

Understanding Firm, Physician and Consumer Choice Behavior in the Pharmaceutical Industry

Puneet Manchanda

University of Chicago

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The Young and the Restless....

- ◆ Andrew Ching, Toronto
- ◆ Paris Cleanthous, NYU
- ◆ Min Ding, Penn State
- ◆ Xiaojing Dong, Northwestern
- ◆ Peter S. H. Leeflang, Groningen
- ◆ Puneet Manchanda, Chicago (Co-chair)
- ◆ Sanjog Misra, Rochester
- ◆ Natalie Mizik, Columbia
- ◆ Sridhar Narayanan, Chicago
- ◆ Thomas Steenburgh, Harvard
- ◆ Jaap Wieringa, Groningen
- ◆ Dick R. Wittink, Yale (Co-chair)
- ◆ Marta Wosinska, Harvard
- ◆ Ying Xie, Rutgers

Overview

- ◆ Why the specific focus?
 - Important industry
 - Policy implications (Leeflang, Wittink, Wieringa)
 - Large marketing spends
 - Can't just port existing marketing approaches/models/techniques
 - New questions
 - New and improved methods
 - In addition, given high quality of data from industry, also focus on
 - Existing research questions
 - Current methods

Industry Background

- ◆ Health care industry accounts for 15% of GNP
 - As populations in the Western world age, this is proportion is likely to grow
 - Medicare drug benefit is expected to cost ~ \$ 500 billion over the next 10 years
 - Prescription drugs account for 10% of all health care spending

- ◆ Huge marketing expenditure – this industry is the highest spender on
 - Sales force (~ \$ 10 billion)
 - Media advertising (~ \$ 5 billion)
 - Promotions (~ \$ 11.5 billion)
 - Marketing spend is 2.5 times spend on R&D spend for the top 9 pharma firms

Unique Research Opportunities

◆ Multiple agents

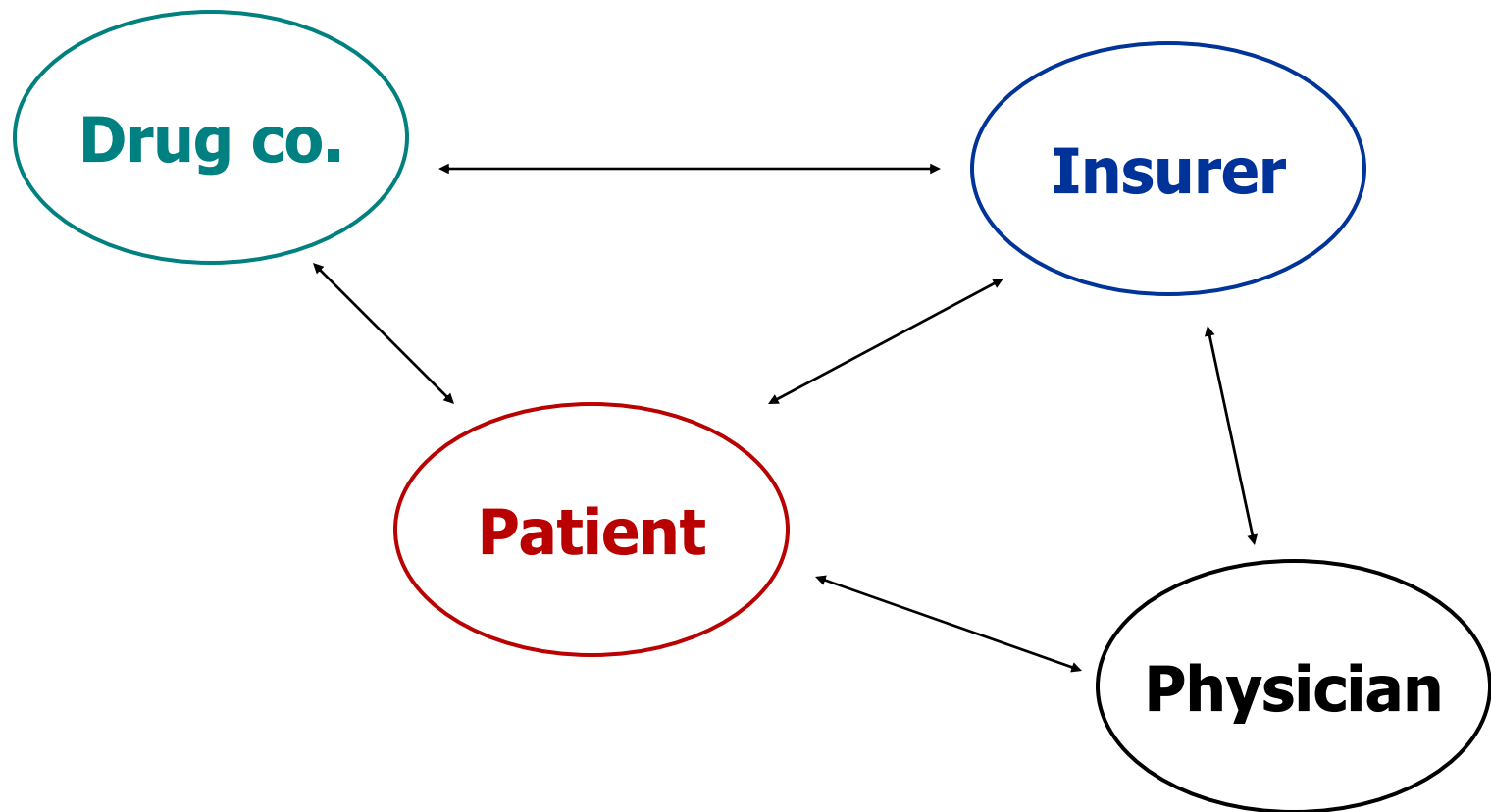
- Physician
- Patient
- Insurance firm
- Pharmacy Benefit Manager
- Manufacturer
- Wholesaler

◆ Who is the consumer and what is her role?

- Choices have inputs from multiple agents
 - Utility maximization for the patient-physician-insurance combination (Cleanthous, Misra)
- Post purchase role
 - Patient compliance and role in therapy management (Wosinska, Wittink)

Unique Research Opportunities

Decision-making for prescription drugs



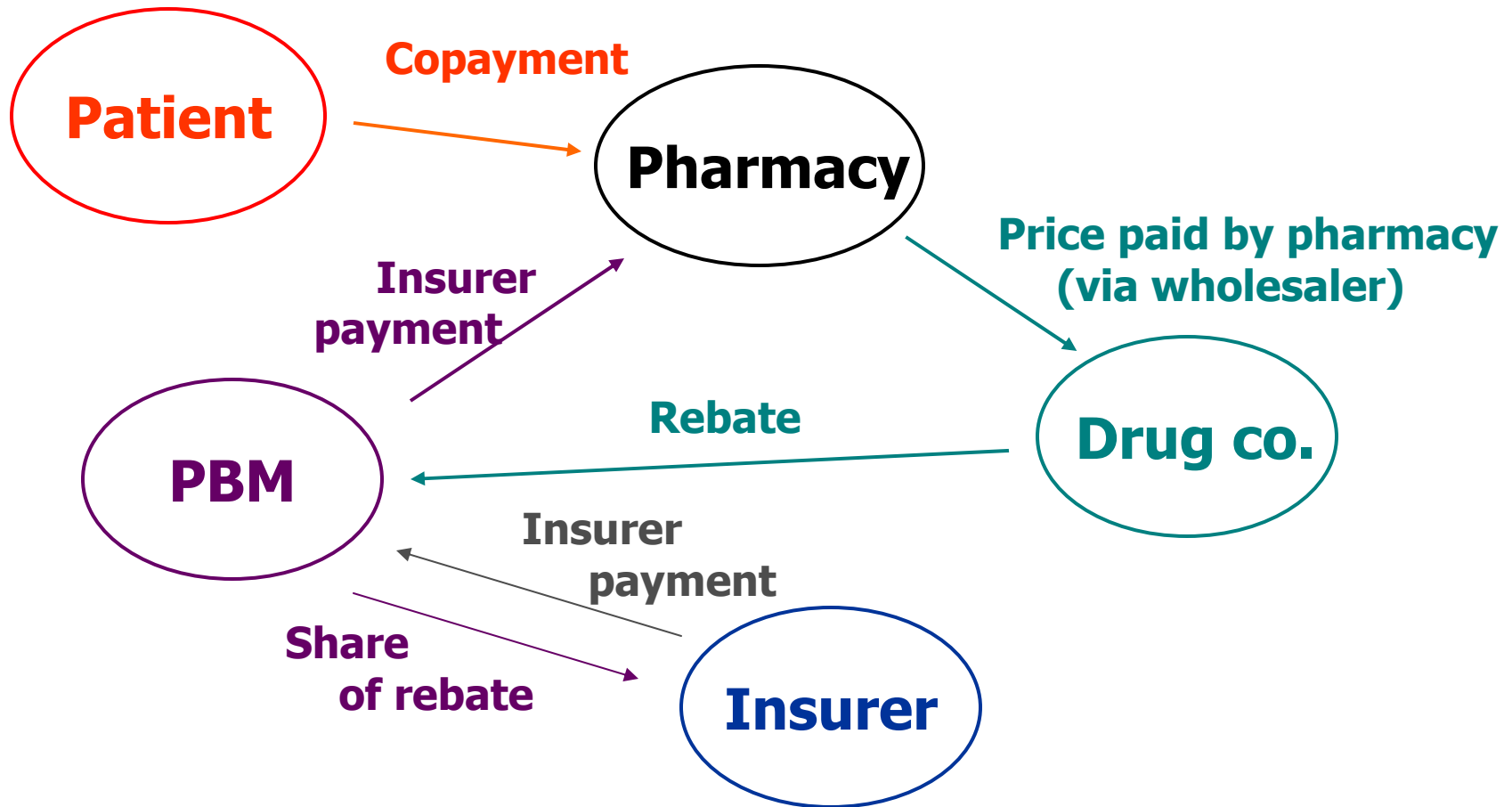
Unique Research Opportunities

- ◆ What does the channel look like?
 - Not the usual manufacturer-wholesaler-retailer structure
 - Alliance based network
 - Open area of research

- ◆ What is price?
 - How can you estimate a demand curve?
 - Co-payments as price (Cleanthous, Wosinska)

Unique Research Opportunities

Network and Transfers

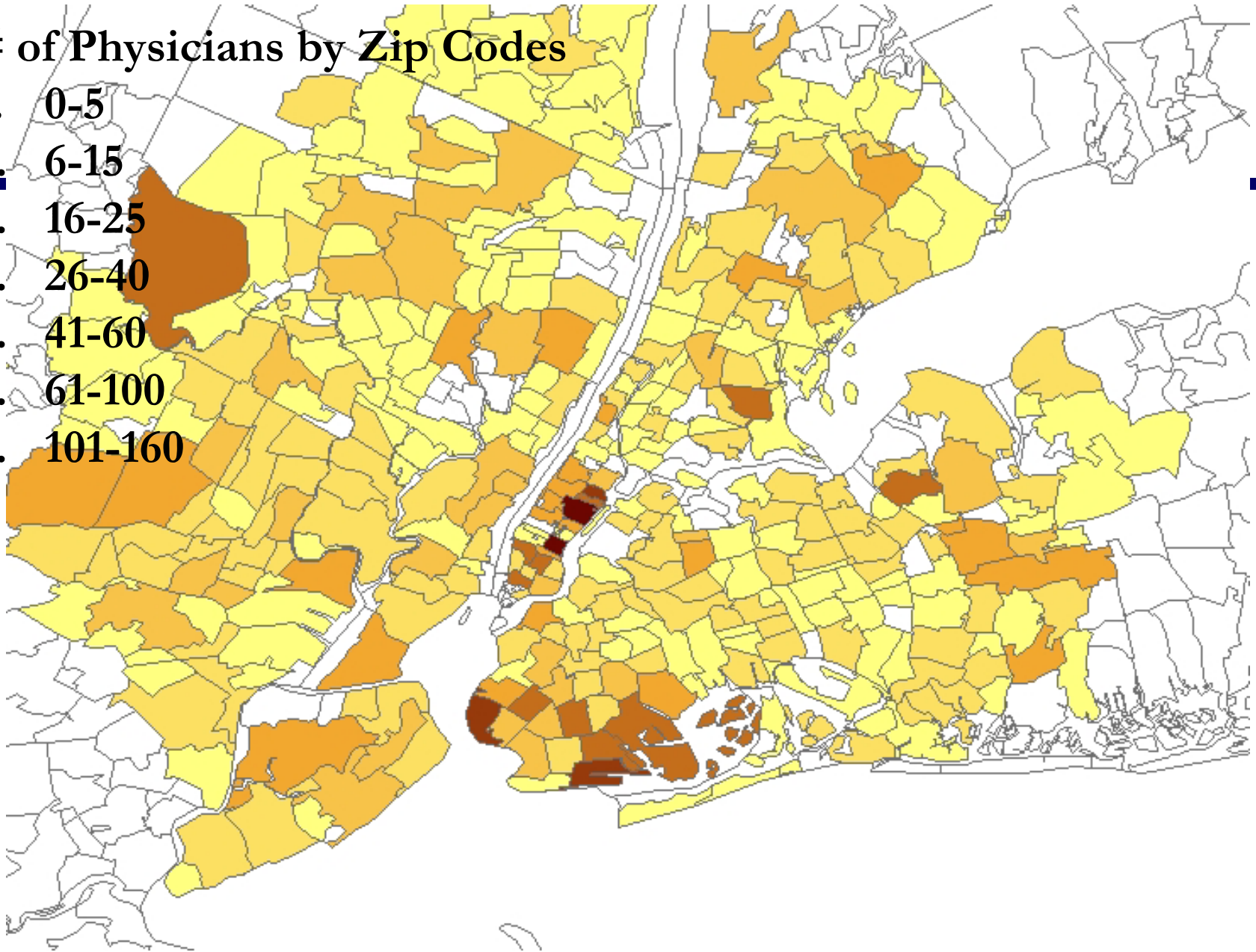


Unique Research Opportunities

- ◆ Understanding the role of new product adoption via social networks
 - Physician networks (Manchanda, Xie)
 - Patient networks
 - Interaction between the two networks

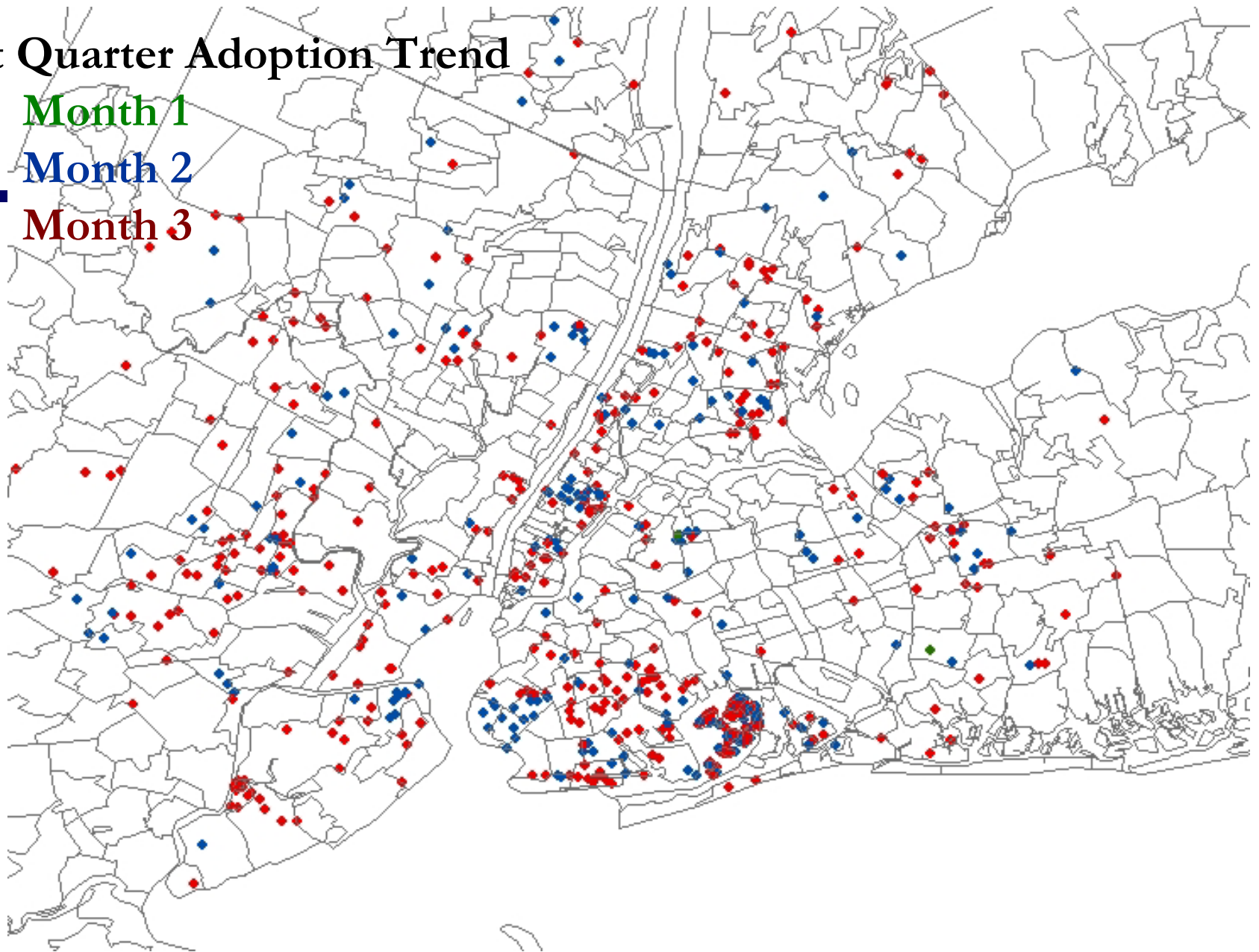
of Physicians by Zip Codes

- 1. 0-5
- 2. 6-15
- 3. 16-25
- 4. 26-40
- 5. 41-60
- 6. 61-100
- 7. 101-160



1st Quarter Adoption Trend

- **Month 1**
- **Month 2**
- **Month 3**



Unique Research Opportunities

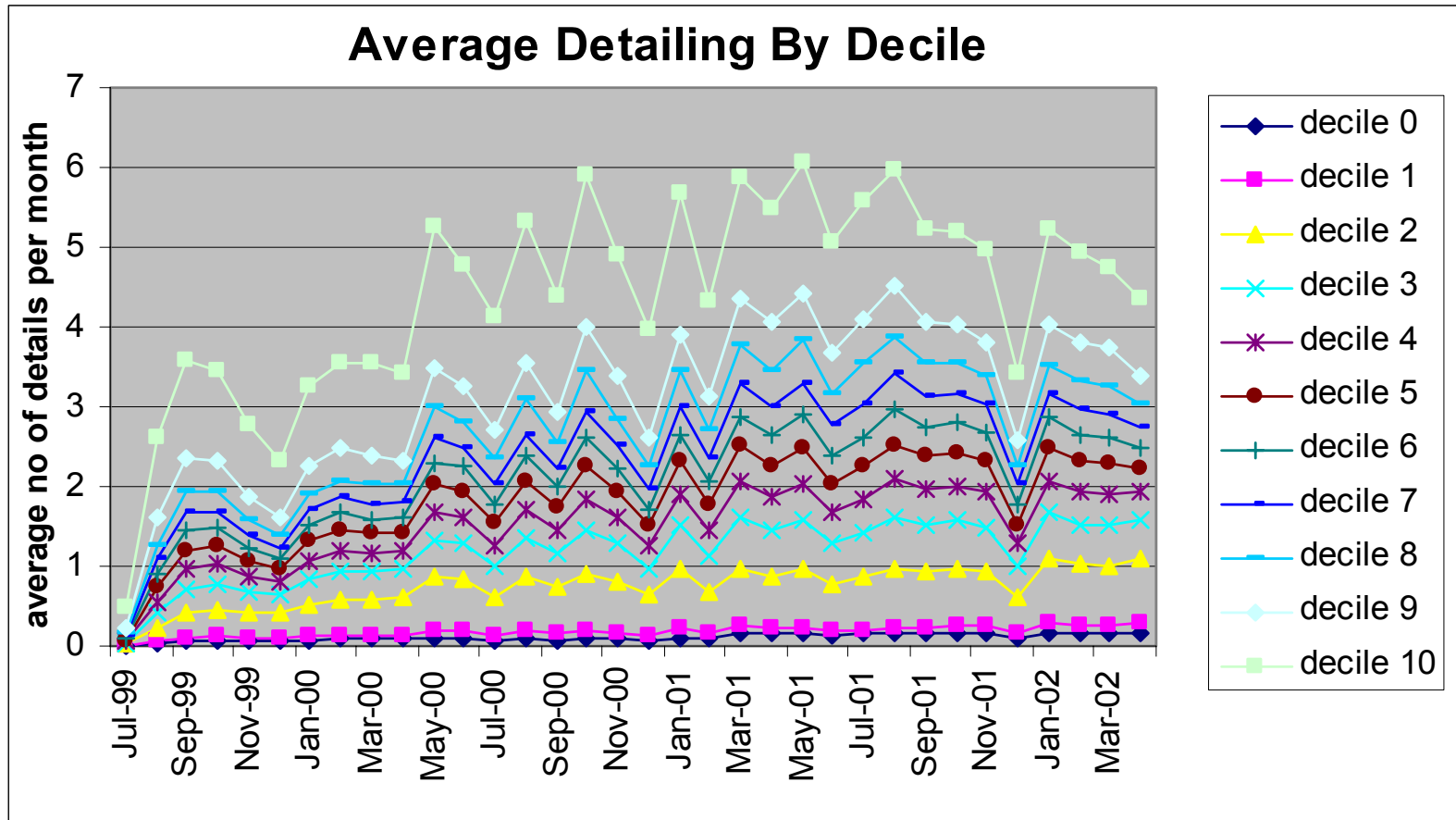
◆ Resource Allocation and Targeting

- Unique feature is that the major marketing instruments is set at individual level
 - New products (Narayanan, Manchanda)
 - Existing products (Manchanda, Dong)
 - Testing equilibrium models (Manchanda, Dong)

◆ Learning about new products

- Learning matters!
- Physician learning (Ching, Narayanan, Manchanda)
- Patient learning

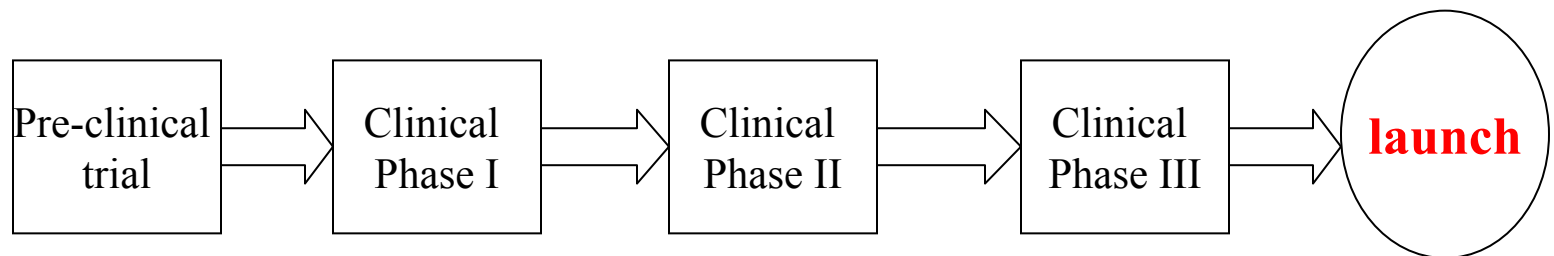
Unique Research Opportunities



Unique Research Opportunities

◆ How do you carry out New Product Development

- Scientific uncertainty
- Process overviewed by external body (FDA)
 - Decision support system that incorporates this process (Ding)



(Less) Unique Research Opportunities

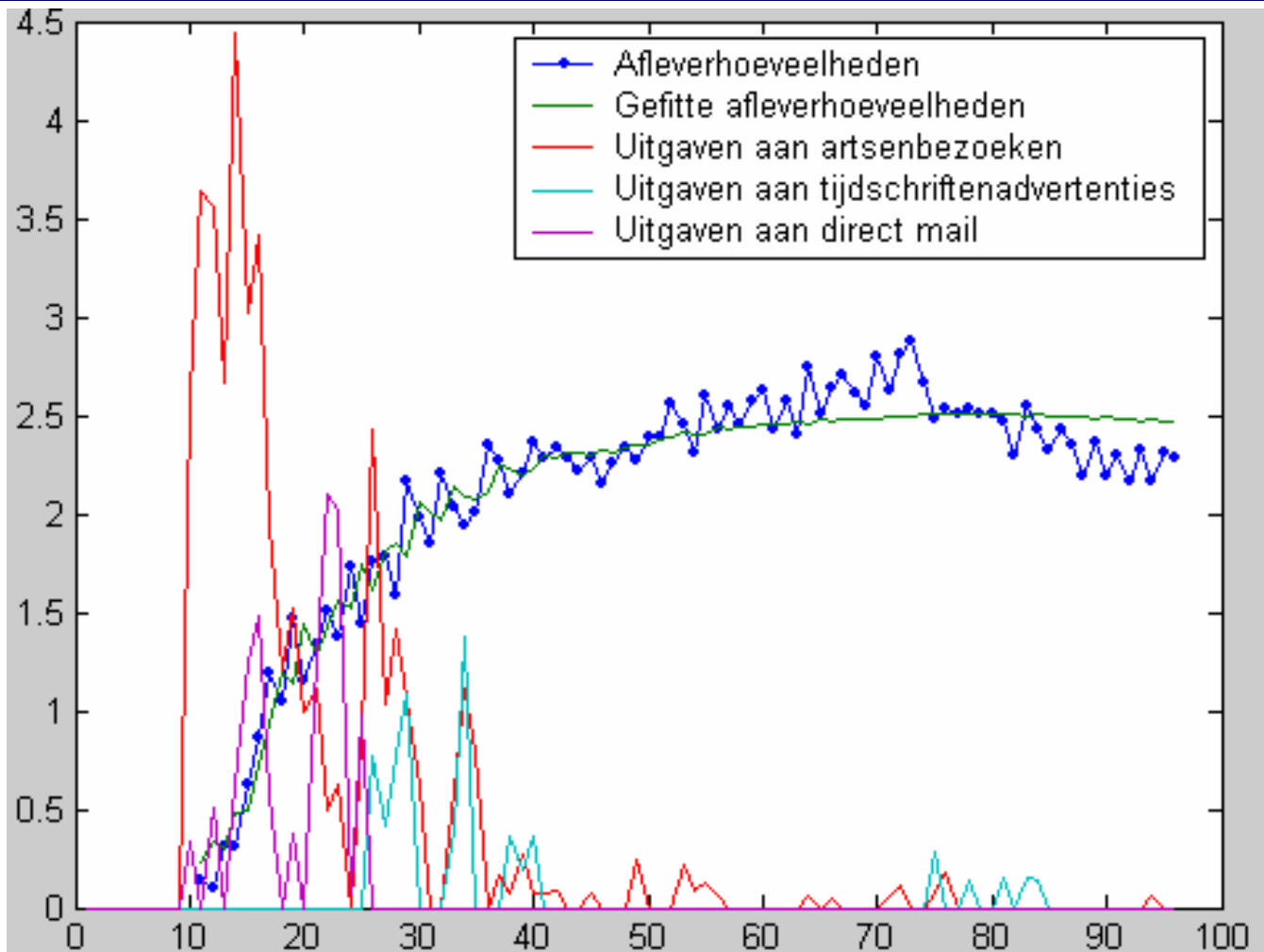
◆ Marketing mix models

- New instruments (most of us!)
- Effect of Direct-to-Consumer advertising
 - Consumers (Steenburgh, Wittink, Xie)
 - Other agents (Insurance companies, Physicians,...)
- Varying effectiveness over product life cycle (Leeflang, Wierenga, Wittink, Ching, Narayanan, Manchanda)

◆ CRM

- High degree of persistence in response to choices and marketing response (Leeflang, Wierenga, Wittink, Mizik)
 - Lifetime value of physician and patient
 - Effectiveness of instruments such as direct mail and coupons (Wosinska)

(Less) Unique Research Opportunities



Data

- ◆ Is captured systematically by industry participants
- ◆ Rich and varied
 - Firm data
 - Sales and marketing mix data
 - Drug choice (prescription) data
 - Patient data
 - Visit data
 - Compliance data
 - Exposure data
- ◆ Data is available at aggregate and disaggregate levels for long time series

Data

- ◆ US Firms that have provided the data in the past
 - Data/Market Research Firms
 - IMS, Verispan (Scott-Levin), Ipsos, ZS Associates
 - Individual pharmaceutical firms
 - Health plans
 - Pharmacy Benefit Manufactures

- ◆ Lack of standardized academic databases

Conclusion

- ◆ Pharmaceuticals present a rich and exciting research opportunity
 - New questions
 - New and improved methods
 - Better data
 - Critical mass of research beginning to appear in top marketing and economics journals
 - Important, meaningful category
 - High impact on business and policy world
 - Increasing interest from industry participants