Pharmaceutical Prices: International Issues

Patricia M. Danzon
The Wharton School
University of Pennsylvania

Presented at National Health Policy Forum Session,
“Pharmaceutical Marketplace Dynamics,”
May 31, 2000
The Agenda

- Are drug prices higher in the US on average?
  - Biases in most cross-national price comparisons
- Should prices be uniform cross-nationally?
- Policy implications
Some preliminaries

- Drug price increases are not a major driver of expenditure growth
  - Higher volumes
  - Expanded insurance coverage
  - Major new products
- Appropriate insurance for seniors is a separate issue
  - Regulating prices is no alternative to sound insurance
Are Drug Prices Higher in the US?

- 1993 GAO: ex-manufacturer prices
  - US 30% higher than Canada
  - 121 leading, branded products
  - US 60% higher than UK
  - 77 leading, branded products

- 1998 Minority Staff: retail prices
  - US 70% higher than Canada
  - US 102% higher than Mexico
  - 10 leading, branded products
Accepted Methods for Valid Price Comparisons

Standard Price Indexes

- Large, representative market basket
- Prices at same level in the distribution chain
  - Retail price vs. Manufacturer price
  - Retail = Manufacturer + distribution margins
- Price index is a volume-weighted average of individual product prices
  - Weights reflect relative importance
Violation of Standard Methods

1. Small, biased samples

- Leading, branded drugs
  - Atypical discounts
- No generics: generics are 46% of scripts, treated as perfect substitutes by payers and BLS
- Generics have lower prices, higher volumes in unregulated markets such as US
- Valid cross-national price comparisons must include generics
- Single pack: ignores volume discounts
Violation of Standard Methods

2. Unweighted average

- Minority Staff report average of price ratios
- Average price ratio, unweighted, is very sensitive to sample

- 10 drugs: 106%
- 8 drugs: 83%
- 12 drugs: 254%
- 1 drug: 1,407%!
Violation of Standard Methods

3. Manufacturer vs. Retail Price

- International comparisons based on retail prices
- Domestic comparisons mix retail and manufacturer
- Average manufacturer price (AMP)
  - manufacturer price to wholesaler
- Wholesale margin = 3%
- Retail margin ≥ 22%

=> Retail price = AMP x 1.03 x 1.22 = AMP x 1.26

=> Retail exceeds manufacturer price by 26%
  ⇒ solely due to distribution margins
Challenges in International Drug Price Comparisons

- Different molecules and utilization
  - weighting matters
- Different manufacturers of same molecule
  - brand originator, licensees, generics
- Different forms, strengths, packsizes with different prices
  - price per pill, per pack, per dose?
- Price/age profiles differ due to regulation

=> Large representative sample is critical
Most Comparisons Biased by Small, Unrepresentative Samples

**Drugs Included**
- 10 leading drugs
- Branded, originator
- Rx
- One “typical” pack

**Drugs Excluded**
- Most drugs
- Generics + licensed
- OTCs
- Most forms, strengths and packs
  - US volume discounts
Data for our analysis

- Sample = all matching molecules (US-foreign) 1992
- Brands and generics
  - All packs and dosage forms
- Weighted average price per molecule
- Manufacturer prices (IMS)
- Price per gram and price per dose
- BUT US data do not reflect HMO/PBM discounts
  - => our measures overestimates US prices
Price Comparisons for All Matching Single-Molecule Drugs, 1992

<table>
<thead>
<tr>
<th>Country</th>
<th>price/gram</th>
<th>price/dose</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>-13.0</td>
<td>+3.0</td>
<td>458</td>
</tr>
<tr>
<td>Germany</td>
<td>-2.8</td>
<td>+27.3</td>
<td>471</td>
</tr>
<tr>
<td>France</td>
<td>-43.0</td>
<td>-29.9</td>
<td>412</td>
</tr>
<tr>
<td>Italy</td>
<td>-26.1</td>
<td>-9.3</td>
<td>406</td>
</tr>
<tr>
<td>Japan</td>
<td>+28.2</td>
<td>-7.7</td>
<td>396</td>
</tr>
<tr>
<td>Switzerland</td>
<td>+4.9</td>
<td>+44.4</td>
<td>308</td>
</tr>
<tr>
<td>Sweden</td>
<td>-18.9</td>
<td>+8.9</td>
<td>261</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-32.2</td>
<td>-23.9</td>
<td>453</td>
</tr>
</tbody>
</table>

Conclusions on Average Price Differences

- 1992 US prices on average comparable to other countries
- No single, perfect index of price differences
  - Results depend on sample, weights, etc.
- Regulation undermines generic competition
  - ⇒ Representative indexes must include generics
  - ⇒ Price differences reflect many factors
    - ⇒ Market conditions, regulation, exchange rates etc.
Price Differentials Are Not Necessarily Bad

- Discounts are a common competitive strategy in many industries
- Discounts to managed care are common
  - physicians, hospitals, pharmacies, drugs
- Market segmentation based on price sensitivity
  - Promotes competition
  - Customers benefit from lower prices
  - Price differences do not imply “cost-shifting”
Current Government Policies Undermine Price Differences

- US: private sector discounts must be passed on to public payers
- EU: parallel trade is permitted within EU
  - wholesalers profit from price differences
- Governments regulate prices based on foreign prices

=> Markets are no longer separable
=> Prices tend to converge downward
Manufacturer Response to Loss of Market Segmentation

**Economic Theory**
- Manufacturers will attempt to price in narrow band in all markets
  - Discounts and low prices unavailable
  - Delay in launch

**Evidence**
- New product prices tend to converge in major markets
- *But, A uniform price is not sound public policy for pharmaceuticals*
The Cost Structure of Pharmaceuticals

- High costs of R&D: 13-20% of sales
  - 30% of total costs, including forgone interest

- R&D is a “common cost”, serves patients worldwide
  - => R&D costs cannot rationally be allocated to specific countries/patients

- Who should pay for the common R&D costs?
Optimal Pricing With Common Costs (Ramsey Pricing)

- A uniform price is not best policy for products with large common costs
  - Price-sensitive consumers should pay less
  - Price-insensitive consumers should pay more
- Differential pricing is common in other industries with high common costs
  - regulated utilities; airlines
Uniform Price is not Sound Policy for Pharmaceuticals

- Uniform prices too high for low income countries
  - Reduce utilization, loss of patient well-being
  - Even though they would pay \( P > MC \)
- Uniform prices will reduce revenue and reduce incentives for R&D
  - fewer new drugs, though consumers would have been willing to pay
The Threat of Pharmaceutical Price Regulation

- R&D costs are sunk at launch
- Powerful payers can force price to marginal cost
- MC (production, distribution) is 25-50% of total cost
- Low regulated prices in one country spill over to other countries, through price comparisons
- If everyone pays marginal cost, who pays for R&D?
Conclusions

- No perfect index of price differences
- 1992 US prices on average comparable to other countries
  - US consumption weights, all matching products, including generics
- Price differences are common in other industries and other sectors of medical care
- Price differences benefit consumers
  - Appropriate means to recoup R&D