Motivation:

1. So far, we have considered the effects of trade on countries with "perfect" markets. Prices accurately reflect the cost of resources needed to produce goods, and the value that consumers place on goods.

2. But governments have many policies that distort prices, often with necessity and the best of intentions. For example, governments need to raise tax revenue in order to pay for public goods.

3. How does trade affect the environment in a distorted environment? Agents are making decisions based on distorted prices.
4. In other cases, governments deliberately distort the economy in order to achieve some objective, such as shifting resources to a politically favored sector (e.g., high tech).

5. What are the consequences of a government deliberately distorting the economy to achieve a trade objective, such as the export of high tech products?
1. Distinguishing among producer, consumer, and world prices.

2. Autarky equilibrium, where does tax revenue go?

3. Small economy, fixed world prices: distortions as a basis for (bad) trade.

4. Two identical economies

5. Production externalities

\[
\text{Autarky} \quad p \text{ - producer prices, } q \text{ - consumer prices}
\]

\[
q = p(1 + t) > p \quad \text{tax}
\]

\[
q = p(1 - s) < p \quad \text{subsidy}
\]
Note the equivalence of a tax on one good and a subsidy on the other.

\[
\frac{q_1}{q_2} = \frac{p_1(1 + t)}{p_2} > \frac{p_1}{p_2} \quad \text{tax on } X_1
\]

(10.2)

\[
\frac{q_1}{q_2} = \frac{p_1}{p_2(1 - s)} > \frac{p_1}{p_2} \quad \text{subsidy on } X_2
\]

In the closed (autarky) economy, there is no different between a tax on the producer and a tax on the consumer

Figure 10.1

Notice welfare loss: decisions based on distorted price signals.
Figure 10.1

Figure 10.2
In the open economy, there is a great difference between taxing consumption of a good versus taxing production.

Taxing consumption leads to a reduction in consumption, encouraging exports.

Taxing production leads to a reduction in production, encouraging imports.

Assume throughout that tax revenues are redistributed back to consumers lump sum.

Then the value of consumption at consumer prices, equals the value of production at producer prices plus (net) tax revenue.

\[ q_1D_1 + q_2D_2 = p_1(1 + t)X_1 + p_2X_2 = \left[ p_1X_1 + p_2X_2 \right] + \left[ p_1 tX_1 \right] \] (10.3)
Small Economy: fixed world prices = undistorted domestic autarky prices.

*Production* Tax on $X_1$ (subsidy on $X_2$) (Figure 10.2)

\[
\frac{p_1(1 + t)}{p_2} = \frac{q_1}{q_2} = \frac{p_1^*}{p_2^*} > \frac{p_1}{p_2}
\]  

(10.4)

Equilibrium requires:

(1) Trade balances at *world* prices, implying that the consumption and production points are connected by the world price ratio.

(2) Producer prices do *not* equal world prices, implying that the world price ratio cuts the production frontier.
(3) Consumers optimize with respect to the consumer price ratio, so that the slope of an indifference curve is equal to the consumer price ratio = world price ratio.

Result: Bad trade. A subsidy can generate exports, but do not confuse exports with welfare.

“If it ain’t broke, don’t fix it”.
Two identical countries: identical autarky = free trade equilibria at A in Figure 10.3

Let country h put a subsidy on $X_2$. This will shift production in h from $X_1$ to $X_2$.

At the old prices, excess supply of $X_2$ and excess demand for $X_1$.

(Passive) country f will be drawn into specializing in and exporting $X_1$.

Figure 10.3: passive country f gains from trade - silly country h is selling $X_2$ for less than the cost of production.
Production externalities

Suppose that there are positive “spillovers” among firms in sector 1.

(a) anything learned by one firm can be costlessly copied by all. Firms creating new knowledge/techniques cannot control or charge for this

(b) a large market leads to the creation of specialized intermediate inputs that raise the productivity of all firms. Each firm takes the range of intermediates as fixed (exogenous to its own decisions).

Each firm’s output depends on the total output of the sector, which is taken as exogenous.

\[ X_{il} = (X_1^a) L_{il} \quad X_2 = L_2 \quad \bar{L} = \sum_i L_{il} + L_2 \]  

(10.5)
where \(0 \leq \alpha < 1\) is an externality parameter: \(\alpha = 0\) is the special case of no externality, in which case the model reduces to the Ricardian model of Chapter 7.

In competitive equilibrium, each firm equate the value of the marginal product of labor to the wage rate, denoted \(w\), as in the Ricardian model.

\[
p_1 x_1^\alpha = w \quad p_2 = w \quad \frac{p_1}{p_2} = \frac{1}{x_1^\alpha}
\]  

(10.6)

Total industry output in \(X_i\) is given by summing the first equation in (10.5) over all \(i\) firms. Total industry output \(X_i\) is as follows.

\[
\sum_i x_{i1} = x_1 = x_1^\alpha \sum_i l_{i1} = x_1^\alpha \sum_l L_1 \quad x_1^{1-\alpha} = L_1 \quad x_1 = L_1^{1-\alpha}
\]

(10.7)
Since $\alpha < 1$, the exponent on the right-hand equation of (10.7) is greater than one: total industry output exhibits increasing returns to scale in its total labor input.

Differentiate the middle equation in (10.7) along with the equation for $X_2$ output, making use of the total labor supply constraint.

$$(1 - \alpha)X_1^{-\alpha} dX_1 = dL_1 \quad \quad \quad \quad dX_2 = dL_2 = -dL_1 \quad \quad \quad (10.8)$$

Divide the first equation of (10.8) by the second and rearrange.

$$- \frac{dX_2}{dX_1} = (1 - \alpha) \frac{1}{X_1^\alpha} \quad \quad \quad (10.9)$$
which is the slope of the production frontier, the marginal rate of transformation. The production frontier is a convex function: IRS

Figure 10.4

Now combine (10.9) with the competitive pricing condition in (10.6). This gives us a relationship between the marginal rate of transformation and the equilibrium price ratio.

\[- \frac{dX_2}{dX_1} = (1 - \alpha) \frac{p_1}{p_2} < \frac{p_1}{p_2}\]  

(10.10)

There is also a distortion between the MRT and the price ratio. Let’s ignore this for now.
Consider two identical economies as shown in Figure 10.5. Significant gains from trade exist through specialization.

But, this is not the only possibility: there is no reason that equilibrium prices just happen to equal the cord connecting the endpoints of the ppf.

Figure 10.6 shows an outcome in which the gains are very asymmetric despite being identical countries.

There are *multiple equilibria*: just reverse the labeling of the countries in Figure 10.6. This plus the unequal gains creates a role for government policy.
Figure 10.5

\[ X = D^a \]

Figure 10.6

\[ X = D^a \]

\[ D^f \]

\[ D^h \]

\[ U^f \]

\[ U^h \]
Government Policies

1. Public policy can generate trade, but it is not necessarily good trade and must be welfare worsening if everything is optimal to start with (if it ain’t ....). Exports must not be confused with welfare.

2. There is a symmetry between a tax in one sector and a subsidy to the other sector. Why are governments so paranoid about foreign subsidies but not about foreign taxes?

3. Production externalities are thought to be common. They can lead to gains from trade between similar countries, though:
   (a) there may exist multiple equilibria
   (b) similar countries do not benefit equally
   (c) these two together create a possible role for government policy
Tax rates around the world

From Wikipedia, the free encyclopedia

Comparison of tax rates around the world is difficult and somewhat subjective. Tax laws in most countries are extremely complex, and tax burden falls differently on different groups in each country and sub-national unit. The lists below give an indication by rank of some raw indicators.

Denmark is currently the most taxed country in the world with an income tax of up to 59%[1]

Contents

- 1 Graphs
- 2 List
- 3 See also
- 4 Notes
- 5 External links

Graphs

![Income Tax rates by Country based on OECD 2005 data.][2]

List

This is a list of tax rates around the world. It focuses on three types of taxes: corporate taxes, individual taxes and sales taxes (value added taxes (VAT) / goods and services taxes (GST) / sales). It is not intended to represent the true tax burden to either the corporation or the individual in the listed country. Note that no distinction is made between "true" taxes, that pay for the government's general budget, and fees paid for specific social benefits such as

http://en.wikipedia.org/wiki/Tax_rates_around_the_world

9/7/2010
Governments differ dramatically in how they tax—and how much they raise

THANKS to the collateral damage from the financial crisis, government deficits have surged across the rich world. Once the recovery is entrenched this fiscal deterioration will need to be tackled. Although spending cuts could, and should, be the preferred route to prudence, taxes are all too likely to be part of the mix—at least judging from the experience of those countries that have already acted. Spain will raise its value-added tax rate (VAT) from 16% to 18%. Ireland has raised its top income tax rate from 41% to 46%. In both Britain and America current law promises higher future tax
A person earning $100,000 in Sweden has 37.5% of it deducted as income tax, according to an annual survey of effective tax rates by KMPG, an accounting firm. Sweden's income-tax rates are among the world's highest, but the addition of social-security contributions means that people earning this sum in Slovenia, India or Italy take home an even smaller share of their gross earnings. Slovenia's government deducts almost 55% from earnings of $100,000. Social-security levies eat up a chunky 22% of earnings at that level in France, but low income taxes bring the total take, at 36%, into line with that in other rich nations. Switzerland's effective tax rate on the fairly well-off is one of the lowest in the world.
institutions) account for 80% of greenhouse-gas emissions. Most subsidies come from its poor and middle-income members (see chart). The International Energy Agency reckons that poor countries, defined as those outside the Paris-based Organisation for Economic Co-operation and Development (OECD), spend $310 billion a year on such subsidies, mainly for petrol. That supposedly helps the poor. But Fatih Birol, the IEA’s chief economist, says that the subsidies mainly benefit middle-income and higher-earning urban types; the rural poor use little fossil fuel. The G20 said the money spent on subsidies could help the poor in other, more effective, ways.

Subsidising fossil fuels has many flaws. If imported, they may increase a country’s energy dependence on risky outside supplies. In big oil-producing countries, such as Iran (which is not a G20 member) and Saudi Arabia (which is), subsidies are especially high. They drain public coffers and encourage wasteful domestic consumption, using petrol that could be better sold for export.

Rich countries subsidise fossil fuels too, but by much less—the OECD estimates around $20 billion-$30 billion annually. A new report by the Environmental Law Institute, a think-tank, says that America spent $72 billion on fossil-fuel subsidies from 2002 to 2008. But these are production subsidies. American oil companies earn a tax credit at home for royalties (of up to 85% in some cases) paid on oil extracted abroad. The provision is intended for companies to avoid double taxation, but acts as a windfall for the oil industry. Other subsidies, such as paying for poor families’ heating oil, are more defensible. But the G20 agreed that all subsidies that encourage wasteful consumption must go.

The IEA, along with the OECD, reckons that eliminating fossil-fuel subsidies would result in a 10% reduction in global greenhouse-gas emissions by 2050. Given a broad consensus around the need to reduce emissions by 50% by that year, to keep global warming at around 2°C, Mr Obama called the emissions cuts that would come from scrapping subsidies a good “down-payment”.

The political details will be tricky. Subsidies have their defenders, often on the political left. In 2008, amid high oil prices, countries such as Egypt, India...