Lecture 2

- M&I 1: Why bother with Money?
- M&B 3: History of US Monetary Standard
Money and Inflation, Ch. 1: Why Bother with Money?

Barter (Direct Exchange):

Mutually advantageous direct exchange of commodities or services

Monetary (Indirect) Exchange:

Exchange of less desired commodities or services for more desired commodities etc by means of the acquisition of, and then disposal of, an even less desired commodity than is originally given up.
Direct Exchange (Barter)

<table>
<thead>
<tr>
<th>Person</th>
<th>Preferences</th>
<th>Endowment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$b \succ a$</td>
<td>a</td>
</tr>
<tr>
<td>B</td>
<td>$a \succ b$</td>
<td>b</td>
</tr>
</tbody>
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## Direct Exchange (Barter)

<table>
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<th>Initial</th>
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</tr>
</thead>
<tbody>
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<td>b</td>
<td>a</td>
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</table>

A and B both better off, without using money.
Why bother with money?

In a more complex economy, direct exchange may be incapable of achieving all (or even most) mutually beneficial exchanges.
The Possible Impossibility of Barter

<table>
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<tbody>
<tr>
<td>A</td>
<td>a</td>
</tr>
<tr>
<td>$b &gt; a &gt; c$</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>b</td>
</tr>
<tr>
<td>$c &gt; b &gt; a$</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>c</td>
</tr>
<tr>
<td>$a &gt; c &gt; b$</td>
<td></td>
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No barter is possible in this 3-person economy!
**Indirect (Monetary) Exchange**

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</table>

A uses c as Money

**Step I:** A *talks with B, learns* B will trade $b$ for $c$

**Step II:**

**Step III:**
Indirect (Monetary) Exchange

Person, Initial Intermediate
preferences Endowment Position

\[ b > a > c \]
\[ c > b > a \]
\[ a > c > b \]

A uses c as Money

Step I: A *talks* with B, *learns* B will trade b for c
Step II: A *trades* a for c with C
Step III:
Indirect (Monetary) Exchange

Person, preferences  Initial Endowment  Intermediate Position  Final Position  
| A | $b > a > c$ |
| B | $c > b > a$ |
| C | $a > c > b$ |

Step I: A *talks* with B, *learns* B will trade b for c
Step II: A *trades* a for c with C
Step III: A *trades* c for b with B
This example shows us that

- Purchasing power of M must be ascertained before it is accepted (Step I).
- M must be held for a while as M (between steps II and III). This creates a demand for M per se.
In theory, any good could serve as M.

However, one good will tend to be adopted, by contagion, as common M. (Like language.)

In practice, it is desirable that M be
- Durable
- Portable
- Divisible
- Uniform (fungible)
- Recognizable
From Commodity M to Fiat M

• M certificates (with 100% reserves) or 100% commodity reserve deposits may work better in circulation than M commodity.
• Many of these may never be redeemed.
• Fractional reserves may meet all requests for redemption.
• Notes and deposits may become inconvertible, and backing completely removed, yet M will still have some value, because of D for M. (Fiat M)
• Even fiat M must once have had commodity value.
History of US Monetary Standard
M&B ch. 3

• Colonial Silver Standard
• Bimetallic Standard, 1792-1861
  • De Facto Silver, 1792-1834
  • De Facto Gold, 1834-1861
• Civil War Greenback Standard, 1862-1879
• Monometallic Gold Standard, 1879-1933
  • Bimetallism Movement 1896, 1900
• Fiat Money Standard, 1933-present
Colonial Silver Standard

Colonists used Spanish Dollar (aka peso)
    = 8 reales (8 “bits”)
Originated as Hapsburg *Thaler*, first minted in St. Joachimsthal, now Czech Rep.

Ps = $ = peso sign

Ps → ₡ → $

US Dollar designed to have same silver content as circulating Spanish dollars
Historical Silver Dollars

Austria 1518 on (w/ US quarter)
en.wikipedia.org/wiki/File:Thaler.jpg h/t Puncsos

Spain 1753
en.wikipedia.org/wiki/File:PhilipV_coin.jpg h/t Coinman62

US 1794
usrarecoininvestments.com

US 1921 Peace Dollar
en.wikipedia.org/wiki/File:Peace_dollar.jpg, h/t RoyFocker 12
Original Bimetallic Standard, 1792-1834

- Silver coinage:
  1 US **Dollar** contained 1/1.293 troy oz pure silver
  $1.293 / troy oz = mint price of silver
  **Free and Unlimited coinage:**
  Mint gave 1293 silver dollars for 1000 oz silver metal, without charge or limit.
  No seigniorage (profit) from minting.
  Worn coins only legal tender at actual weight
  Half $, Quarter $, Dime, Half Dime with *proportionate silver.*
  **Alloy 90% silver**, 10% copper to make more durable
  = Spanish standard. (UK sterling was 92.5% silver.)
Original Bimetallic Standard, 1792-1834 (cont’d.)

• Gold coinage:
  1 gold **Eagle** contained 1/1.939 troy oz pure gold
  Free and Unlimited coinage
  Double, Half, Quarter eagle coins with proportionate gold
  Alloy 22 karat:
    22/24 (91.67%) gold + silver & copper for durability

• 1 gold eagle made **Legal Tender** for 10 silver dollars
  so standard **Bimetallic**, not dual Gold/Silver
  **Mint Price of gold** = $19.39/oz.
  Original **Mint Ratio** = 19.39:1.293 = **15 :1**.

[Image: 1932 gold eagle](en.wikipedia.org/wiki/File:USA-1932-Coin-10.jpg)
Original Bimetallic Standard, 1792-1834 (cont’d.)

- **Token** Copper coinage
  1 cent, 2 cent pieces
  Legal tender only for very small amounts
  **Supply limited by demand for small change**
  so standard not “trimetallic”
  Created profit for Treasury
  “Seigniorage”
What’s in an oz?

1 oz Troy ≈ 31.1 gm
   named for Troyes in Champagne, France
   used for
     Gold
     Silver
     Platinum

1 oz avoirdupois ≈ 28.3 gm
(avoirdupois)
   used for
     everything else
Gresham’s Law

*If two forms of money are both legal tender, at a mint ratio that differs from the price ratio on the world market, the *overvalued* money will tend to drive the *undervalued* money out of circulation.*

At 15:1, silver was overvalued by the US relative to gold. The world price ratio was closer to 15.5:1.

Silver drove gold out of circulation in US, leaving US on **De Facto Silver Standard** prior to 1834.

**Bank notes** became only currency for over $1.
Gresham’s Law, before 1834: Silver drives gold out of U.S.

Chart 1. Gresham’s Law, before 1834: Silver drives gold out of U.S.
De Facto Gold Standard, 1834-1861

1834: Jacksonians raised mint price of gold to $20.67. Silver unchanged at $1.293.
US mint ratio = \textbf{16:1}, \textbf{gold} now \textbf{over}valued.
Silver → Europe etc., Gold → US.
US still \textbf{legally bimetallic}, but now on \textbf{De Facto Gold Std}.
Silver dollar, fractional silver disappeared.

1853: \textbf{Subsidiary Silver Coinage}
Silver $.50, .25, .10 reduced to 93% of full silver
Silver ½ dime replaced by nickel
Minting not free or unlimited – small seigniorage
Circulated to 1965.
Gresham’s Law, after 1834:
Gold drives silver out of U.S.

Chart 2. Gresham’s Law, after 1834: Gold drives silver out of U.S.
Greenback Standard, 1862-1879

Civil War 1861-1865

United States Notes (Greenbacks)

Issued by US Treasury, originally paid in gold
Conversion suspended end of 1861
Made legal tender early 1862
By 1865, $1 gold piece rose to $2.85 paper.
Subsidiary silver, even 1¢ out of circulation.
Gold Standard, 1879-1933

Gradual deflation after war, 1865-1879.
1873 law eliminated silver definition of dollar,
called for resumption in gold only.

**Resumption** of gold conversion in 1879.

⇒ Legal Gold Standard after 1879 resumption,
   @ Jacksonian $20.67/oz.

Only **limited** minting of legal tender silver $
Most used to back **silver certificates**
But not enough to drive gold completely out
Germany, France, etc also off silver 1871-1873.
UK already on gold since early 19\textsuperscript{th} century
Russia, India, on gold late 19c.
Gold became international standard (except China)
Silver fell to $.63/oz by 1894.
Bimetallism Movement

Advocated restoring **unlimited minting of silver** @ 1.293/oz, making **legal tender** for all **prior and future** debts.

Dominated 1896, 1900 presidential elections

Bimetallism: Wm. Jennings Bryan (D, Progressive)

“Cross of Gold” speech, “Crime of ’73”

Gold: Wm. McKinley (R)

Would have restored de facto silver standard, provided contractual relief for pre-1873 debt, expropriated up to 50% of post-1873 debt.
Fiat Money Standard, 1933-present

Federal Reserve Notes introduced 1914
- Originally obligations to pay gold on demand
- Backed 40% with gold, 60+% with gold-denom. loans
- Not legal Tender

Banking Crisis 1930-33

March 1933 **banking holiday** as FD Roosevelt inaug.
- Gold coins “temporarily” called in, replaced by FR notes
- FR note made Legal Tender
- Gold possession made crime for US citizens until 1975.

1935: $ devalued to 1/35 oz gold ($35/oz) for int’l trade.
- Gold defined $ internationally until 1968.
Fiat Money Standard, 1933-p resent, cont’d.
1963: Market price of silver reaches $1.293
   Silver certificates out of circulation.
1965: Silver rises further
   Subsidiary (93%) silver 50¢, quarter, dime disappear.
   Replaced by nickel/copper token coins.
1968: Run on US gold, int’l sales “temporarily” stopped
1971, 1973: Official gold price raised to $38, then $42.22,
   but not really sold, so a fiction.

9/23/2011:
   Gold $1659/oz,   Silver $31.00/oz.
   Ratio = 53.5:1
Economics of Oz

L. Frank Baum, *The Wonderful Wizard of Oz*, 1900

Oz = oz.
Scarecrow = Farmer
Tin Woodsman = Worker
Cowardly Lion = Bryan
Dorothy = America
Wicked Witch of East = Grover Cleveland, pro-gold Dem
Wicked Witch of West = McKinley, from out west in Ohio
Wizard = Marcus Hannah, behind scenes political manipulator
Emerald City = Washington, home of greenbacks
Yellow Brick Road = Gold Standard, almost leads Dorothy astray
Dorothy’s Magic Slippers that bring her Back Home safely are Silver in book, and in *The Wiz*, not Ruby Red as in MGM!
Next –

M&B 7 – Price Level
M&I 2 – Quantity Theory of Money

HW due Friday 5PM