

# Cost Allocation Theory

# Transfer pricing

- ▶ Transfer pricing is the process of using a price to facilitate decentralized decision making by sharing information and aligning incentives within the firm.

## Transfer pricing

- ▶ In simple examples like the initial questions in the Vik-Giger case it is easy to figure out what the price of a product should be.

## Transfer pricing

- ▶ In that case we took for granted that we could easily quantify the costs of making the product.
- ▶ We also noted that transferring fixed costs (those that do not vary with output) is not at all simple.

## Cost allocation

- ▶ Cost allocation is the process of connecting the sacrifice of resources (often a cash outflow) to the process, product, program, or department on behalf of which the resources were sacrificed.

## Cost allocation

- ▶ We are trying to track who consumed which resources and when.
- ▶ We do this for many reasons and in many different contexts, so there is no one approach that is better in every situation.

## Cost allocation

- ▶ Note that transfer pricing requires cost allocation, but not all cost allocations are done to support transfer pricing.

## Which costs?

- ▶ We want to track all costs, but cost allocations focus on *common, indirect, and overhead costs* (all related terms)
- ▶ We allocate direct costs, well directly to the activities or products that consume them.



## Cost allocation

- ▶ Most costs are direct at some point, and then flow into an area of the organization where they become indirect.
- ▶ For example, a networking department has many direct costs, but many departments access it indirectly.

## Consider email

- ▶ we can easily track who uses it.
- ▶ we have good information about how much it costs.
- ▶ but it is difficult to define the relationship between email use and value creation in the design, manufacturing and sales department.

## Consider aspirin administered in an American Hospital

- ▶ Aspirin costs \$ 0.02 per tablet.
- ▶ How much is billed to the patient/insurer?

## Consider aspirin administered in an American Hospital

Direct Costs	Amount
Two aspirin tablets	\$ 0.040
Physician (Direct Labor)	\$ 1.050
Pharmacist (Direct Labor)	\$ 1.330
Nurse (Direct Labor)	\$ 0.321
Cup	\$ 0.025

## Continued

Indirect Costs	Amount
Indirect labor (recordkeeping and orderly)	\$ 0.800
Shared and shifted costs:	
Unreimbursed Medicare	\$ 0.450
Indigent care	\$ 0.332
Malpractice insurance and uncollectible receivables	\$ 0.380
Excess bed capacity	\$ 0.429
Other administrative and operating costs	\$ 0.688
<b>Product cost</b>	<b>\$ 5.845</b>

## Continued

Hopital Overhead Costs	Amount
Product cost	\$ 5.845
Hospital overhead costs @ 53.98%	\$ 3.16
Full cost (incl. overhead)	\$ 9.00
Profit	\$ 9.00
<b>Price (per dose)</b>	<b>\$18.00</b>

Is this an informative price?

## Cost allocation is an old question

*Indirect expense is one of the most important of all the accounts appearing on the books of the manufacturer. Methods of handling its [allocation] have given rise to more arguments than the descent of man. It is the rock upon which many a ship of industry has been wrecked.*

- ▶ Thompson (1916)

## Consider a manufacturing firm

May have many different allocation processes for a single product.

- ▶ Taxes (one set of depreciations, and FC allocations)
- ▶ Financial reporting
- ▶ Government contracts
- ▶ Other contracts
- ▶ Internal incentives
- ▶ Internal cost control



## Reasons to allocate costs

1. External reporting (IFRS, GAAP, also fraud)
2. Taxes
3. Cost-based contracts (esp. gov contracting)
4. Decision making
5. Incentives and accountability ('control')

## Fraud is a financial accounting act, but a managerial accounting choice

- ▶ It is the act of misreporting which is illegal.
- ▶ However, without a performance incentive (explicit or implicit) misreporting is unlikely.
  - ▶ Gambling for resurrection at FedEx.
  - ▶ Investigation of the *precursors* of financial crimes at Goldman.
  - ▶ Enron and Arthur Anderson (audit business was marketing for software business).
  - ▶ Are you paying accountants for high-quality financial statements? Or for other forms of performance?

## Incentive effects of cost allocations

- ▶ Cost allocations modify behavior a la Pigouvian taxes
- ▶ **All cost allocations, like all taxes, modify behavior.** They are never neutral.

# Pigouvian tax

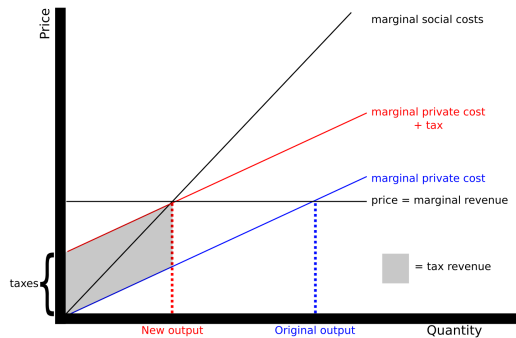


Figure 1: Using a tax to modify behavior

## Why do we have common costs?

- ▶ The tax analogy helps us think about why cost allocations might be useful/harmful.
- ▶ But this reasoning doesn't explain why we are 'taxing' aspirin in the hospital example.
- ▶ Common costs arise when it is less expensive to provide a good or service centrally.

Consider the following:

- ▶ A firm manufactures spinning hard drives and solid state hard drives
- ▶ The two divisions share a building but are separate profit centers
- ▶ Managers are compensated based on profits

## How do we treat common costs?

- ▶ If we deduct common costs from the manager's profits they will try to reduce common costs
  - ▶ Use too little IT services.
- ▶ If we do not, then they will demand more of the common resources
  - ▶ Use too much IT services.
- ▶ What we choose will depend on whether the managers can control their consumption of the common costs.
  - ▶ Allocation of the factory itself?
  - ▶ Allocation of cleaning crew?
  - ▶ Allocation of IT?
- ▶ Allocating common costs is widespread, so overconsumption of common resources seems to be a common concern.

## Make-up Exam Check

- ▶ One week from Tuesday, Canvas announcement as soon as the room is confirmed.