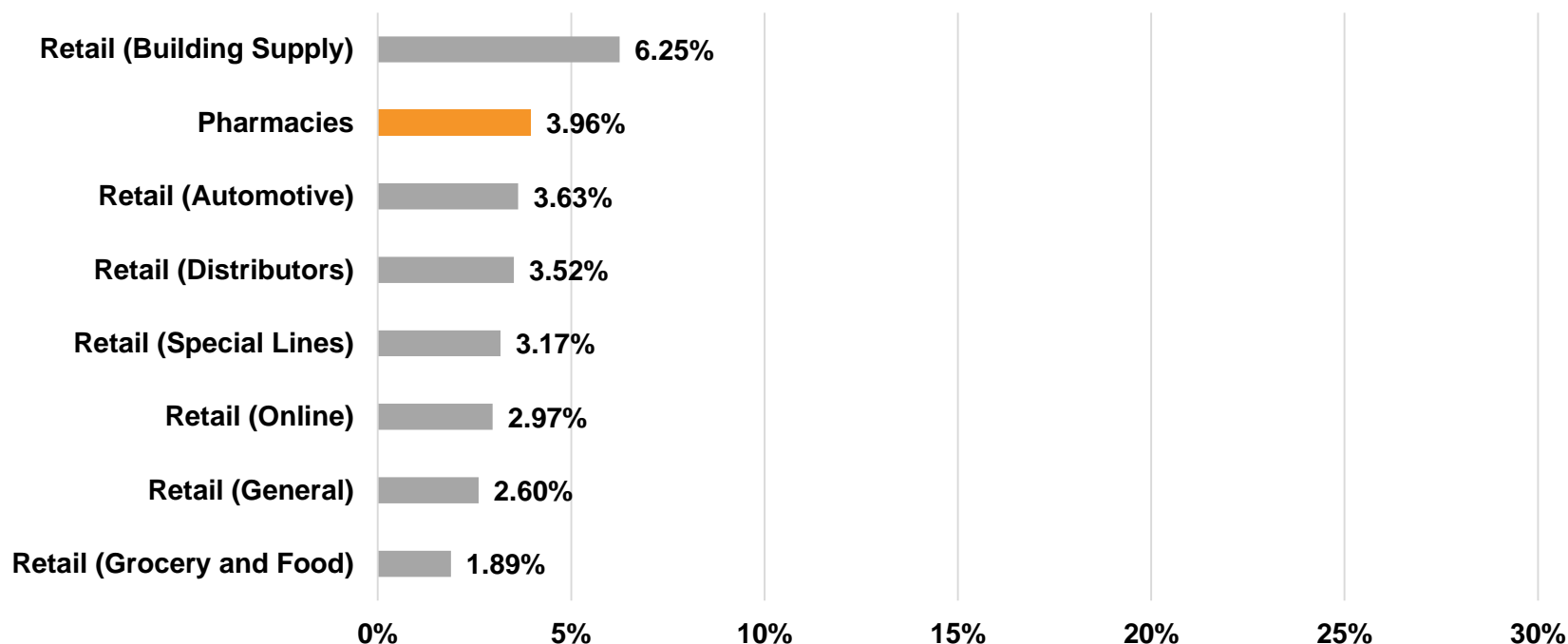
# Net profits, by industry: PBMs



*Average sector net margins for players in the pharmaceutical supply chain and comparable industries*

- Comparable Industry (Damadoran Online)
- Pharma Supply Chain Participant (Source: Authors' Calculations)

# Net profits, by industry: Pharmacies



*Average sector net margins for players in the pharmaceutical supply chain and comparable industries*

- Comparable Industry (Damadoran Online)
- Pharma Supply Chain Participant (Source: Authors' Calculations)

# Some market segments are highly concentrated

- **Top 3 PBMs control more than two-thirds market share**
  1. Express Scripts
  2. CVS Health
  3. Optum Rx
- **Top 3 wholesalers control more than 80% market share**
  1. McKesson
  2. AmerisourceBergen
  3. Cardinal Health
- **Top 3 pharmacies control roughly 50% market share**
  1. CVS
  2. Walgreens
  3. Express Scripts
- **Manufacturing is less concentrated but have government granted market exclusivity and patents**

# Pricing strategies are under scrutiny

- **Manufacturers**

- Copay coupons to circumvent plan design
- Aggressive promotion of drugs

- **Health Plans**

- Copays for generics can exceed acquisition costs
- Prices are high in the deductible phase or doughnut hole

- **Pharmacies**

- Price variation even within local area
- Significant margins on generics

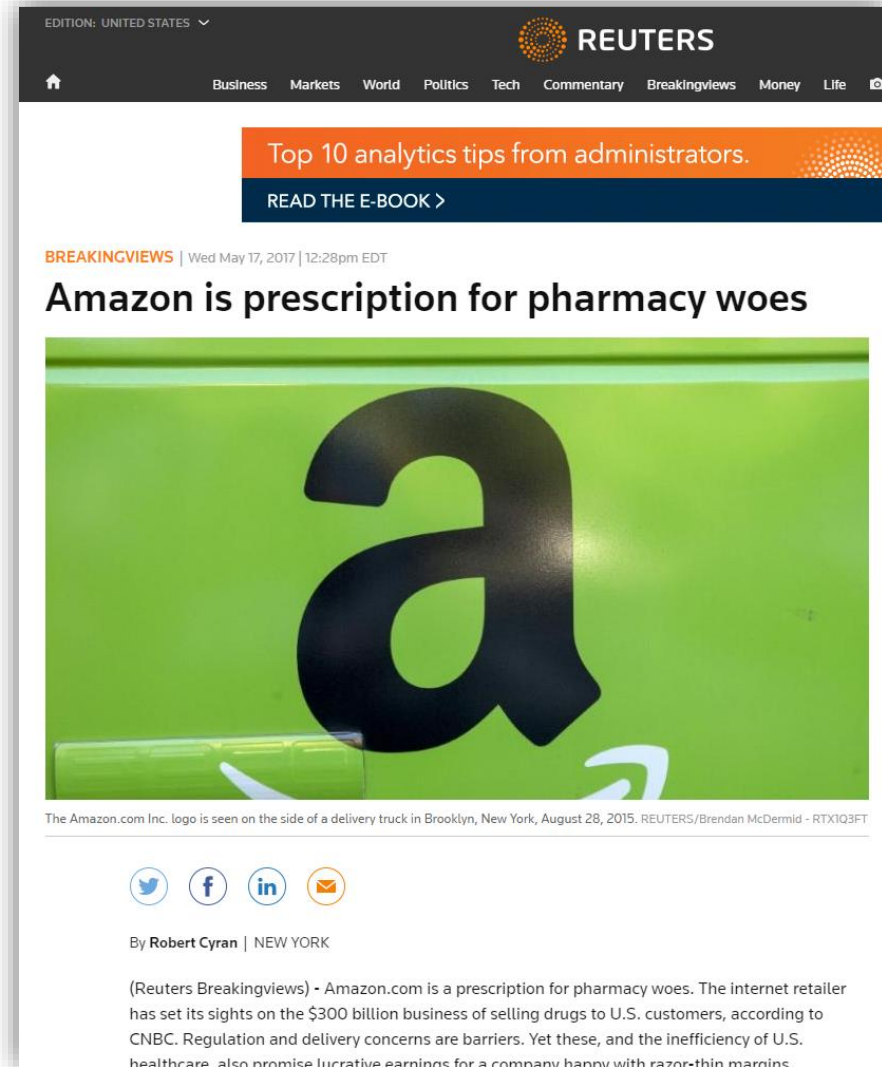
- **PBMs**

- Hidden rebates
- Rebates even when patient pays entirely out-of-pocket

# What are the policy solutions for making drug distribution more efficient?

Will Amazon solve all the problems?

If policy interventions are required, what are they?



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# Top Manufacturers, by Market Share

	US Market Share		
Company	All <sup>a</sup>	Brands <sup>a</sup>	Generics <sup>13</sup>
Gilead Sciences (Brand)	6.9%	10.9%	--
J&J (Brand)	5.9%	9.4%	--
Roche (Brand)	5.7%	9.0%	--
Merck & Co (Brand)	5.7%	9.0%	--
Amgen (Brand)	5.3%	8.5%	--
Pfizer (Brand)	4.7%	7.4%	--
Fresenius Kabi (Generic)	4.6%	--	3.1%
AbbVie (Brand)	4.4%	6.9%	--
Sanofi (Brand)	4.3%	6.8%	--
Novartis (Brand)	3.3%	5.3%	--
Astrazeneca (Brand)	3.1%	4.8%	--
Allergan (Brand)	3.0%	4.7%	--
GlaxoSmith Kline (Brand)	2.6%	4.2%	--
Pfizer-Hospira (Generic)	2.3%	--	3.6%
Teva (Brand)	2.1%	3.3%	--
Mylan (Generic)	1.6%	--	8.8%
Teva (Generic)	1.5%	--	12.2%
Novartis-Sandoz (Generic)	1.1%	--	11.5%
Allergan-Actavis (Generic)	1.1%	--	8.9%
Aspen (Generic)	0.4%	--	4.1%
Lupin (Generic)	0.3%	--	2.7%

**Total**

**70%**

**90%**

**55%**

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# Top PBMs, by Market Share

Pharmacy Benefit Managers	
Company	Share <sup>11</sup>
Express Scripts	29%
CVS Health	24%
Optum Rx	13%
Total	66%

# Top Wholesalers, by Market Share

Wholesalers	
Company	Share <sup>10</sup>
McKesson	32.7%
AmerisourceBergen	31.6%
Cardinal Health	20.7%
Total	85%

# Top Pharmacies, by Market Share

Pharmacies	
Company	Share <sup>12</sup>
Walgreens	14.9%
CVS Retail	13.8%
Express Scripts Mail Order Pharmacy	11.0%
CVS Mail Order	9.0%
Walmart	5.5%
Total	54%

# Top Insurers, by Market Share

Insurers <sup>8</sup>	
Company	Share <sup>b</sup>
UnitedHealth Group	11.4%
Anthem	9.2%
Aetna	4.1%
Cigna	4.5%
Humana	8.7%
Centene	3.4%
HealthNet	2.6%
WellCare	2.1%
Molina	2.0%
Magellan	0.5%
<b>Total</b>	<b>49%</b>

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