Graphs and Tables, Economics 3-23-2
Professor Joel Mokyr

Income transferred from non-immigrants to capitalists

Net gain by capital due to immig

S

S'

W

W'

D

Income earned by new immigrants

L   L'

Figure 1
: Effects of Immigration on resident labor (assuming all labor is homogeneous)

Table 1: Mortality decline 1850-1910

	Male infant mortality rate (per 1000)	Female infant mortality rate (per 1000)	Male life expectancy at Birth	Female life expectancy at birth
1850	240	217	36.5	38.5
1860	202	191	40.7	41.2
1870	192	177	42.1	43.7
1880	220	230	38.7	38.2
1890	163	157	43.9	44.5
1900	133	125	46.3	47.4
1910	125	104	49.9	53.2

Health-Neutral good

X'

X

E'

E*

E

E''

O

Y

Y'
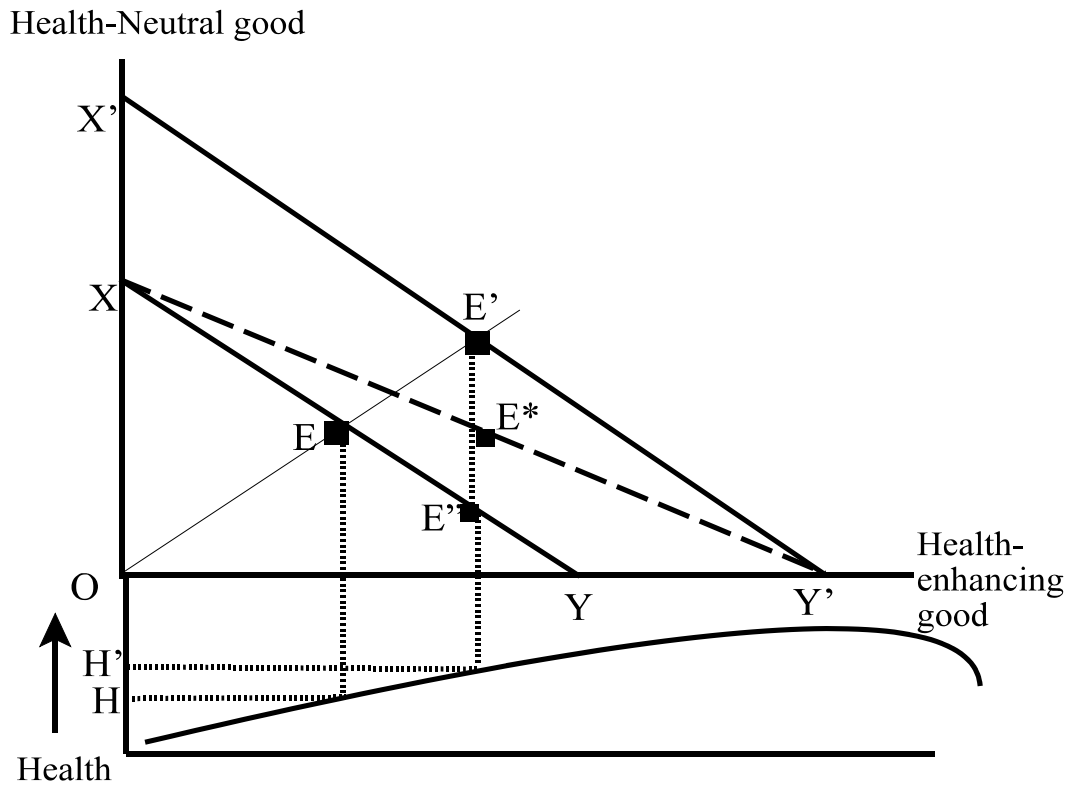
Health-
enhancing
good

H'

H

Health

Fig. 2: Income, Price, and knowledge

Table 2: Agricultural productivity:

	Corn Per Acre (bushls)	Wheat per acre (bushls	Corn Acreage	Wheat acreage
1866	24.4	11	30	15
1890	22.1	12.2	75	37
1910	27.9	13.7	102	46
1950	37.5	16.4		
1990	118.5	39.5	67	69

Fig. 3: Decline of Southern Output after the Civil War:

Leisure

E*

Coercion
due to
Slavery

Es

Labor

Output

Decline in
output due to
Emancipation

L*   Ls
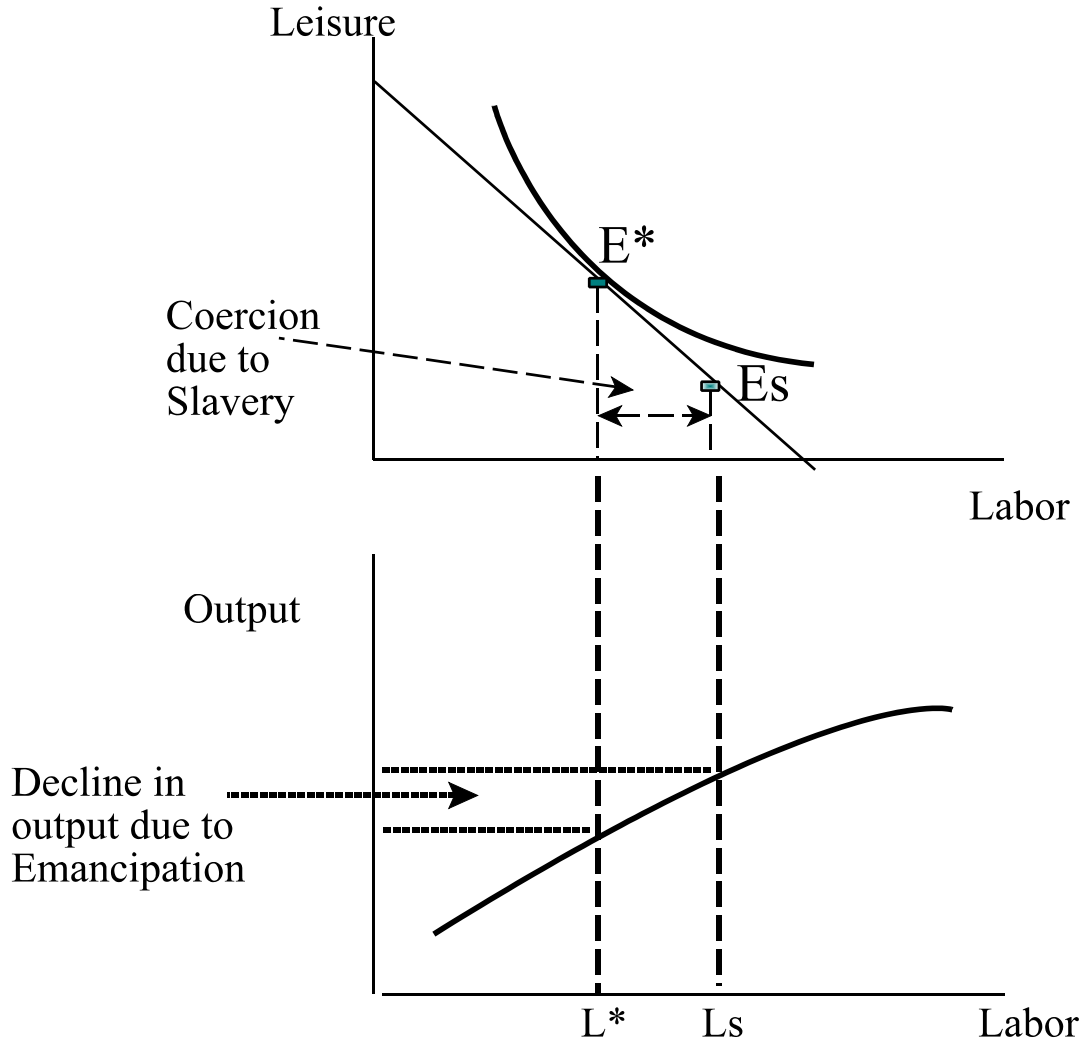
Labor

Fig. 4: Labor saving technological change

Land

Land
Saving

E

E'

Unit Isoquant

Labor Saving

Labor

Figure 4 (cont'd)
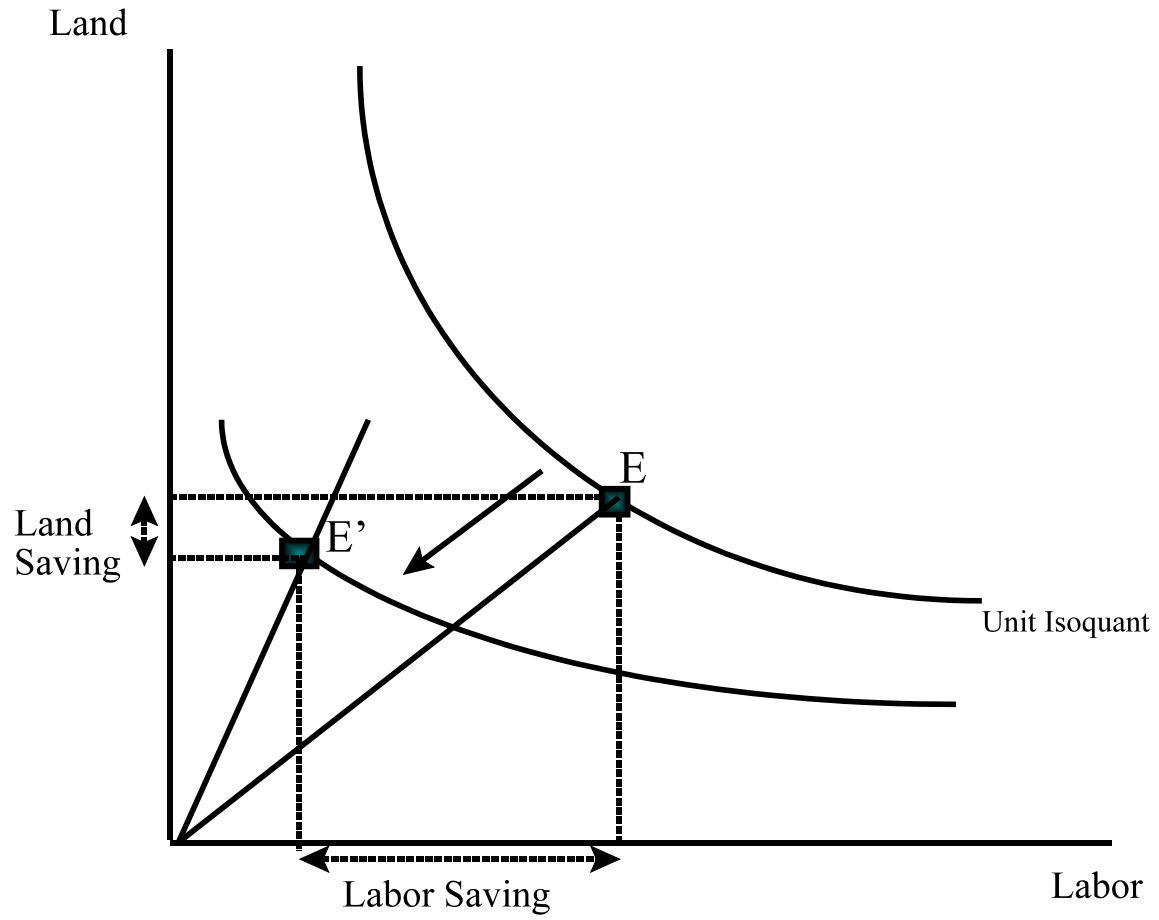
Output
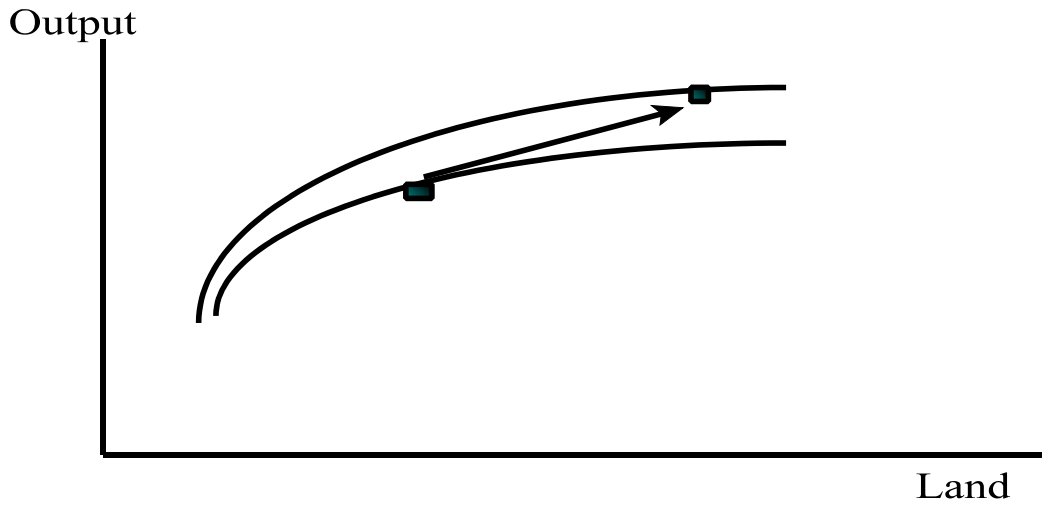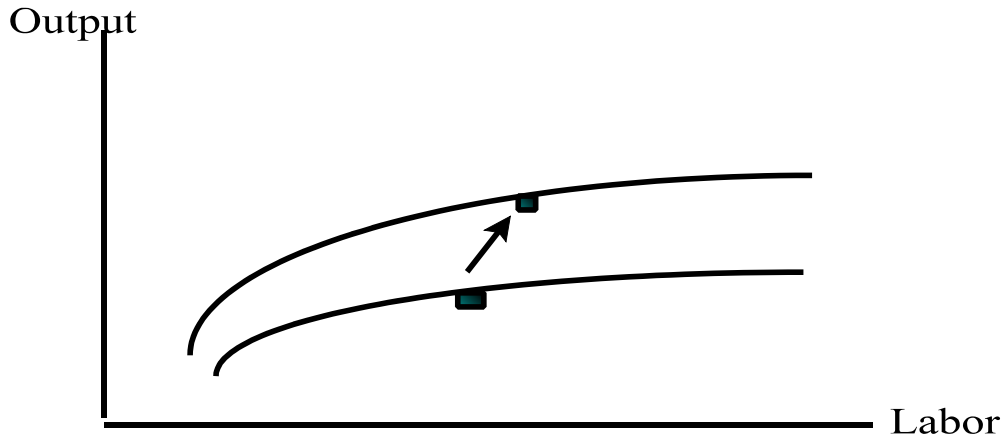
Labor

Output

Land

Table 3: **Index numbers, inputs and outputs**

Year	Labor	Population	Land	Capital	Gross Private Dom. Product
1840	100	100		100	100
1850	144	136	100	151	148
1860	195	184	138	265	254
1870	227	233	139	311	337
1880	306	294	182	469	539
1890	410	368	212	864	907
1900	511	444	286	1254	1331

Table 4: Average Annual Rates of growth:

Period	Labor	Popul.	Land	Capital	GPDP	GPDP per capita
Long-run						
1840-1900	2.76	2.52	1.77	4.31	4.41	1.89
Intermediate						
1840-60	3.38	3.10	na	5.00	4.76	1.67
1860-80	2.29	2.36	1.39	2.89	3.84	1.48
1880-00	2.60	2.10	2.28	5.04	4.62	2.53
Short-term						
1840-50	3.73	3.11	na	4.20	3.97	0.86
1850-60	3.04	3.08	3.31	5.80	5.56	2.48
1860-70	1.57	2.39	0.02	1.60	2.89	0.50
1870-80	3.01	2.33	2.77	4.20	4.80	2.46
1880-90	2.98	2.29	1.52	6.30	5.34	3.05
1890-00	2.23	1.90	3.05	3.80	3.91	2.01

Table 5: Sectoral shares:

Year	Employment			Output (1860 prices)		
	Agric.	Industry	Services	Agric.	Industry	Services
1840	68	12	20	47	21	31
1850	60	17	23	42	29	29
1860	56	19	25	38	28	34
1870	53	22	25	35	31	34
1880	52	23	25	31	32	38
1890	43	26	31	22	41	37
1900	40	26	33	20	40	39

Table 6: GPDP and Capital Formation

Decade	GPDP (bills of 1860 $)	Capital formation in % of GPDP	Net Capital out- or inflow in % of GPDP	Conventional Domestic Saving
1839-48	2.53	14.96	0.20	15.15
1844-53	3.25	1600	-0.31	15.69
1849-58	4.22	16.52	-0.43	16.09
1869-78	8.80	20.45	-0.55	19.91
1874-83	11.58	18.98	0.39	19.37
1879-88	15.18	18.71	-0.34	18.37
1884-93	19.07	19.96	-0.71	19.24
1889-98	22.85	19.51	-0.07	19.44

Table 7: Ten leading industries in America 1860-1920, by value added, 1914 prices (millions of 1914 $'s)

1860		1880		1900		1920	
Industry	Value Added	Industry	Value Added	Industry	Value Added	Industry	Value Added
Cotton Goods	59	Machinery	111	Machinery	432	Machinery	576
Lumber	54	Iron and Steel	105	Iron and Steel	339	Iron and Steel	493
Boots and Shoes	53	Cotton Goods	97	Printing and Publishing	313	Lumber	393
Flour and Meal	43	Lumber	87	Lumber	300	Cotton goods	364
Men's clothing	39	Boots and Shoes	82	Clothing	262	Shipbuilding	349
Machinery	31	Men's clothing	78	Liquor	224	Automotive	347
Woolen goods	27	Flour and Meal	64	Cotton Goods	196	General Shop construction	328
Leather goods	24	Woolen goods	60	Masonry and brick	140	Printing and publishing	268
Cast iron	23	Printing	58	General shop construction	131	Electrical Machinery	246
Printing	20	Liquor	44	Meatpacking	124	Clothing	239

Fig 5: Forward and Backward Linkages:
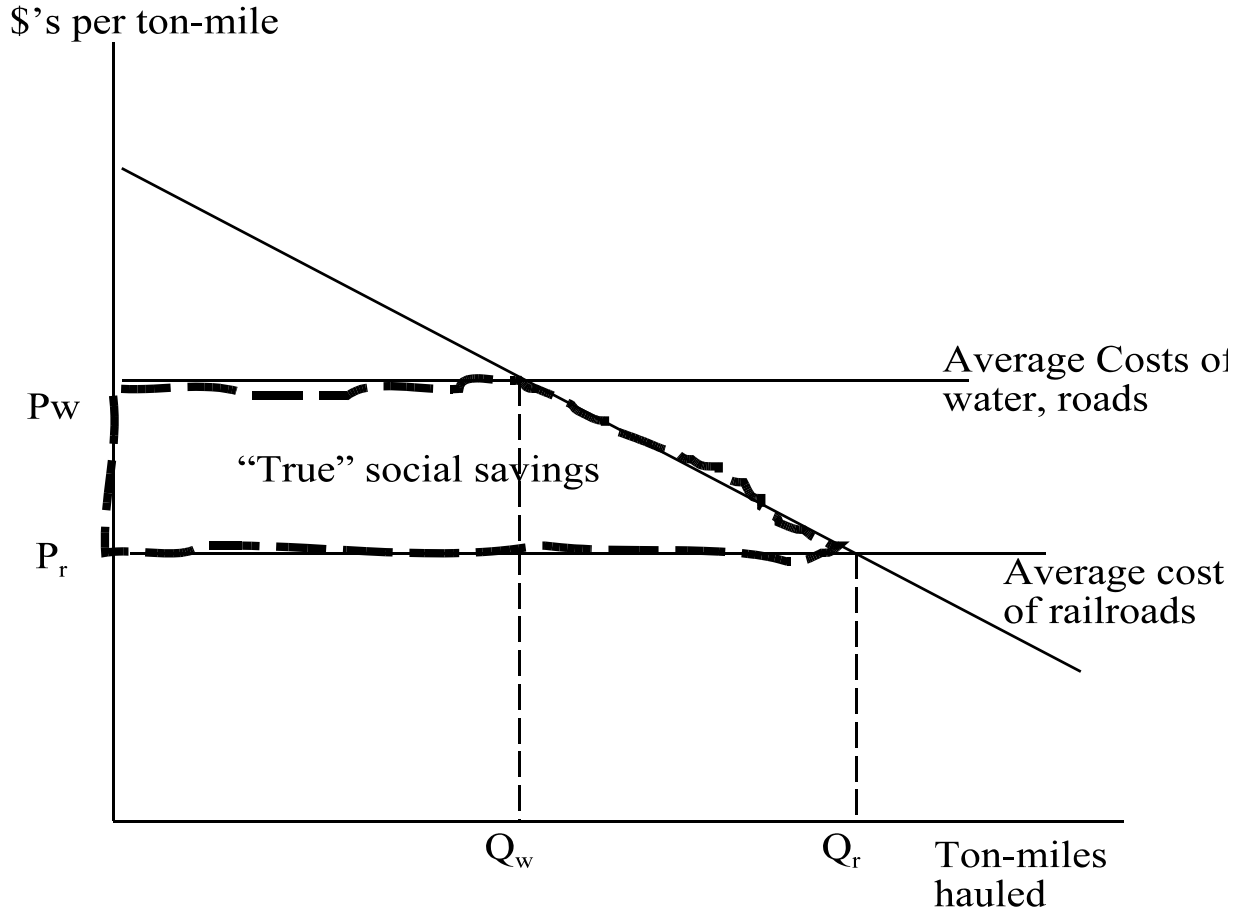
5a: Forward Linkages

$’s per ton-mile

Pw

P_r

"True" social savings

Average Costs of
water, roads

Average cost
of railroads

Q_w

Q_r

Ton-miles
hauled

Fig 5b: Backward Linkages:

$'s

Net gain in producer surplus to other users of i&s

Average Costs

D_{other} $D_{other +RR}$

Tons of iron or steel
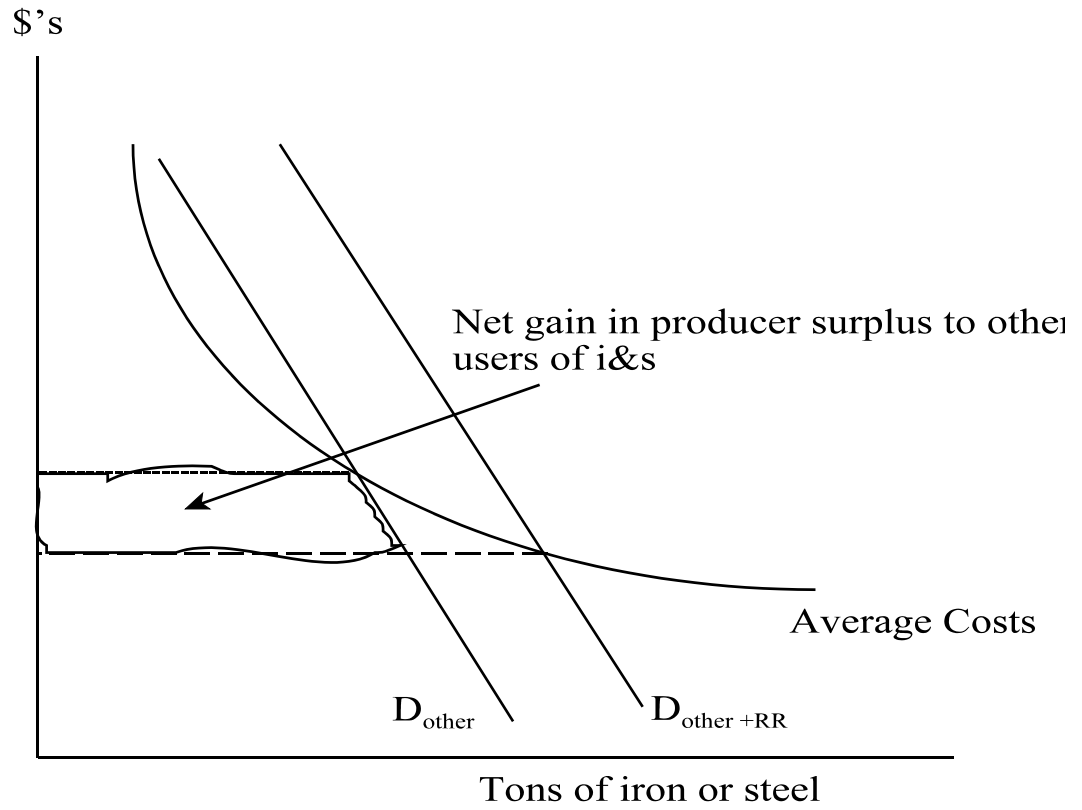
Fig 6: The case of Railroads and why market failure occurs.

Case 1: Monopolist produces Railroads even if competition does not.

Monopolist Profits

P_M

P_C

D

MR

D

AC

MC
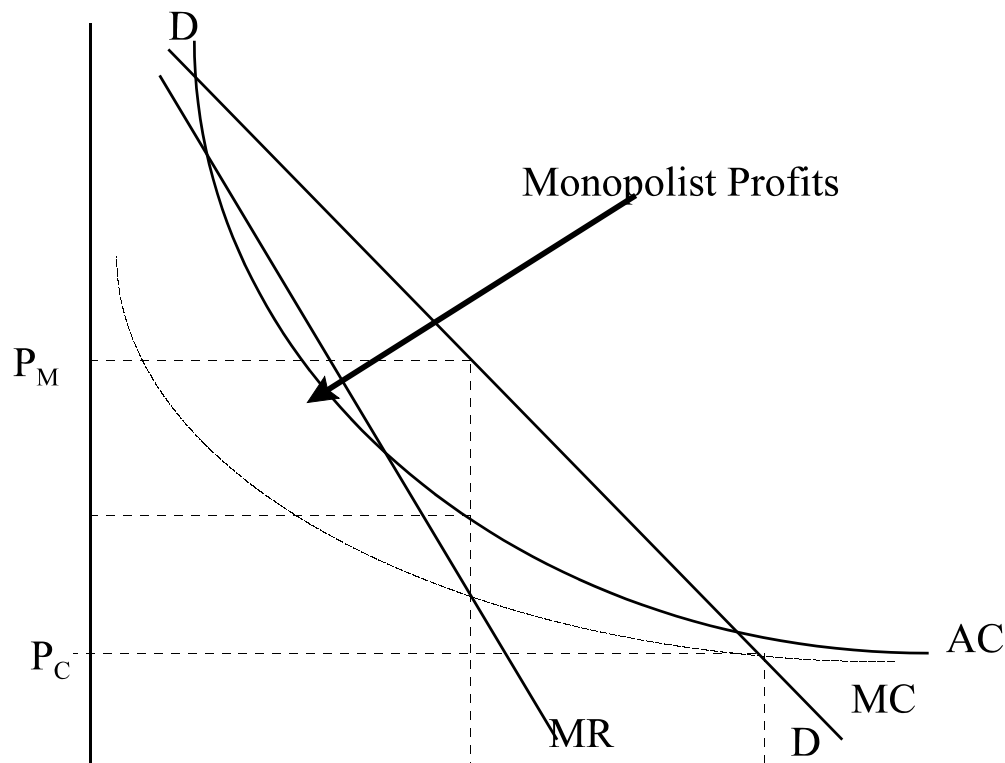
Case 2: Even the monopolist does not produce Railroad services

Price

AC

Monopolist's losses

P_M

MC

P_c

D

MR

Railroad
services

17
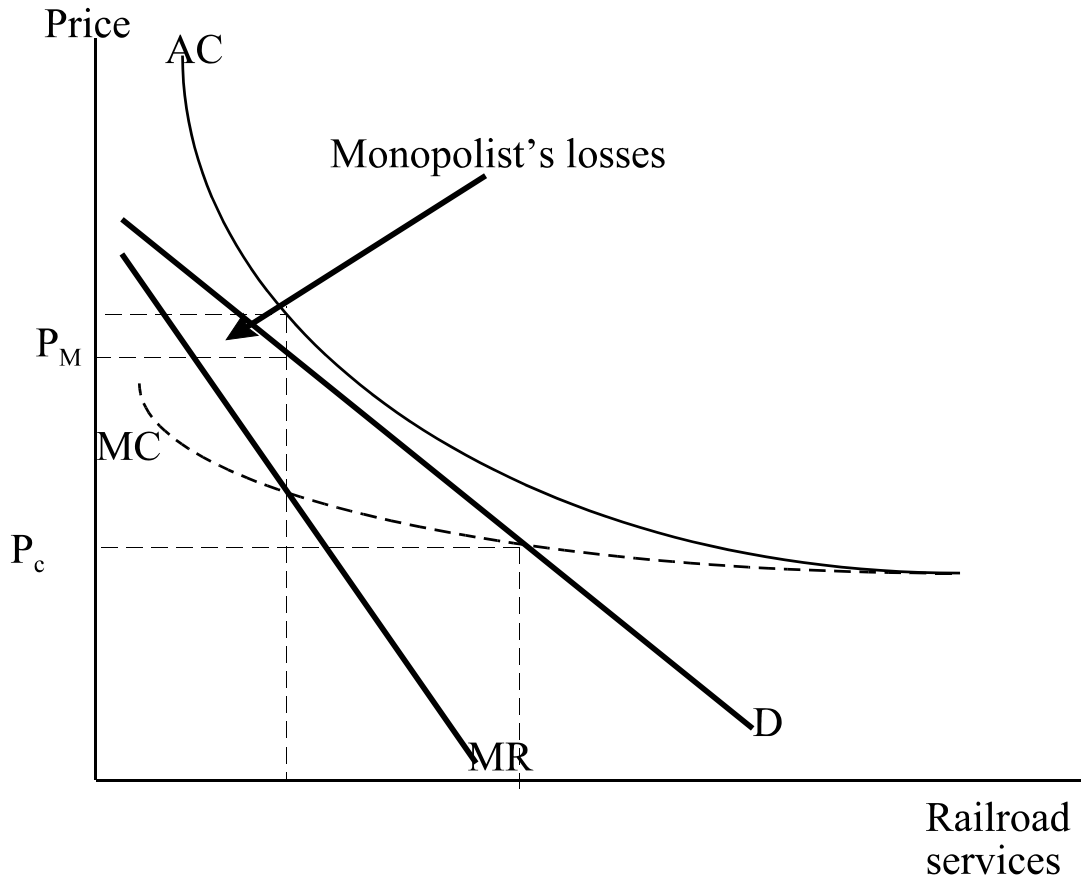
Fig. 7: Should Society produce Railroads (through subsidies or government intervention) even when the private sector does not?
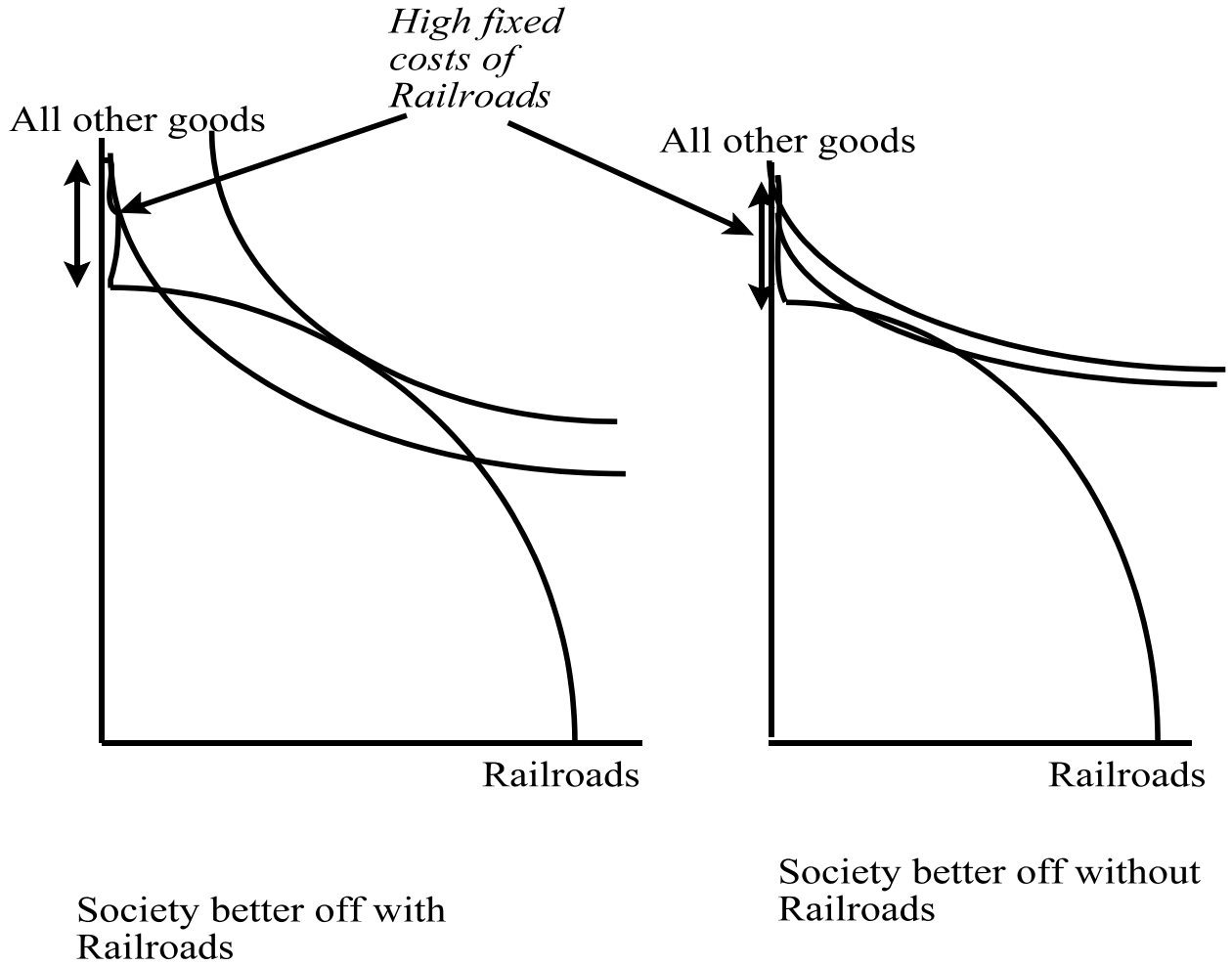
High fixed costs of Railroads

All other goods

All other goods

Railroads

Railroads

Society better off with Railroads

Society better off without Railroads

Table 8: The "Decline of Laissez Faire." Main events:

1876: Munn vs. Illinois ("regulation is OK if public interest at stake")

1886: Federal Government should regulate if Interstate

1887: Interstate Commerce Act, established ICC, first regulatory agency

1890: Sherman Antitrust Act

1895: *Knight* case (manufacturing is not commerce)

1901: Death of President McKinley, Roosevelt presidency 1901-1908

1902: Reclamation Act: government establishes control over public lands

1904: Hepburn act gives ICC right to set railroad rates. Northern Securities Trust dissolved.

1906: Pure Food and Drug Act (establishes FDA)

1910: Mann-Elkins Act, extends regulation to cables and networks

1911: Supreme Court lets stand dissolution of Standard Oil and American Tobacco

1913: Federal Reserve System established

1913: 16th amendment, permits Federal Income Tax

1914: Clayton Act (extends and modifies Sherman Act).

**1914: Federal Trade Commission established.**

Table 9: Main muckraking events

|	Name and dates	Main books	Targeting
	Ida B. Tarbell, 1857-1944	*The History of the Standard Oil Company* (1904)	John D. Rockefeller
	Lincoln Steffens 1866-1936	*Shame of the Cities* (1907)	Corrupt local government
	Upton Sinclair, 1878-1968	*The Jungle* (1906)	Meatpackers
	Charles Edward Russell 1860-1941	*Greatest Trust in the World* (1905)	Meatpackers
	Henry Demarest Lloyd (1847-1903)	*Wealth and Commonwealth*	Monopolies and Trusts
	Samuel Hopkins Adams, 1871-1958	*Great American Fraud* (1905)	Patent Medicine, quack doctors

Table 10: Summary of arguments for and against mergers

	Vertical Mergers	Horizontal Mergers
"Good" (enhance economic welfare)	• **Reduce supply uncertainty** • **Reduce demand uncertainty** • **Avoid "hold-up" behavior**	• **Realize economies of scale and scope** • **Streamline and improve R&D** • **Avoid disastrous "price wars"**
"Bad" (reduce economic welfare)	• **Avoid competition in B2B markets (both suppliers and customers)** • **Make entry of other firms harder**	• **Monopolistic price behavior** • **Avoid quality competition** • **Increase effectiveness of political lobbying**

Fig. 8: The Schumpeterian Dilemma:

Good X
(monopoly)

A'

S'

S"

A

S

E

B   B'   Good Y
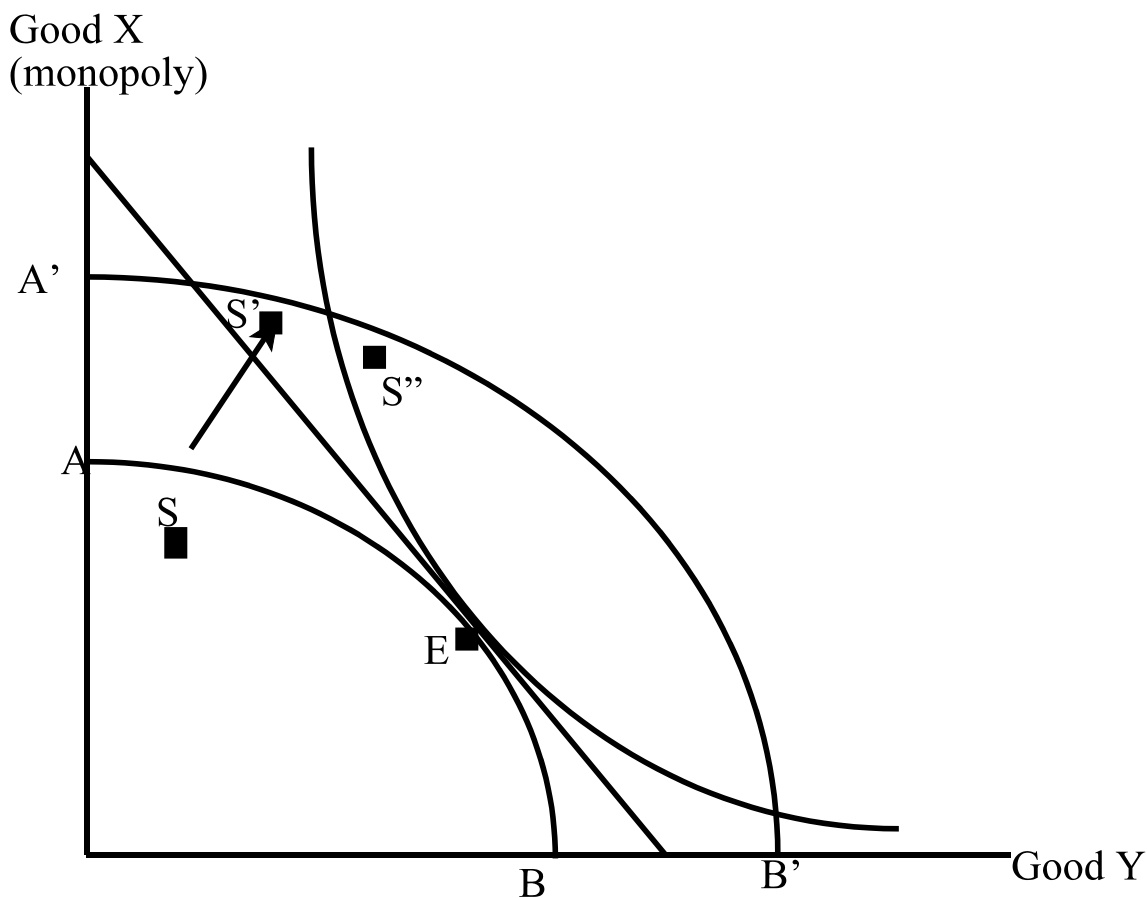
Note: In a competitive and efficient economy, the economy will be at point E, but competitive firms have no profits so they carry out no R&D, and the economy stays at point E. In a monopolistic economy, the economy starts off at S (which is inside the PPF) but because it carries out more R&D, it enables the economy to move the PPF to A'B' and eventually the outcome could be better if the economy ends up at S", though not necessarily so if it ends up at S'.

Fig. 9: The standard story why tariffs are bad for an economy.

Price of X

S_D

Import with tariff

S_F+T

1

3

2

4

S_F

D

Import under free
trade
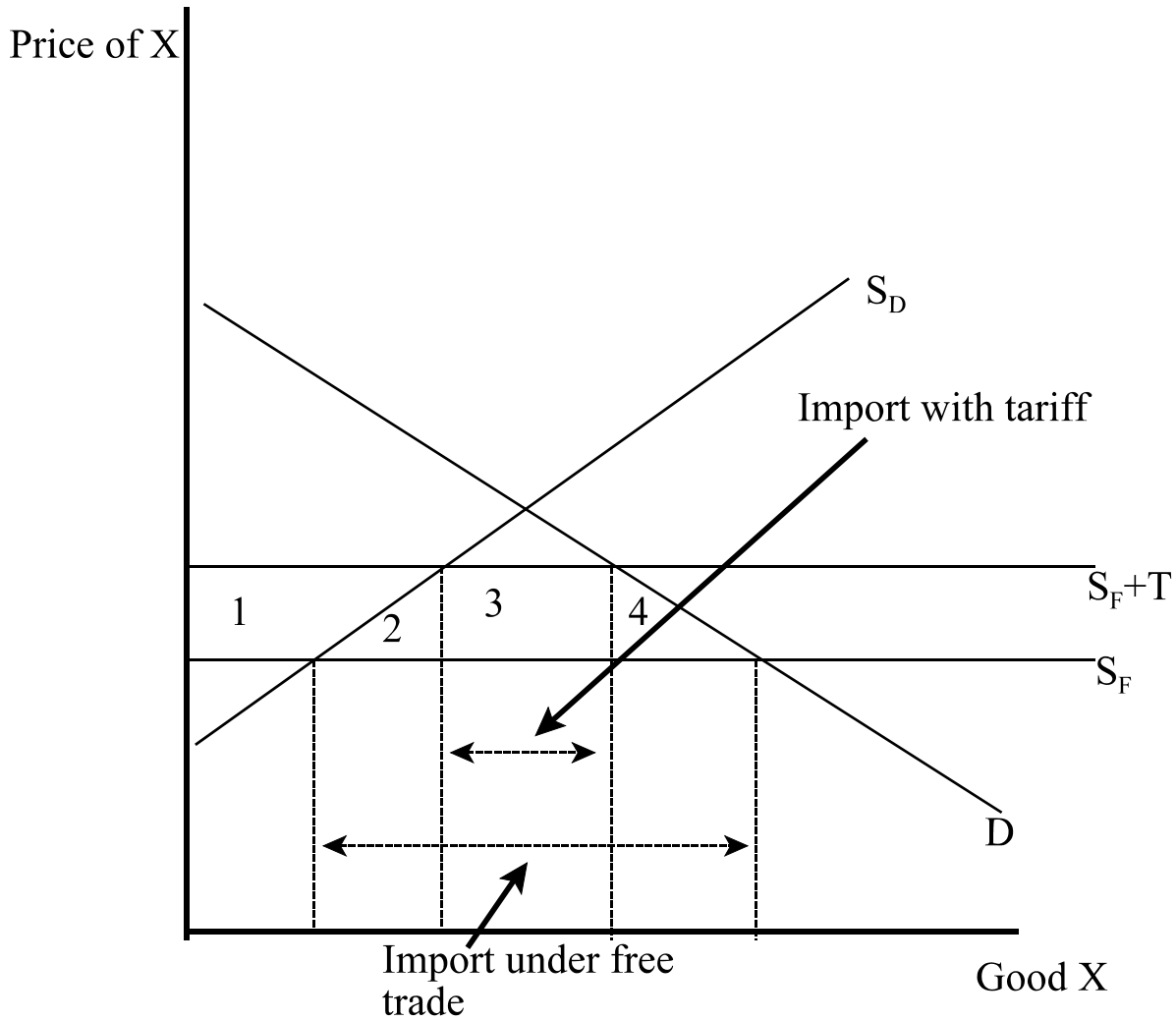
Good X

Note: total loss to consumers as a result of the tariff is the trapezoid 1+2+3+4. Of that:

area 1: is gained as additional producer surplus to producers of good X

area 2: is gained by the additional factors of production hired by producers of X

area 3: Tariffs collected by the government

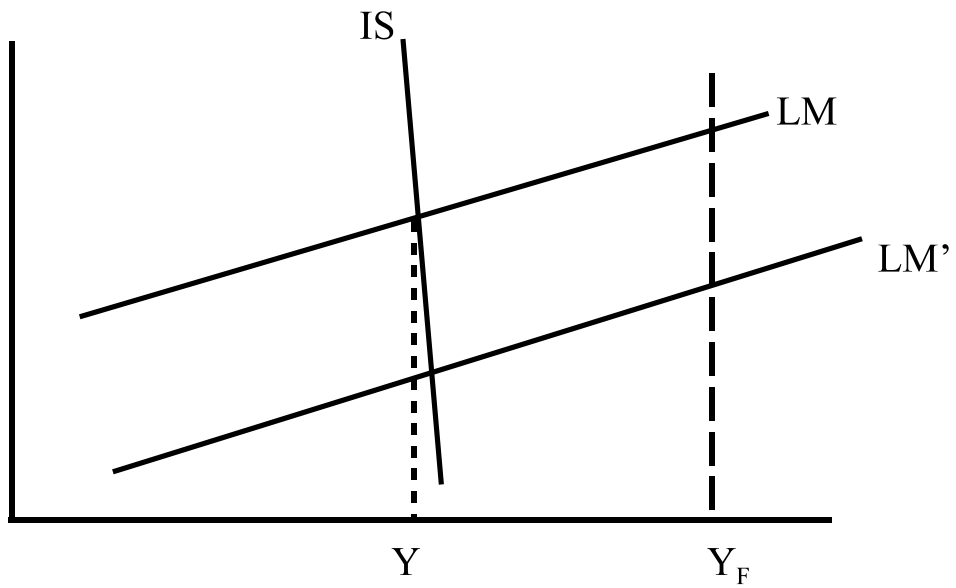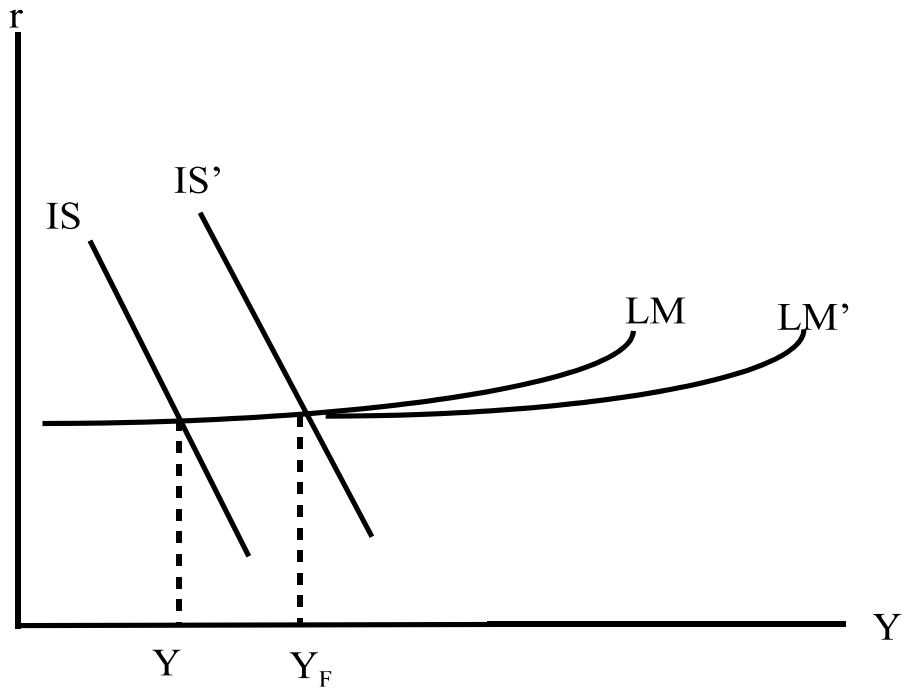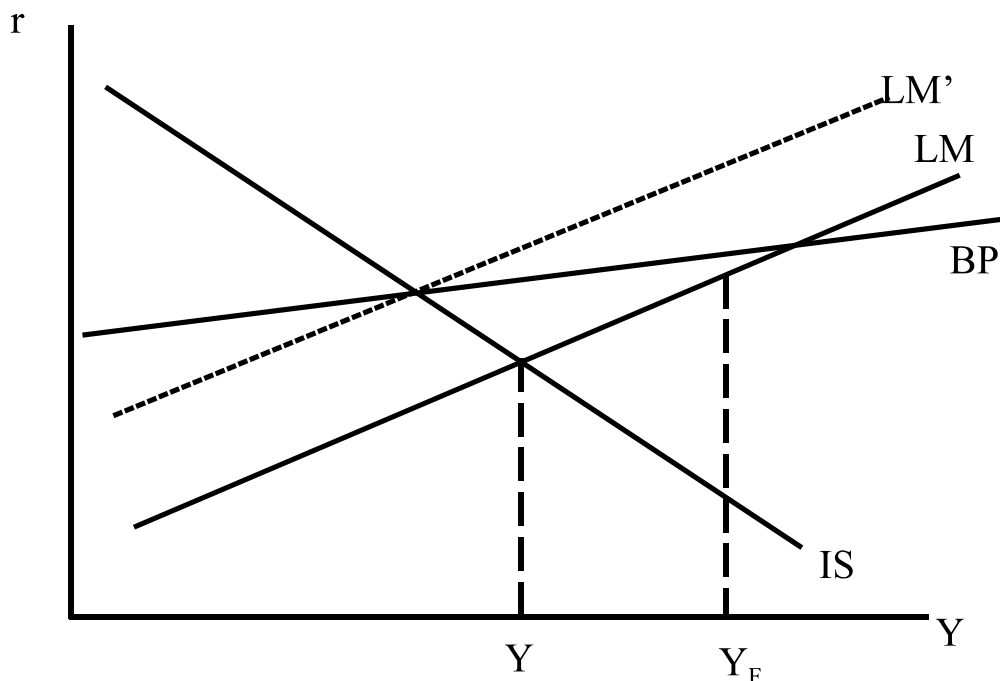area 4: "deadweight burden" – lost due to reduced efficiency.

Fig. 10: Why Monetary Policy Might not have worked in the Great Depression
part a: standard monetary policy story

Part b: Liquidity trap and the "impotence" of monetary policy.

Fig. 11a: The Gold Standard, the Balance of Payments, and the Depression

LM curve describes money market equilibrium: $L(r,Y) = M(r,Y)$

IS curve describes commodity markets: $I(r,Y) = S(r,Y)$

BP curve describes foreign exchange market $M(r,Y) = X(r,Y)$. [Note that this curve is upward sloping. Why: a rise in r causes a capital inflow. A rise in Y causes imports to increase without affecting exports, so it causes capital outflow. Hence any rise in r has be compensated by a rise in Y to keep $X = M$.]

Two basic questions: are all three markets simultaneously in equilibrium?

They are if LM shifts to LM' but that is clearly *not* full employment.

Fig 11b:
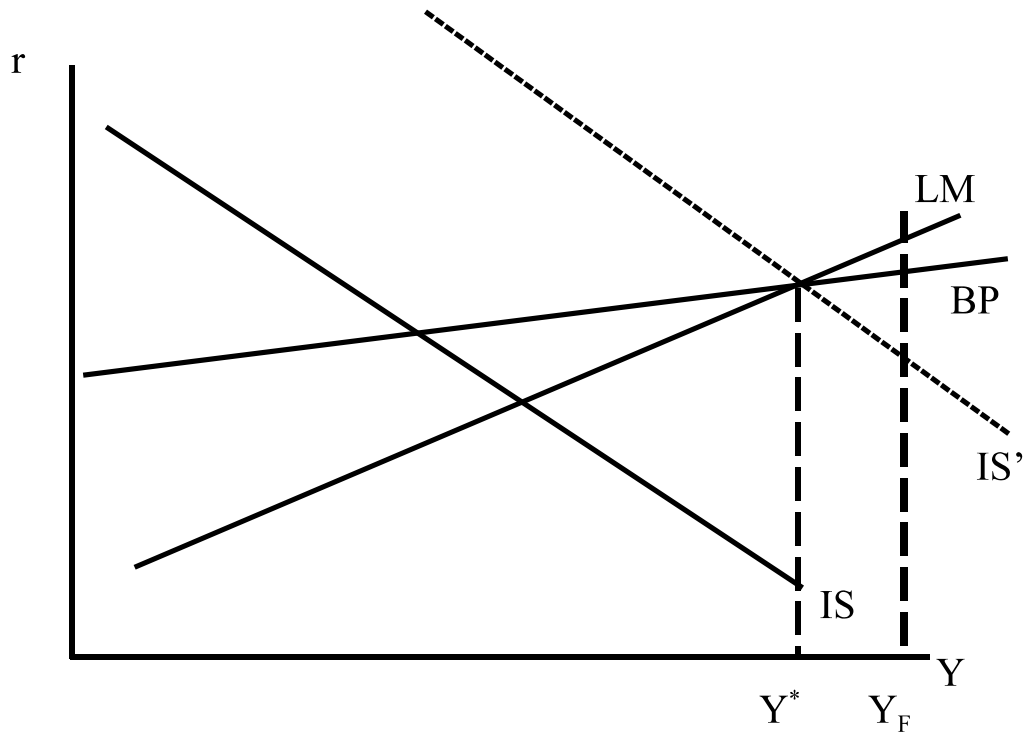
Is Y* full employment? Not necessarily. But if IS shifts further to the right, there may be a disequilibrium in BP (i.e., a deficit in the country's Balance of Payments). This might cause the country to lose Gold or even abandon the Gold standard. As long as countries are committed to the Gold Standard, they will not go beyond Y*.

Table 11: **Accounting Deficit and Full Employment Deficit**

	G in current billion $'s (all govern-ments)	**T in current billion $'s (all govern-ments)**	**Accoun-ting Surplus (+) or deficit (-)**	**Full Employment Surplus in current Billion $'s**	**Full Employ-ment Surplus % GNP**
1929	**8.5**	**9.5**	**-1.0**	**1.24**	**1.2**
1930	**9.2**	**8.9**	**-0.3**	**.81**	**0.9**
1931	**9.2**	**6.4**	**-2.8**	**-.41**	**-0.54**
1932	**8.1**	**6.4**	**-1.7**	**.50**	**0.87**
1933	**8.0**	**6.7**	**-1.3**	**1.06**	**1.9**
1934	**9.8**	**7.4**	**-2.4**	**.09**	**0.14**
1935	**10.0**	**8.0**	**-2.0**	**.54**	**0.76**
1936	**11.8**	**8.9**	**-2.9**	**.47**	**0.57**
1937	**11.7**	**12.2**	**+0.5**	**2.55**	**2.82**
1938	**12.8**	**11.3**	**-1.5**	**2.47**	**2.92**
1939	**13.3**	**11.2**	**-2.1**	**2.0**	**2.21**

Full employment surplus (+) or deficit (-) computed by Larry Peppers (1973).

Fig. 12: Diagrammatic presentation of Full Employment deficit.

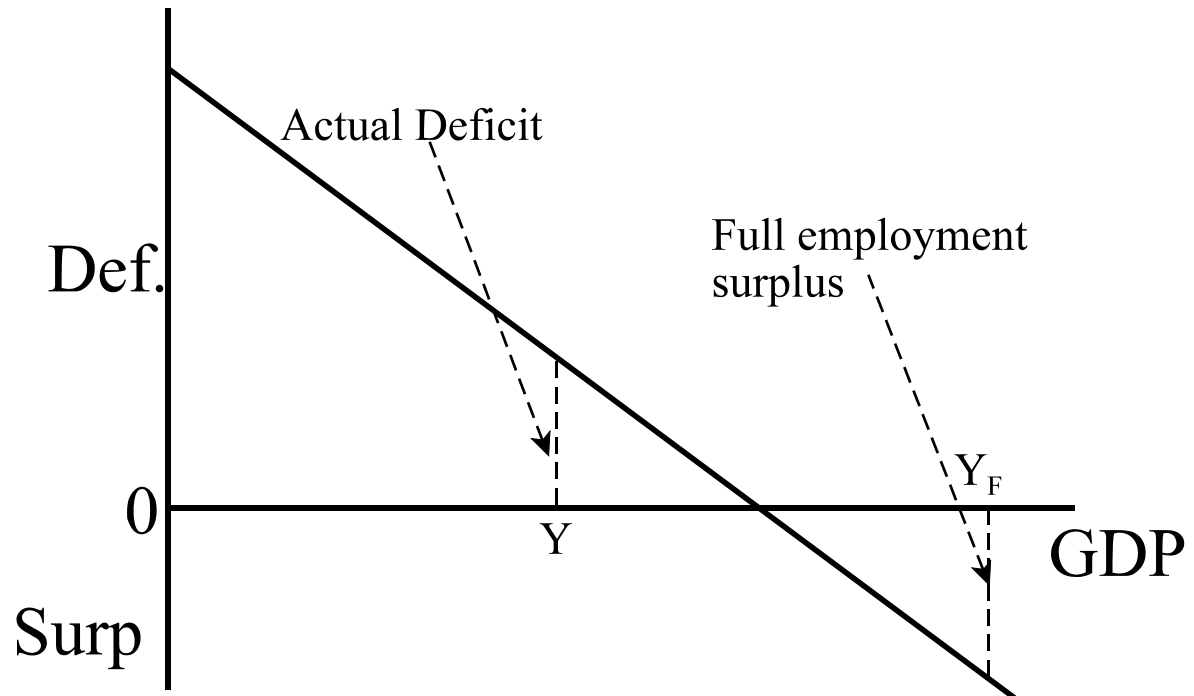Actual Deficit

Full employment
surplus

Def.

0

Surp

Y

Y_F

GDP

Table 12: How the US won World War II: Selected products, 1942-44 only

	Rifles	Mach. Pistols	Mach. Guns	Heavy Guns	Mor tars	Tanks	Combat aircraft	Major naval vessels
USA	10,714	1,685	2,291	512	61.6	86	153.1	6,755
UK	2,052	3,682	610	317	65.3	20.7	61.6	651
USSR	9,935	5,501	1,254	380	306.5	77.5	84.8	55
Total Allied	22,701	10,868	4,154	1,208	433.4	184.2	299.5	7,461
Germany	6,501	695	889	262	66	35.2	65	703
Italy	--	--	83	7	11.3	2	8.9	218
Japan	1,959	3	341	126	4.3	2.4	10.7	438
Total Axis	8,460	698	1,313	395	81.6	39.6	114.6	1,359

Table 13: Labor force figures for the War

	Total Labor Force (mills)	Armed Forces (mills)	Civilian Employed	Civilian Unem-ployed	Unemp-loyment %
1938	55.0	0.3	44.2	10.4	19
1939	55.6	0.4	45.7	9.5	17.2
1940	56.2	0.5	47.5	8.1	14.6
1941	57.5	1.6	50.3	5.5	9.9
1942	60.4	4.0	53.7	2.6	4.7
1943	64.6	9.0	54.5	1.0	1.9
1944	66.0	11.4	54.0	0.7	1.2
1945	65.3	11.4	52.8	1.0	1.9