

Distortions and Government Policies as Determinants of Trade, unotes6

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?

Government Policies and Distortions as Determinants of Trade

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. Factor market distortions.

Autarky p - producer prices, q - consumer prices

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

$$q = p(1 - s) < p \quad \text{subsidy}$$

Note the equivalence of a tax on one good and a subsidy on the other.

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$$\frac{q_x}{q_y} = \frac{p_x}{p_y(1+t)} < \frac{p_x}{p_y} \quad \text{tax on } Y$$

(2)

$$\frac{q_x}{q_y} = \frac{p_x(1-s)}{p_y} < \frac{p_x}{p_y} \quad \text{subsidy on } X$$

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

Figure 1

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.

$$(3) \quad q_x X_c + q_y Y_c = p_x X_c + p_y(1 + t)Y_c = [p_x X_c + p_y Y_c] + [p_y t Y_c]$$

Small Economy: fixed world prices = undistorted domestic autarky prices.

Consumption Tax on Y (subsidy on X) p^* = world prices

$$(4) \quad \frac{q_x}{q_y} = \frac{p_x}{p_y(1+t)} = \frac{p_x^*}{p_y^*(1+t)} \quad \text{or} \quad (1+t)\frac{q_x}{q_y} = \frac{p_x}{p_y} = \frac{p_x^*}{p_y^*} > \frac{q_x}{q_y}$$

Note especially that world prices and domestic producer prices are equal to one another. (Producers can trade at world prices.)

Figure 2

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 = world prices, implying that world prices are tangent to 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.

Result: A distortion can generate trade, but it is not "good" (welfare improving) trade.

Classic American saying: "If it ain't broke, don't fix it".

Production Tax on Y (subsidy on X) (Figure 3)

$$(5) \quad \frac{p_x}{p_y(1+t)} = \frac{q_x}{q_y} = \frac{p_x^*}{p_y^*} < \frac{p_x}{p_y} \quad \text{Figure 3}$$

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.

A subsidy can generate exports, but do not confuse exports with welfare. Yet again, “if it ain’t broke, don’t fix it”.

But, what if everything isn’t ok to start with. What if there is some distortion in the system that we cannot fix.

Does this have any implications for policy?

Theorem of the second best

1. In the presence of several distortions, removing one distortion may make the country worse off.
2. In the presence of one distortion, adding another distortion may make the country better off.

Suppose that we have two distortions:

1. A positive externality between firms in X, such as knowledge spillovers between firms that each firm cannot charge for.
or
A negative externality in the Y industry such as environmental damage.
2. A subsidy to X production (or a tax on Y production).

The positive externality in X (or negative externality in Y) causes the country to produce too much Y , too little X in laissez faire equilibrium.

Figure 4

A production subsidy to X or tax on Y adds a second distortion that counteracts the first one, improving welfare (application of part 2 of the theorem of the second best).

Or think of having both distortions as the initial situation. Then removing the subsidy (or tax) actually reduces welfare (application of part 1 of the theorem).

Suppose that the government gets the (crazy) idea to tax the use of capital in the Y sector (maybe X is exempted because it is agriculture or small-family business).

The producer price of capital in the Y sector is then $r(1 + t)$, while it remains r in the X sector.

Producers in each sector respond optimally to the prices they face, and cost minimization implies that they equate their MRS between capital and labor to the price ratio they face.

$$MRS_x = \frac{w}{r} > \frac{w}{r(1+t)} = MRS_y$$

Figure 5

Equilibrium points will not be on the efficient contract curve, but will lie on a distorted locus of points.

This in turn implies that the equilibrium will not be on the contract curve.

Factor market distortions can thus have a double effect, pulling the country in off the production frontier and moving it along the distorted frontier.

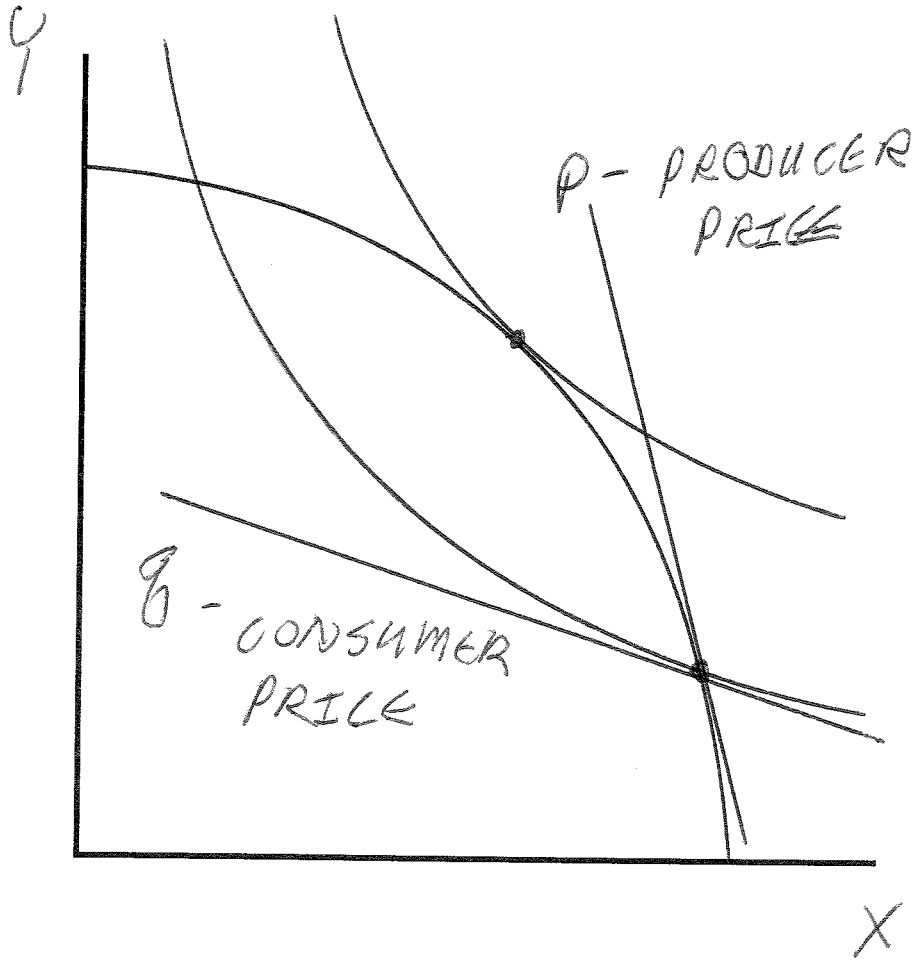
Figure 6

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 aint). *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. There is an asymmetry between consumption and production taxes. They have *opposite* effects on the direction of trade and on factor prices.
4. Instruments and targets. Policy should be direct. If you want to discourage consumption of X, tax X consumption. If you want to discourage production of X, tax X production.

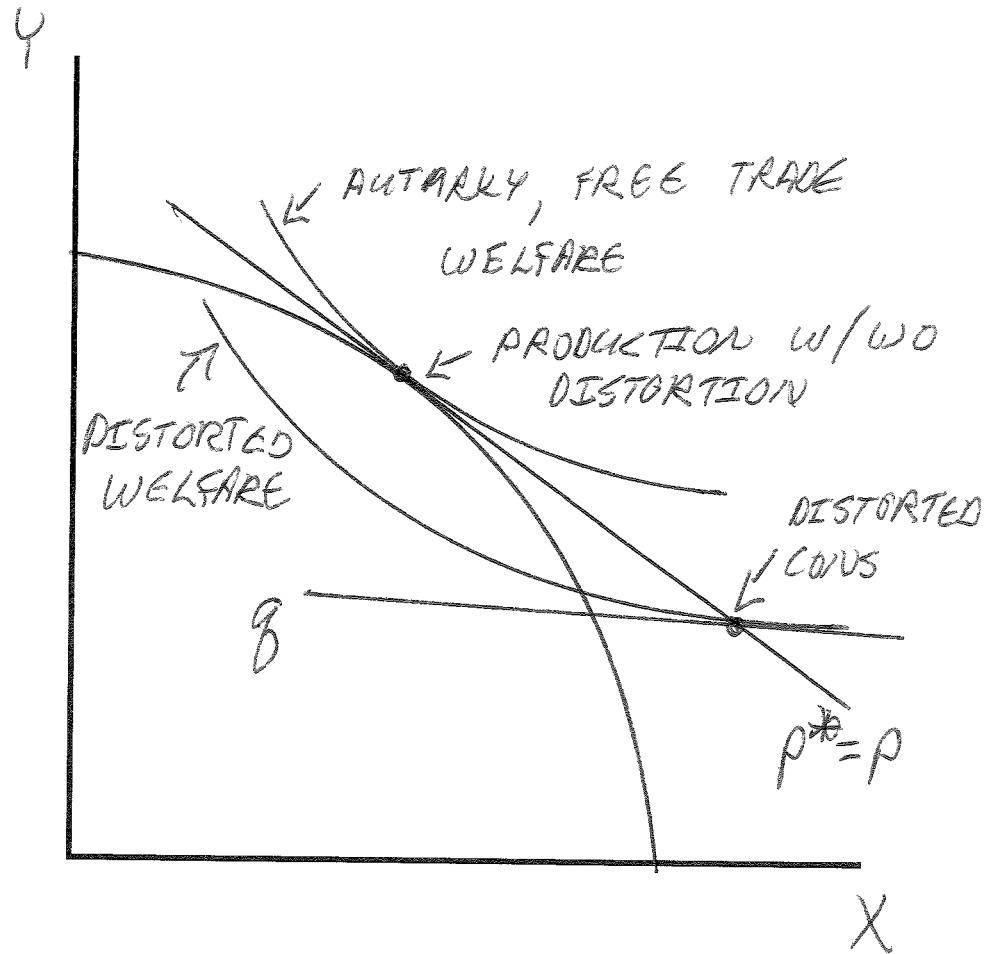
5. Factor market distortions have two reinforcing effects. First, they generally move the economy off the efficient production frontier to the interior of the production set. Second, they move the equilibrium along the distorted frontier to an inefficient point.

6. An exception to these results occurs when there is an existing distortion in the economy (e.g., our example of a positive production externality). Then adding a second distortion, designed to counteract the first distortion, can improve welfare.

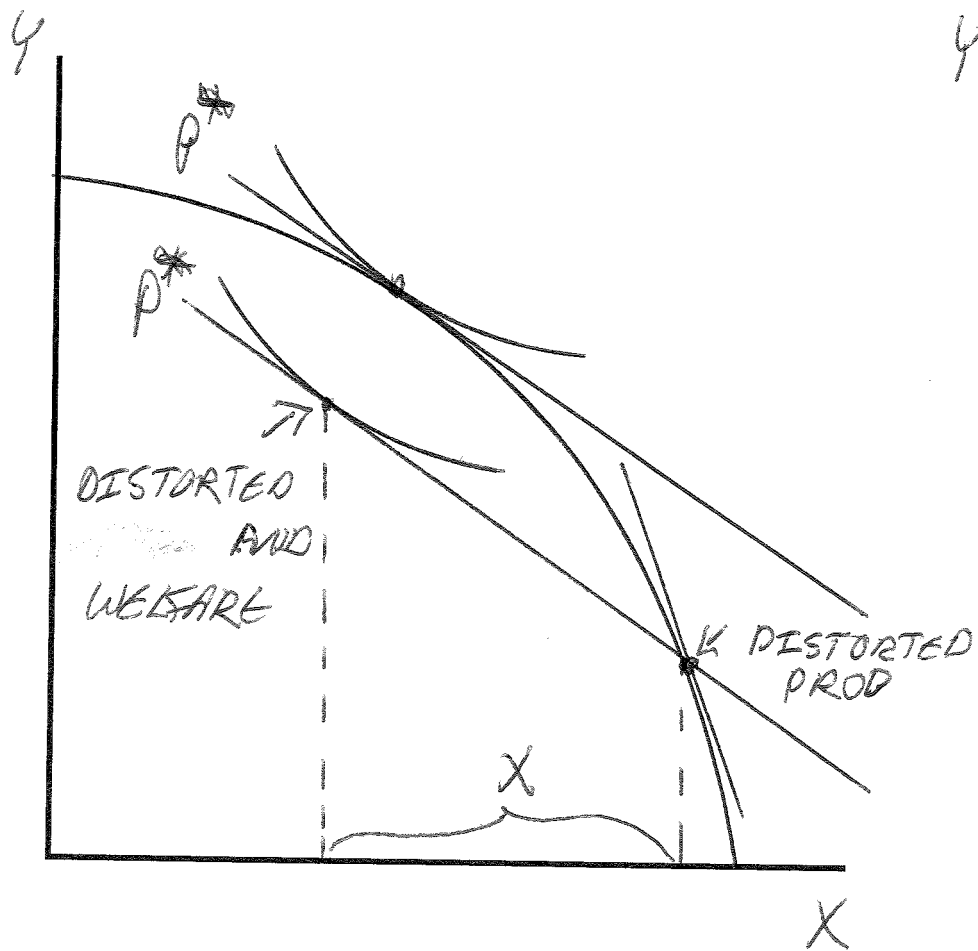
7. Analysis illustrates the theory of the second best.
 - (a) Removing one distortion in the presence of several distortions may reduce welfare.
 - (b) Adding one distortion (e.g., trade barrier) in the presence of another distortion (e.g., production tax or subsidy) may increase welfare.



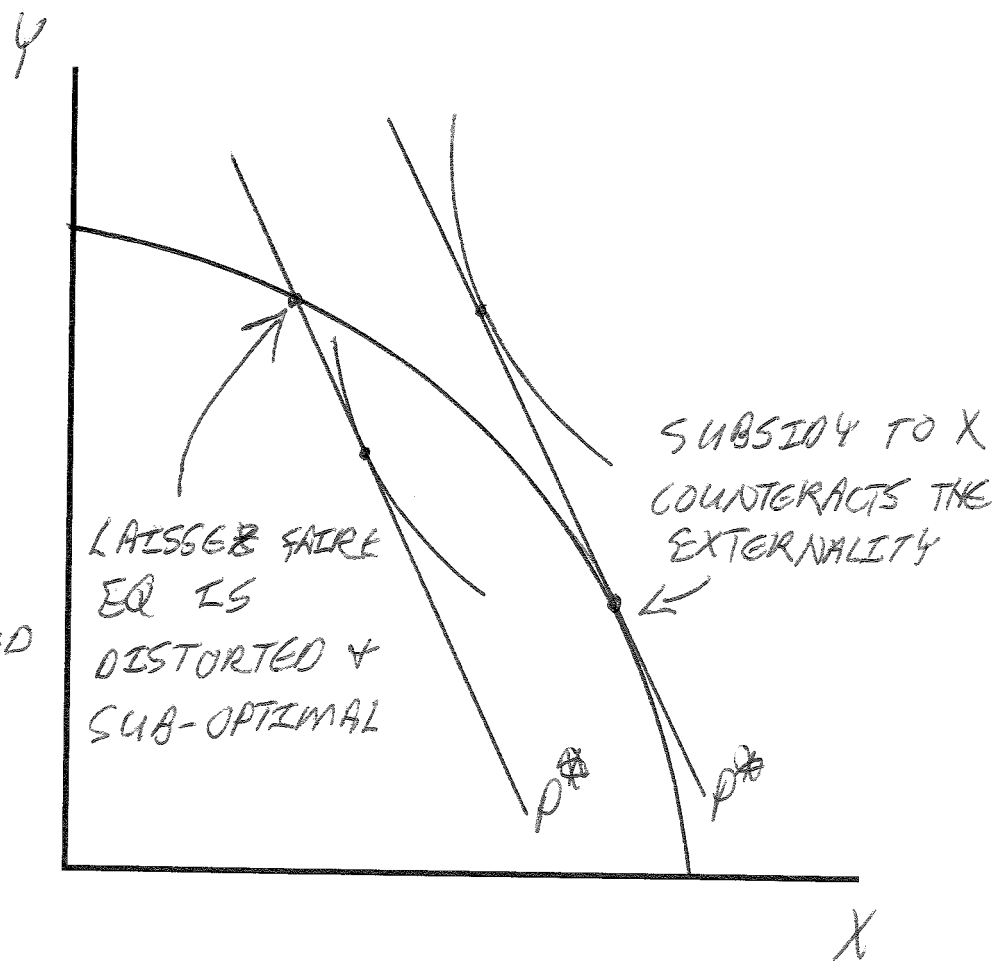
Unotes 6 Figure 1



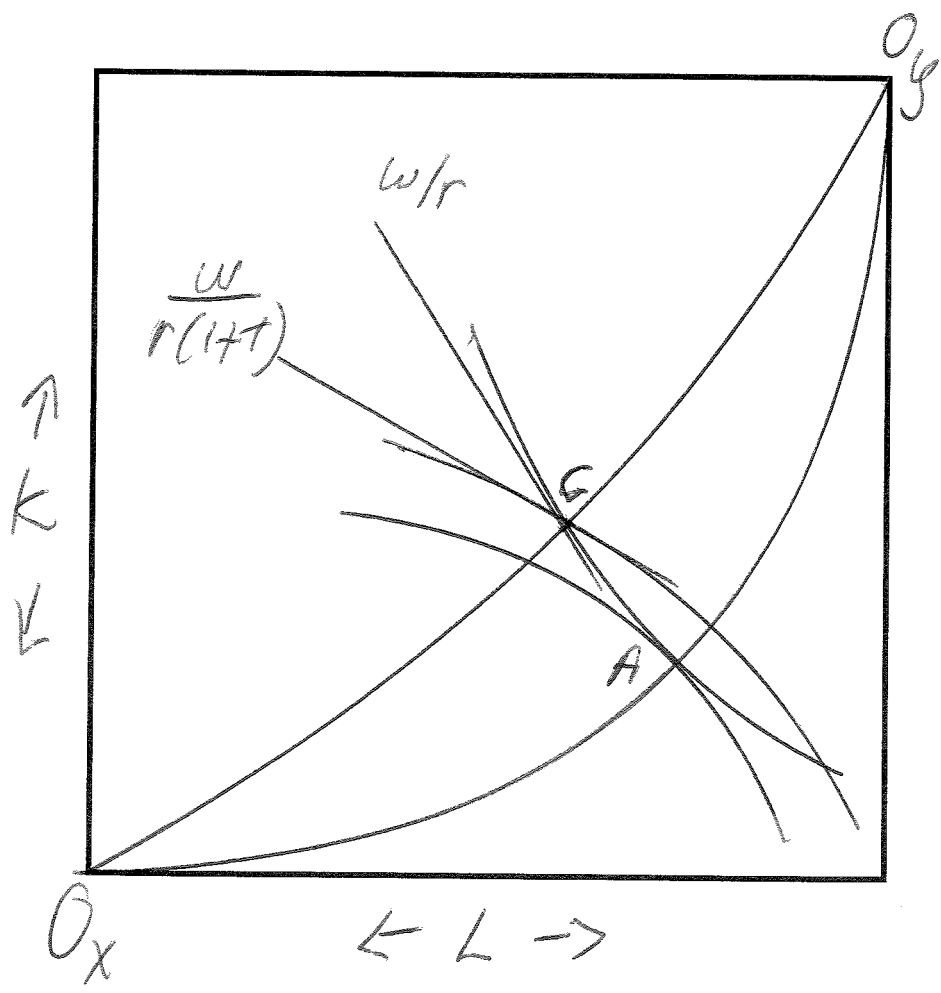
Unotes 6 Figure 2



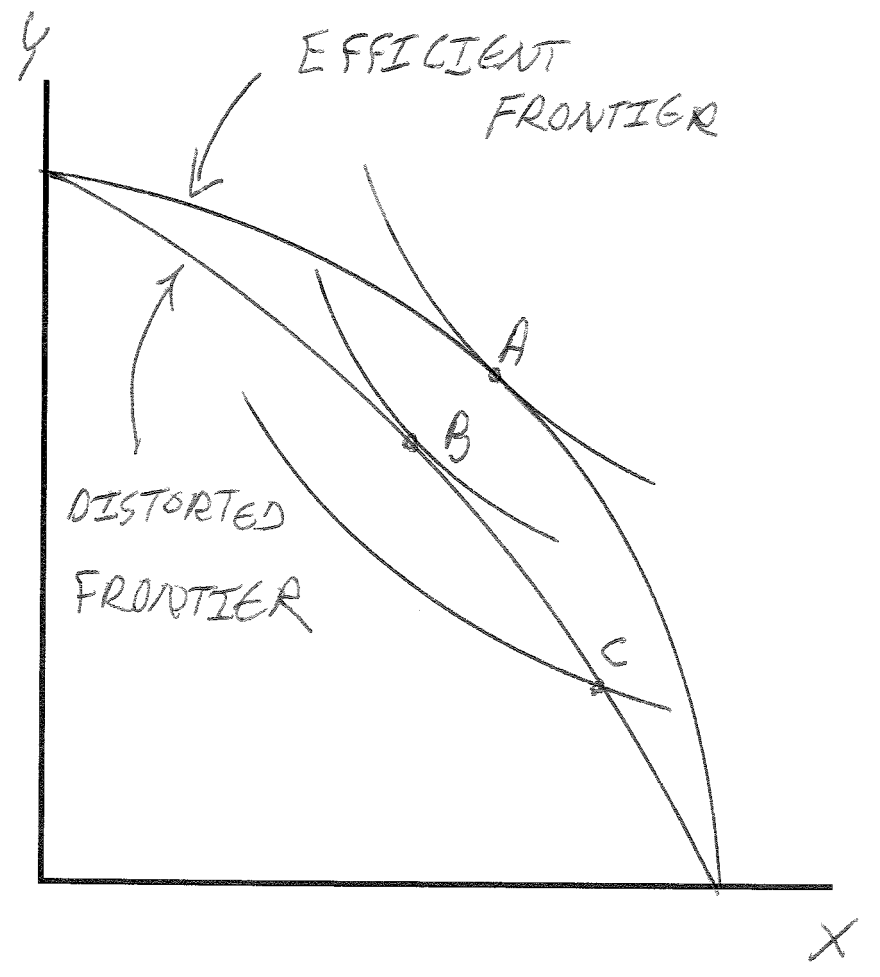
Unotes 6 Figure 3



Unotes 6 Figure 4



Unotes 6 Figure 5



Unotes 6 Figure 6

+ 0.8	+ 1.3	+ 1.7	+ 1.8	Jan	na	+ 0.7	1998
+ 2.2	+ 2.7	+ 4.5	+ 3.0	Dec	+ 3.1	+ 3.5	Jan
+ 1.1	+ 1.6	+ 5.9	+ 4.0	Dec	+ 2.4	+ 2.4	Q3**

pared with average of previous 3 months, at annual rate. **New series.

Gold

\$ per oz	296.25	303.38	+ 6.0	+ 6.4
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Crude oil North Sea Brent

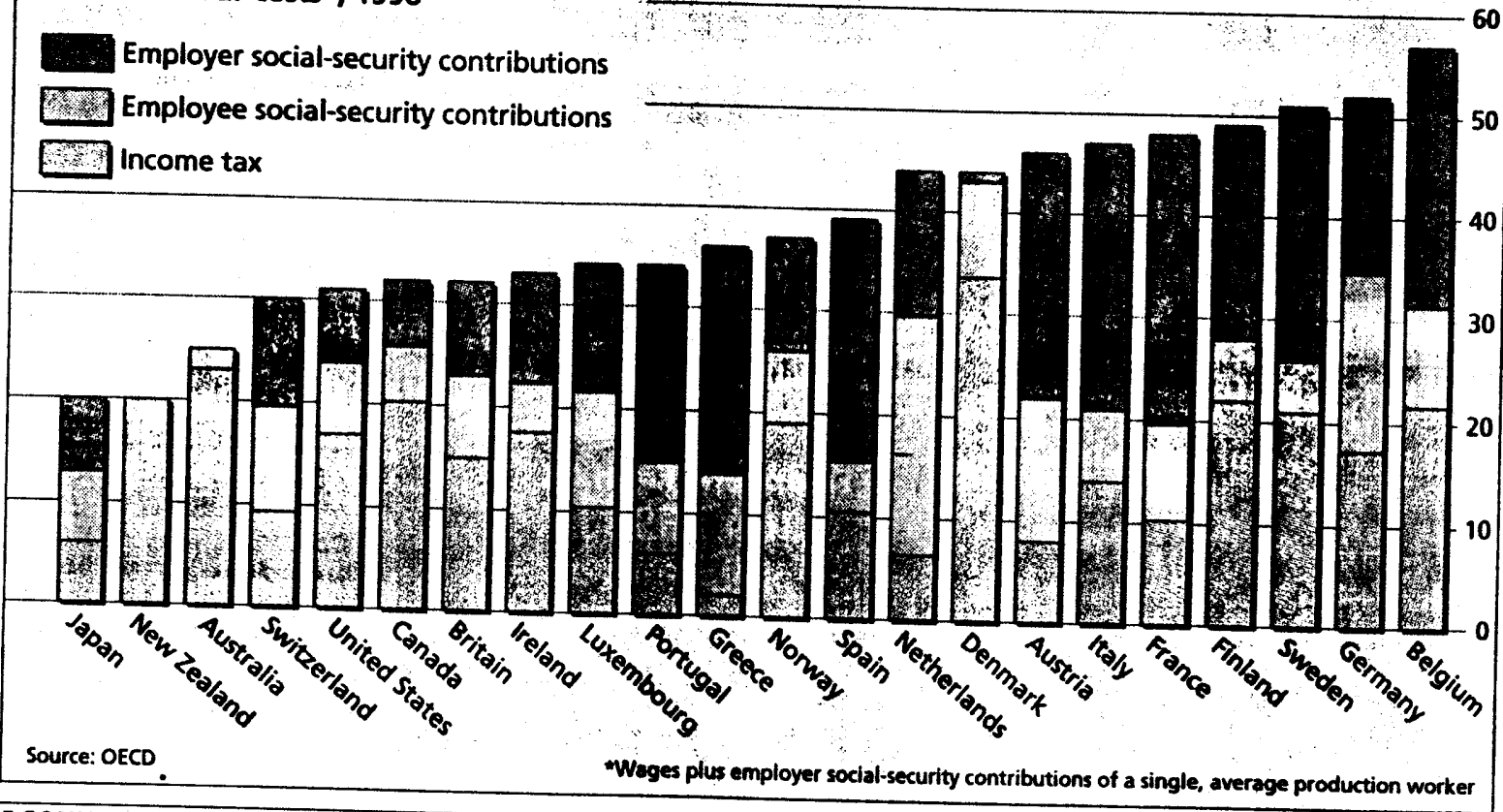
\$ per barrel	26.59	28.24	+ 7.9	+179.8
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* Provisional. † Non-food agriculturals.

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Taxes on wages as % of labour costs*, 1998

-  Employer social-security contributions
-  Employee social-security contributions
-  Income tax



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