

1. Environment: imperfectly competitive firms with increasing returns to scale.
2. Simplest model: three countries. US, EU, and ROW. US and EU each have one firm (e.g., Boeing and Airbus). Assume that all output is sold to ROW.
3. This last assumption is made in order to make domestic welfare in the US and EU equivalent to each firm's profits. That is, the governments' strategic objectives are to maximize the profits of the domestic firm.
4. Consider first a Cournot game, in which the two firms pick quantities, each firm making a best response to their rival firm.

Iso-profit curves in  $X_A, X_B$  space;

**Figure 1**

2

Best-response (or reaction) functions:

**Figure 2**

Cournot equilibrium and profit levels:

**Figure 3**

Strategic trade policy for the US: induce a shift in Boeing's best-response function so that Boeing makes the highest possible profits subject to being on the Airbus best-response function.

**Figure 4**

What type of policy does this? We want Boeing to produce more output at each level of Airbus' output. This can be done via a *production subsidy*.

Strategic trade policy = US subsidizes the output of the US firm.

Airbus is worse off.

This is known as a *profit shifting* argument: profits in the world aircraft market are shifted from Airbus to Boeing.

### **Figure 5**

However, if both countries do this in a non-cooperative fashion, then the profits of both firms fall and airlines/consumers in the ROW are the beneficiaries.

### **Figure 6**

Difficulty is that if we change the assumptions a bit, we change the results.

Suppose that firms chose prices instead of quantities. Firms make a best response price choice against their rivals price choice. This is known as Bertrand competition.

Iso-profit curves:                    **Figure 7**

Bertrand equilibrium:            **Figure 8**

Shift Boeing's iso-profit curve so that it hits the highest profit level subject to being on Airbus' reaction function.

What policy does this? We want Boeing to charge a higher price for each level of Airbus' price. The policy to do this is a tax not a subsidy.

## Figure 9

The underlying reason for this result is that Bertrand competition is inherently much more competitive than Cournot competition.

In Bertrand, both firms are competing "too much", and the government wants to restrain that competition.

We also then reverse the earlier result, Airbus is *helped* by the tax, and the third-country purchasers are *hurt*.

## Import protection as export promotion

Protecting the home market spills over to a competitive advantage in the foreign market.

Occurs in technologies in which there is decreasing marginal cost.

First period: protect the home market

home protection shifts foreign best response in, equilibrium from F to C

**Figure 10**

Second period: effect spills over into foreign market.

7

increased market share in home market lowers home firm marginal cost in foreign market, raises foreign firm's marginal cost in its own market.

protection in the home market leads to advantages in the foreign market

### **Figure 11**

*Asserted* by US firms that this was being done systematically by Japanese firms in the 1980s and 1990s:

closing their domestic market to US firms lead to competitive advantages in the US market.

Trade policies can unintentionally facilitate collusion between domestic and foreign firms.

The best example is a VER, which can restraint competition in the Bertrand (price strategies) case.

Suppose that a VER quota is imposed at the free trade level of imports, so that it is apparently not binding.

But the home firm now knows that if it raises price, imports will increase and the foreign firm will be in violation of its import quota.

Thus the foreign firm will have to respond by raising its price. *Both* firms may end up with higher profits.

**Figure 12**

If goods are differentiated, then the domestic economy has some monopoly power in trade, even if it is fairly small (since its goods are imperfect substitutes for foreign goods).

Therefore, there is a terms-of-trade argument for trade restrictions.

In addition, these industries are imperfectly competitive, producing with increasing returns to scale.

Therefore, there is an existing distortion in economy which creates some role for trade policy.

Trade policy should expand production of domestic increasing-returns goods.

Case 1: Domestic and foreign goods are substitutes.

Import restrictions shift demand toward domestic goods produced with increasing returns to scale, leading to output increases.

Case 2: Domestic and foreign goods are complements.

This could be the case for example, with differentiated intermediate inputs. Foreign machinery is a complement for some domestic inputs.

Import restrictions on foreign goods then lead to a decrease in demand for domestic differentiated goods (expenditure and production shifts to other sectors, creating a scale effect that outweighs a substitution effect toward domestic goods).

Trade protection is therefore welfare reducing.

This is possibly quite relevant to developing countries which must import advanced foreign producer goods.

Review of undistorted constant-returns models versus increasing returns and imperfect competition.

First, review the effects of a production subsidy on X in a competitive model.

Two identical countries which do not trade initially.

The subsidy makes the subsidizing country worse off and the other country better off.

**Figure 13**

**Figure 14**

Effect of the subsidy in a model with increasing returns and imperfect competition can be reversed.

This is an application of the second-best. In the presence of one distortion, adding an additional distortion may improve welfare.

**Figure 15**      **Figure 16**

## Summary

1. When a Home firm is competing with a Foreign rival for sales to third markets, the Home government can shift oligopoly rents in favor of the Home firm by a production or export subsidy.

This increases Home country welfare if the Home and Foreign firms are Cournot competitors.

But such a subsidy would reduce Home welfare if the firms are Bertrand competitors. Bertrand behavior is in a sense more competitive than Cournot, and the two firms are exporting "too much" in Bertrand competition.

2. Then we added domestic consumption to the basic Cournot model. The traditional argument against production or export subsidies following from a competitive model may be reversed.

With price in excess of marginal cost, an expansion in the output of the imperfectly-competitive, increasing-returns sector is beneficial and conversely a contraction is harmful. A small production or export subsidy can improve domestic welfare.

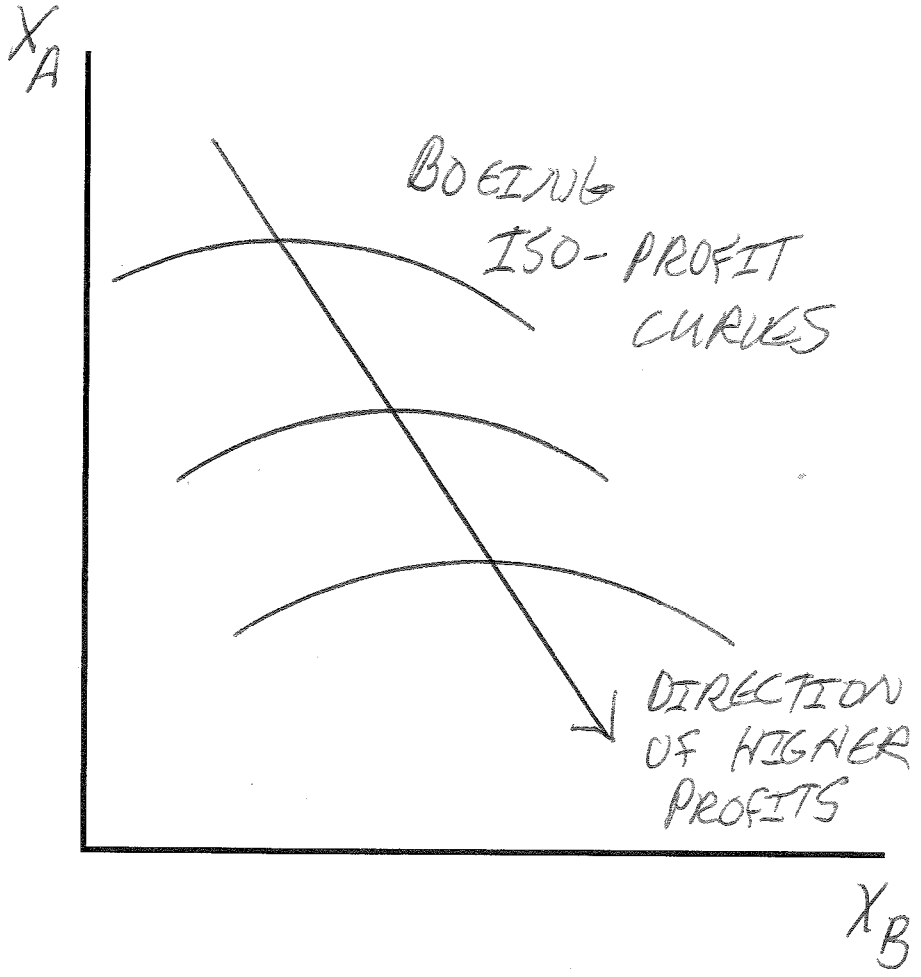
4. In some cases, domestic and foreign markets are linked in a way that produces interesting implications for strategic trade policy.

If marginal costs are declining or if firms are initially operating near zero profits, then the imposition of import protection in the Foreign country can lead to ramifications back in the Home country.

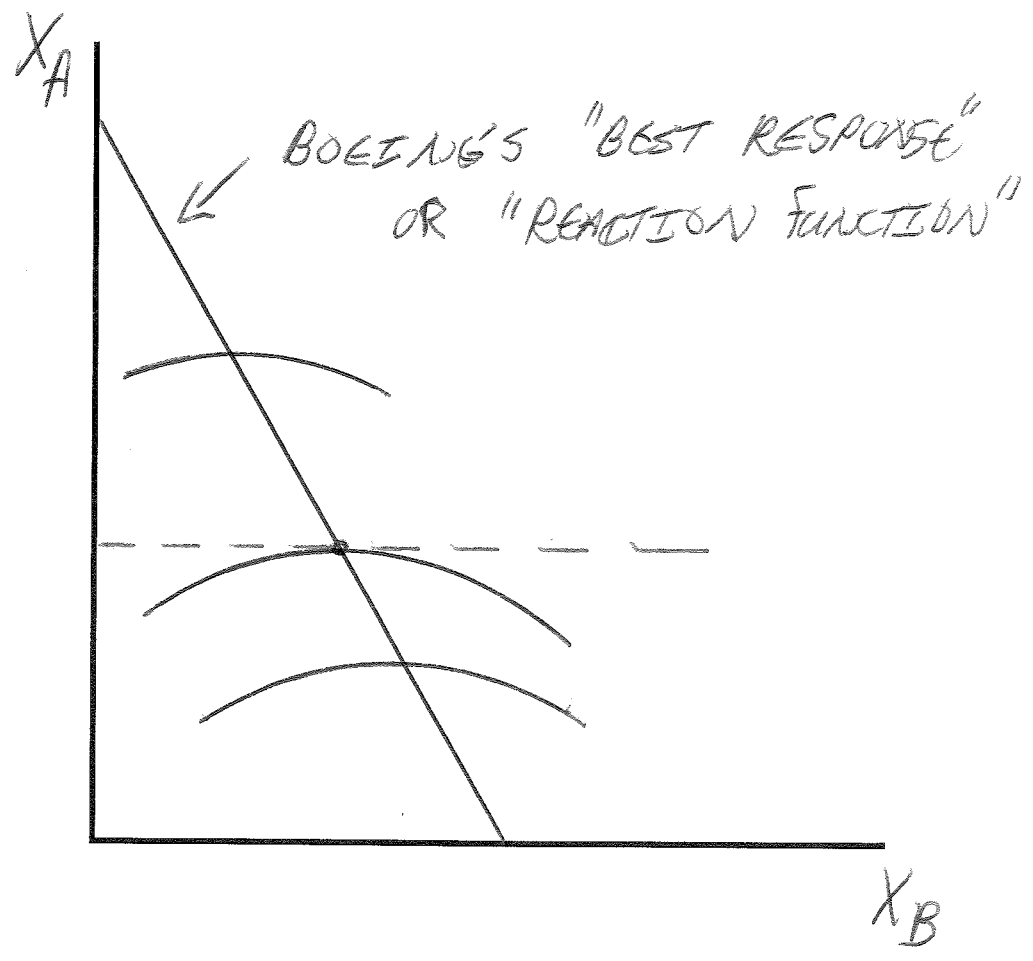
5. It has been shown that some policies, notably voluntary export restraints, can facilitate reduced competition between domestic and foreign firms. It is possible that such policies can then lead to increased profits for both domestic and foreign firms. Consumers are of course the losers.

6. There is generally some presumption that tariffs are beneficial in monopolistically-competitive industries. They generate a favorable terms-of-trade effect, and lead to a beneficial expansion by domestic increasing-returns firms.

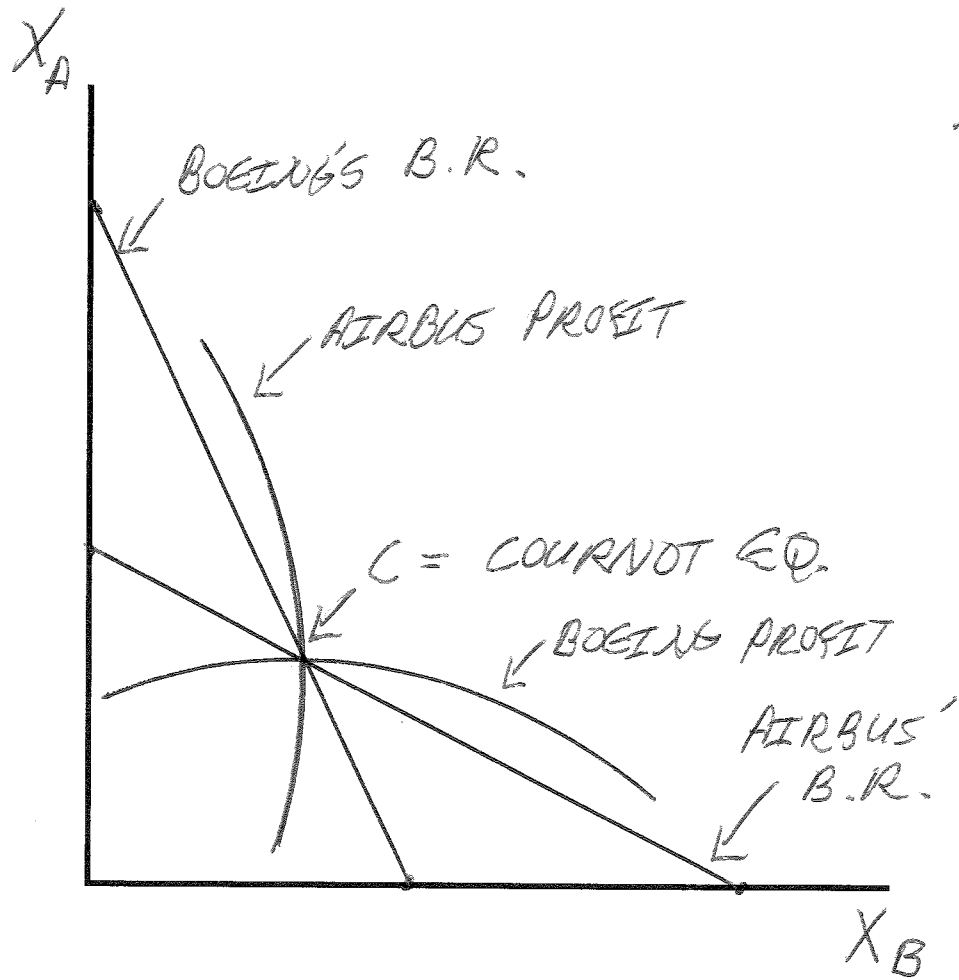
But this conclusion can be reversed if the imported goods are general-equilibrium complements for the domestic increasing-returns goods. In such a case, the higher import prices may lead to reduced production of the domestic goods.



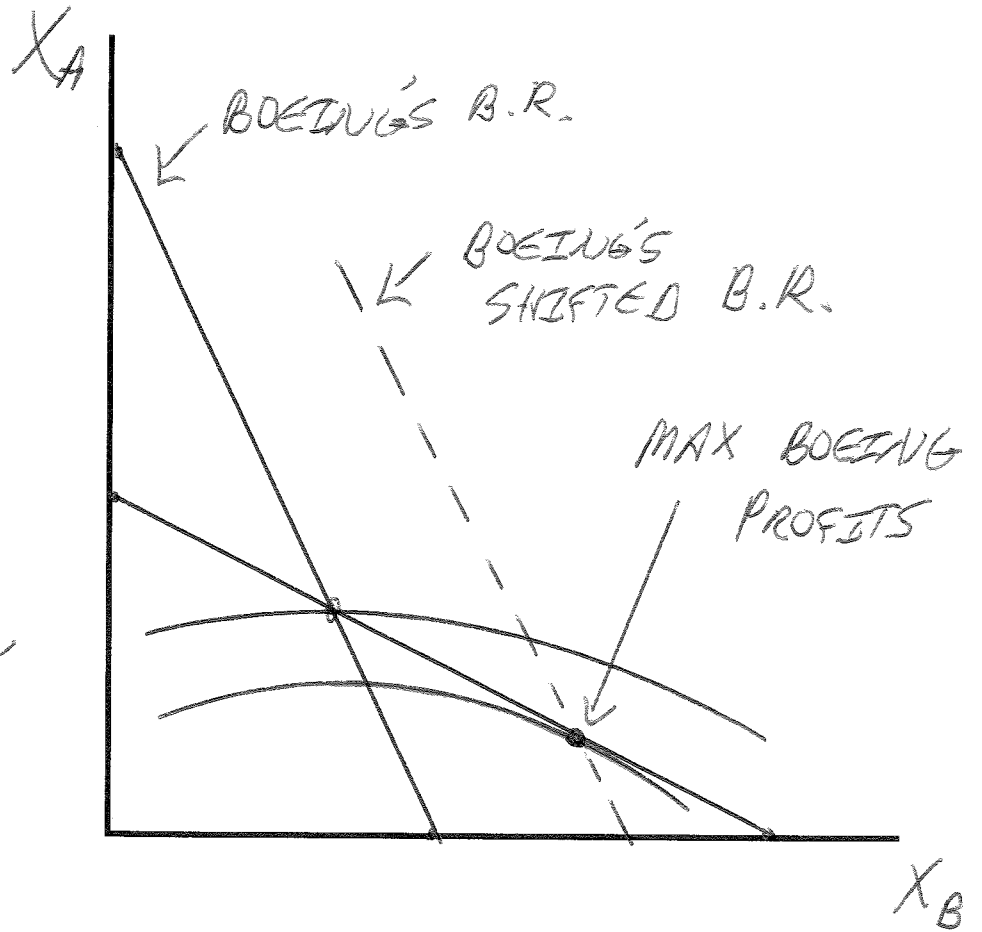
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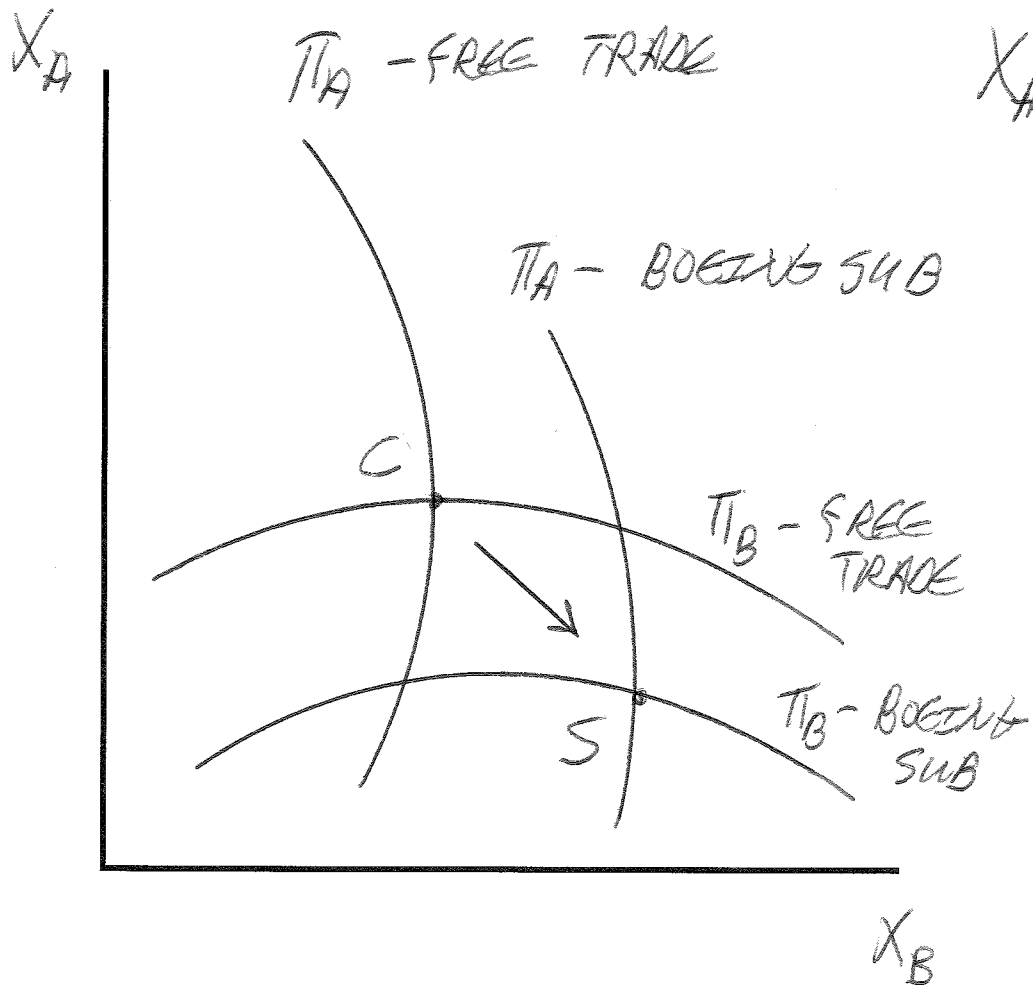
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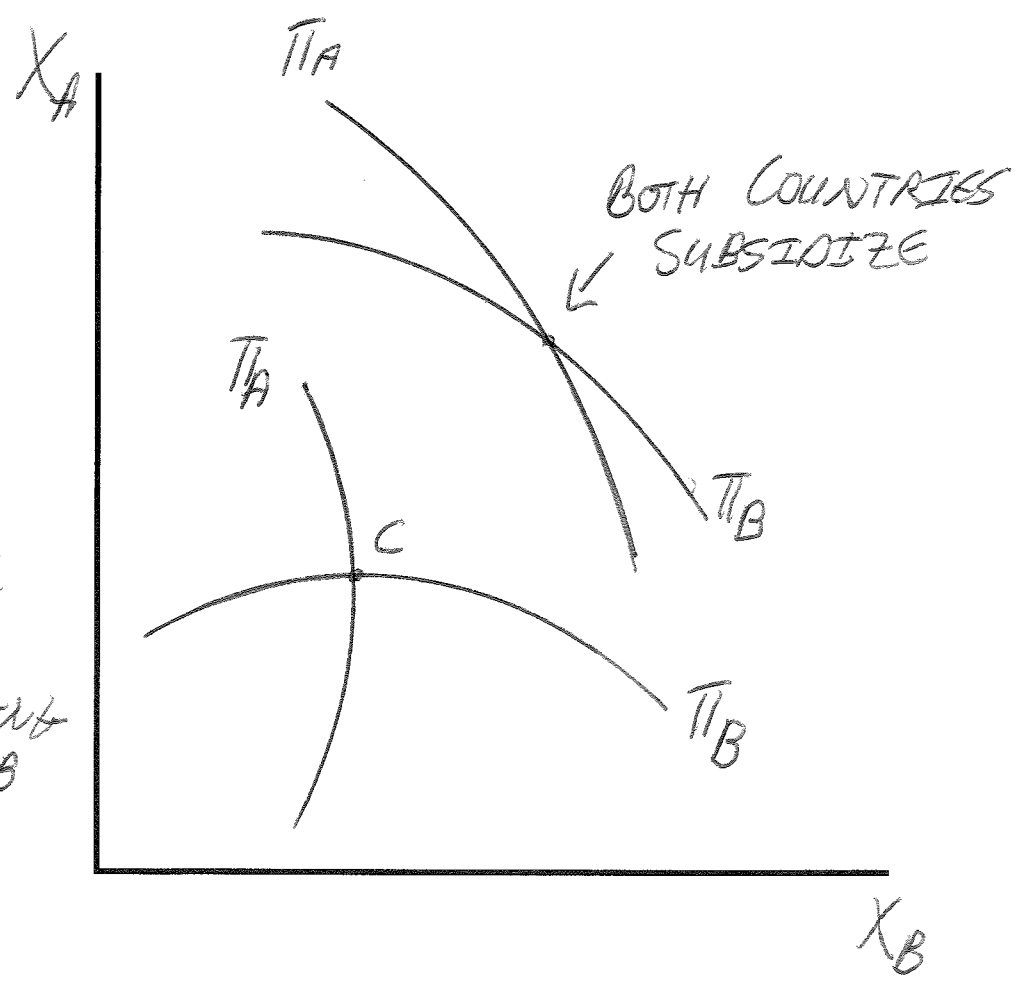
Unotes 11 Figure 3



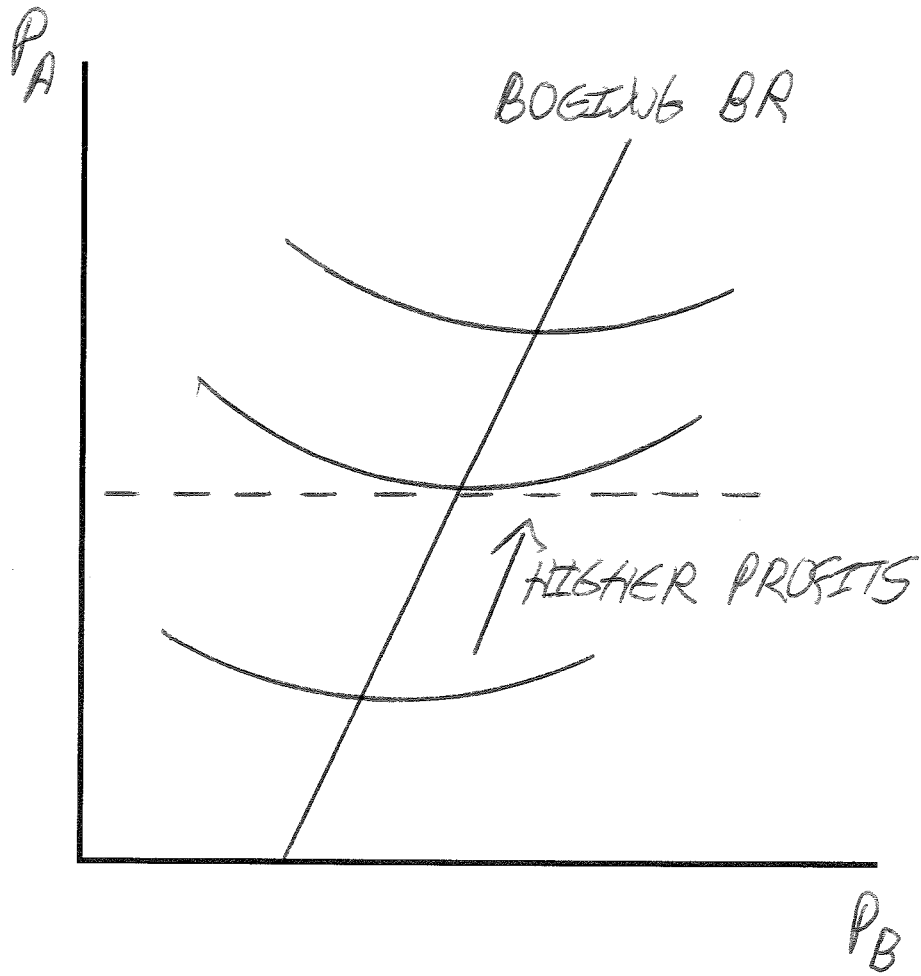
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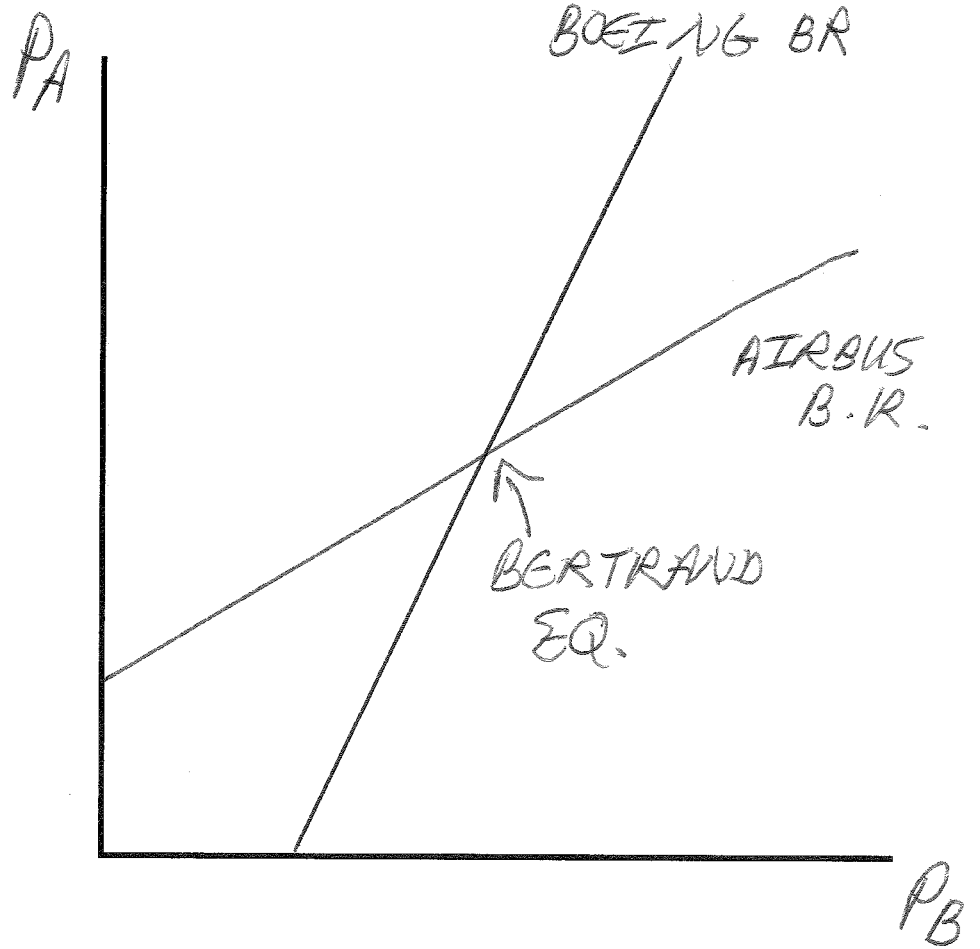
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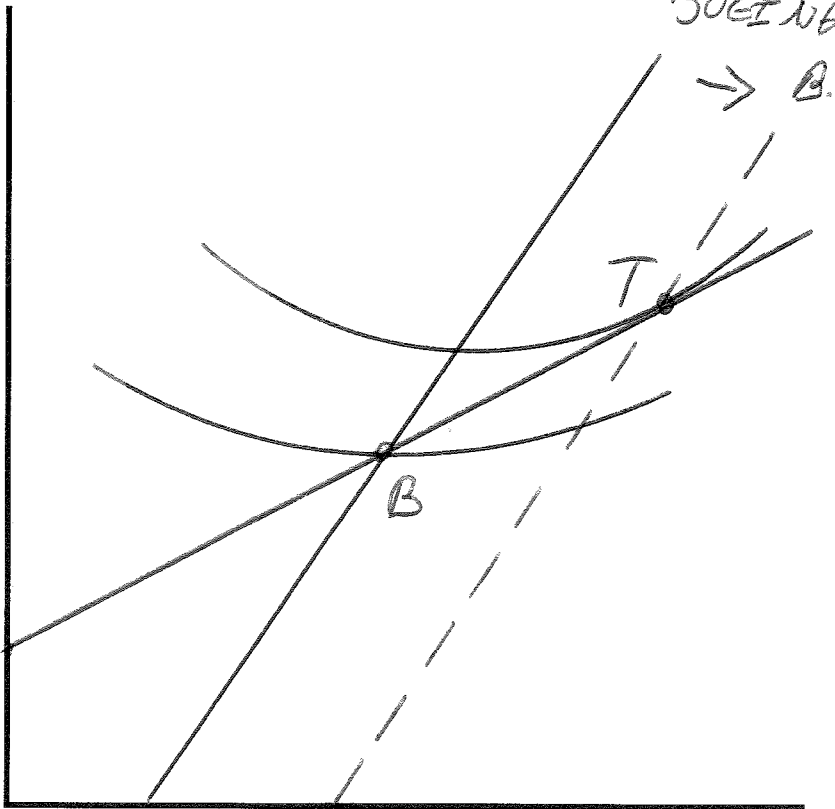


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→ B.R.

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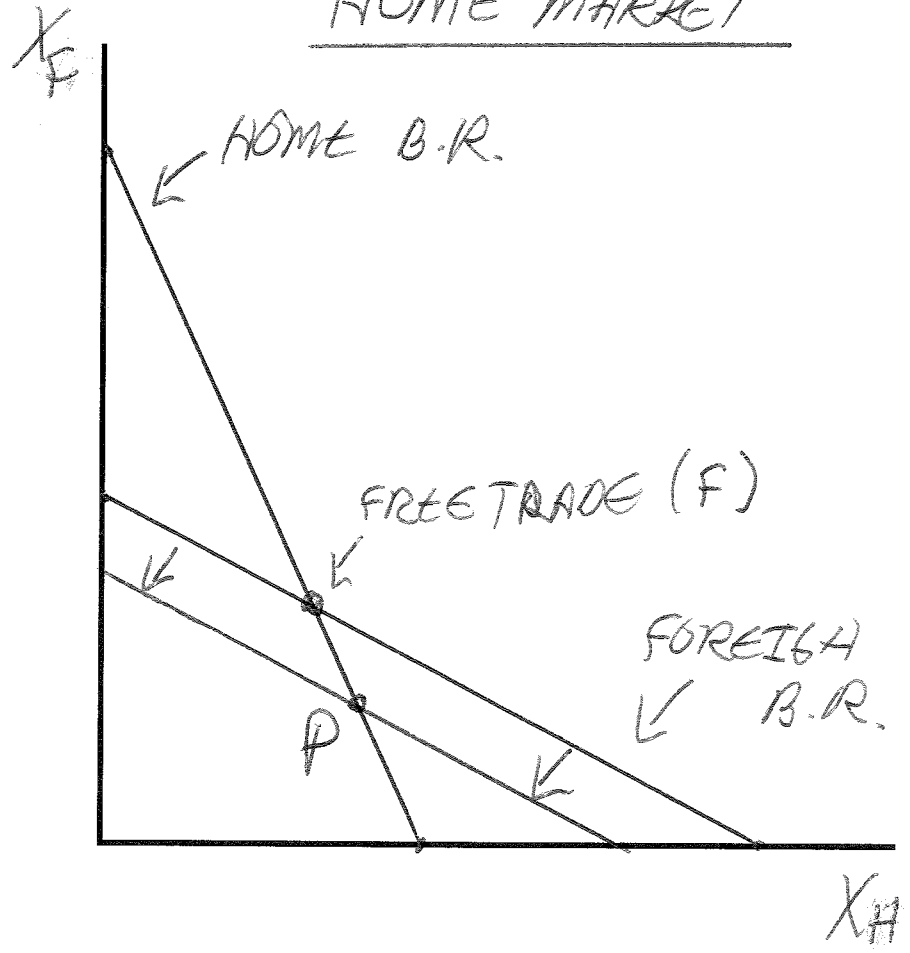
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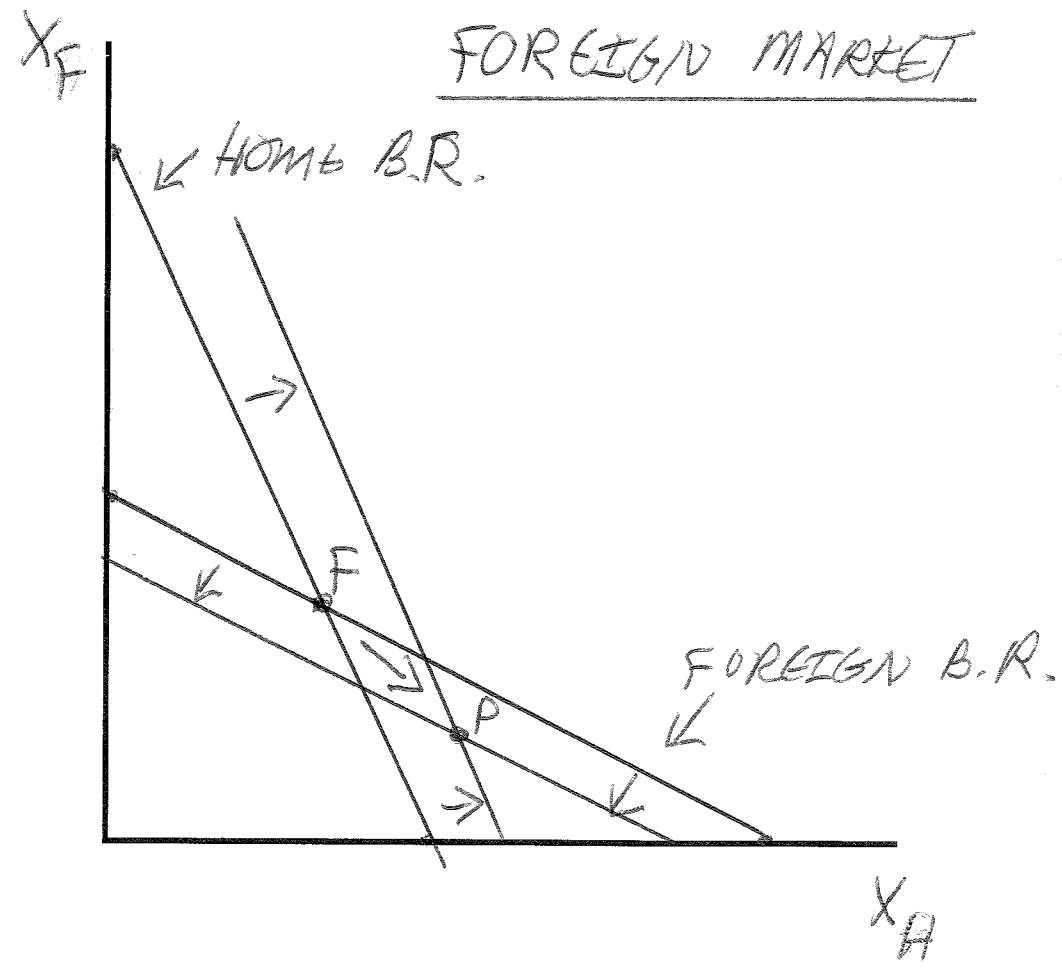
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HOME MARKET

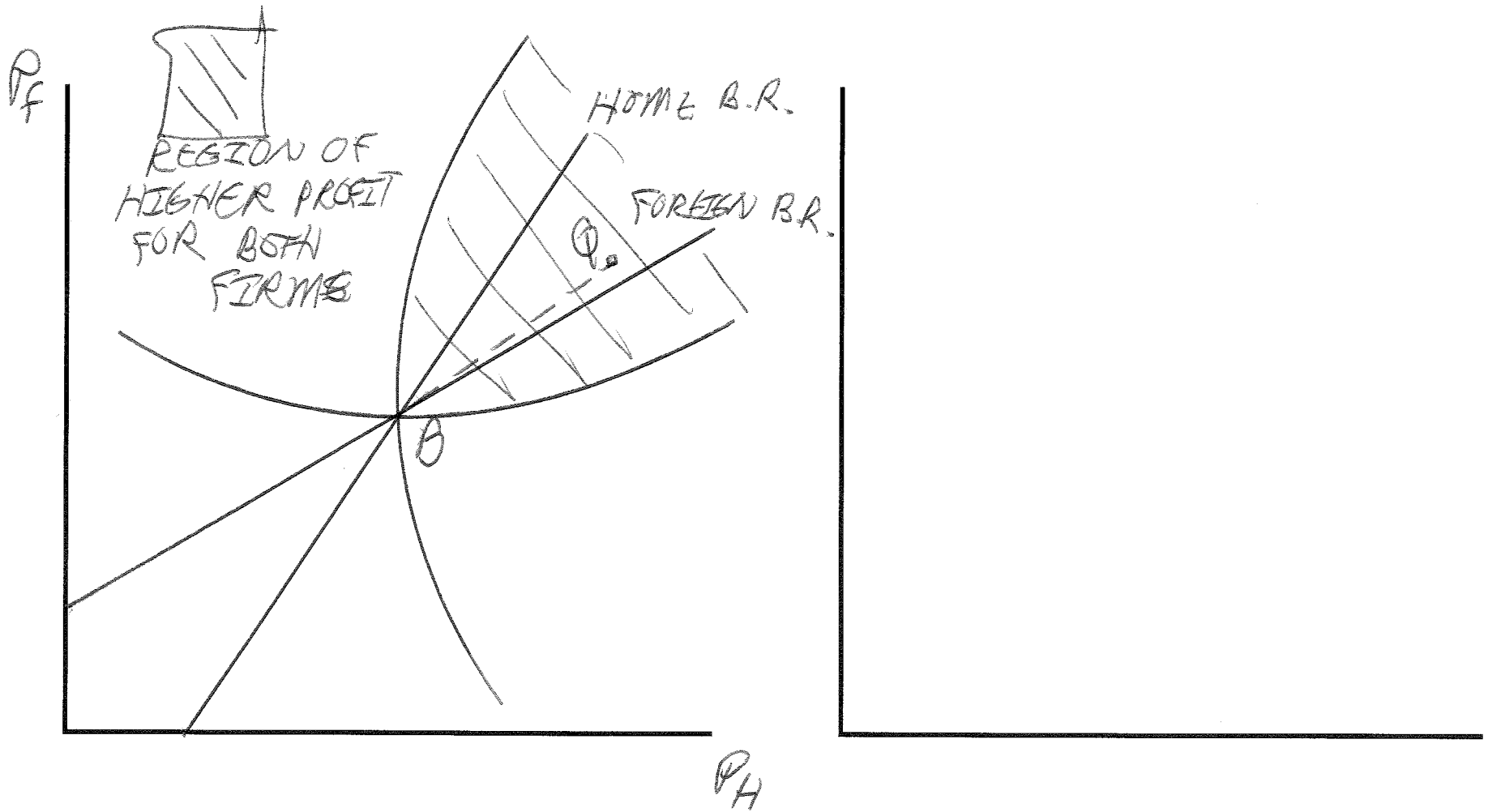


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FOREIGN MARKET

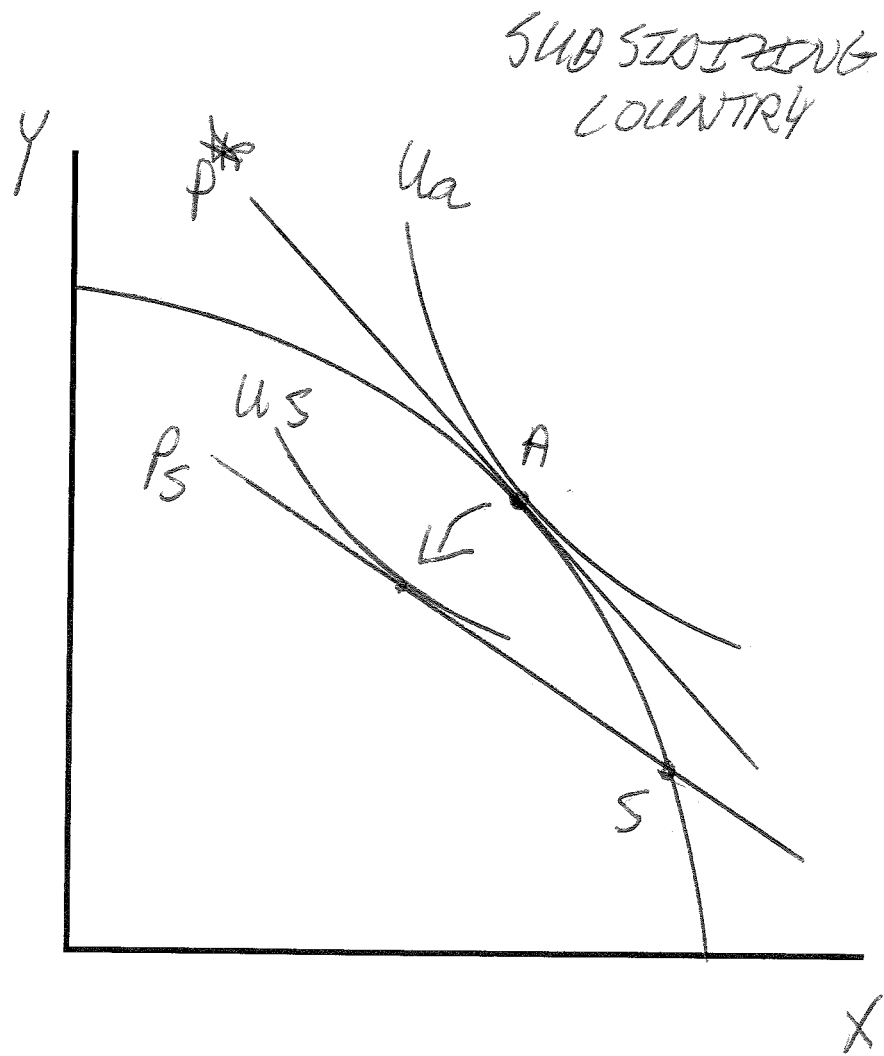


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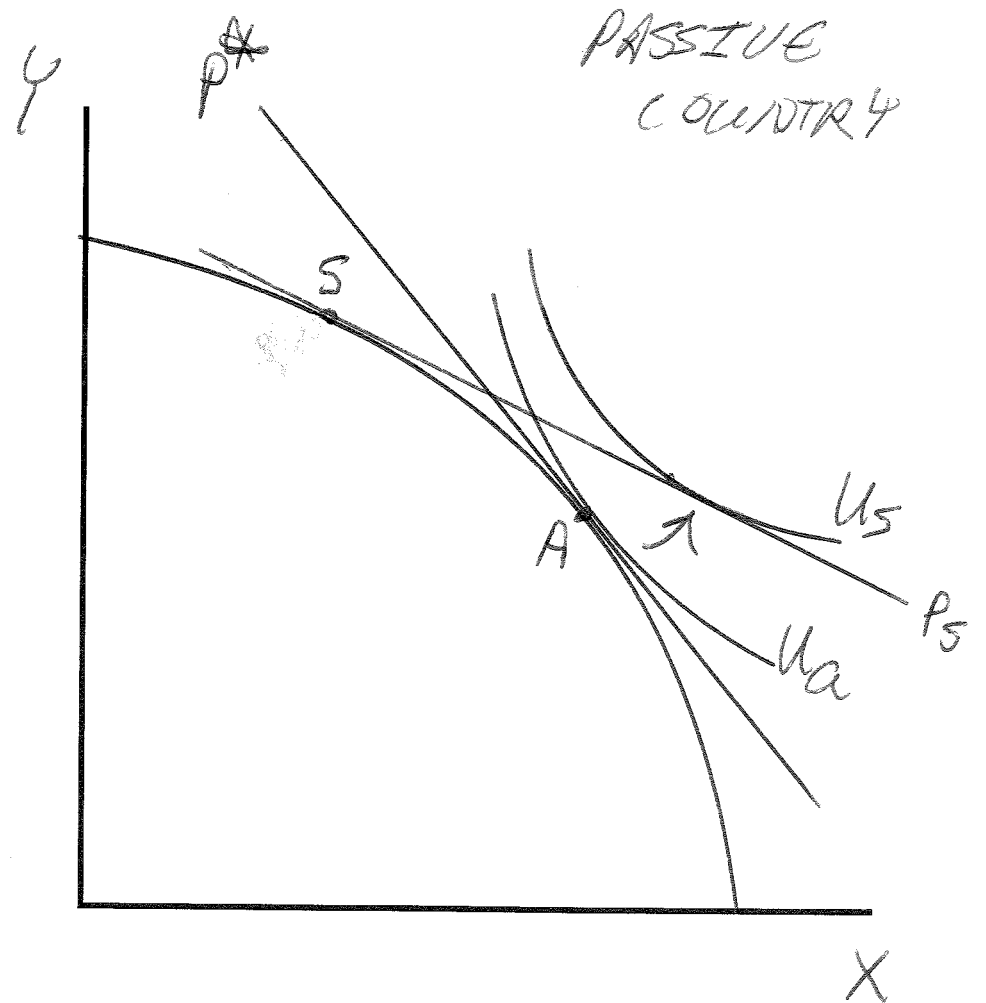


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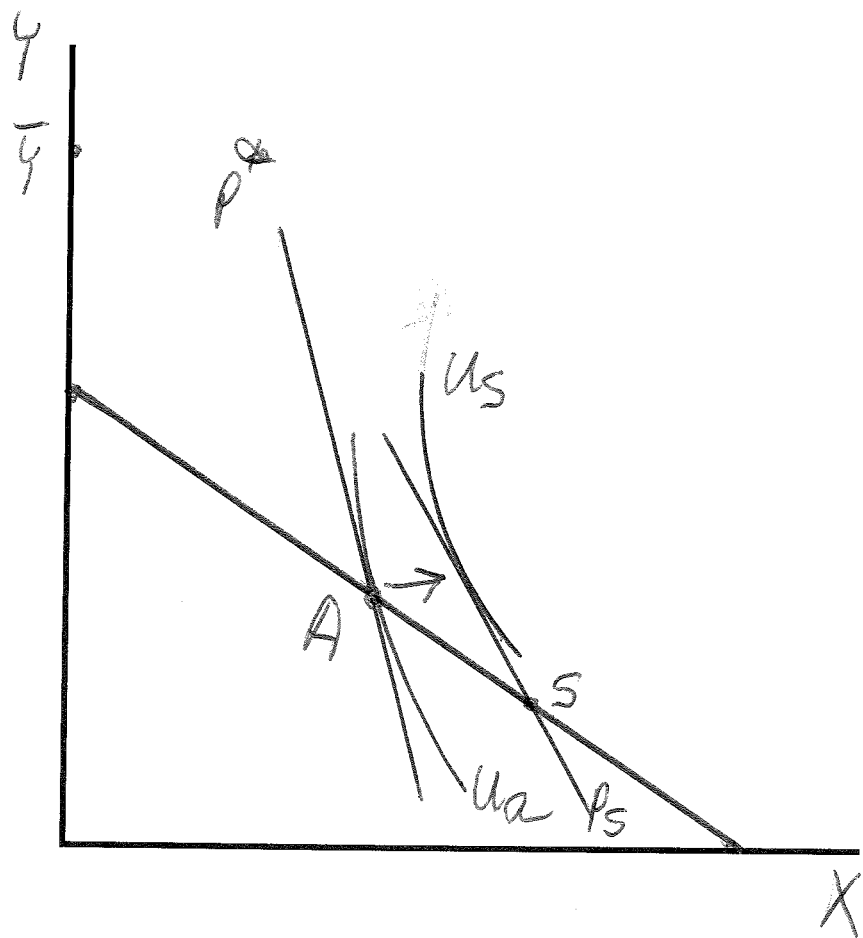
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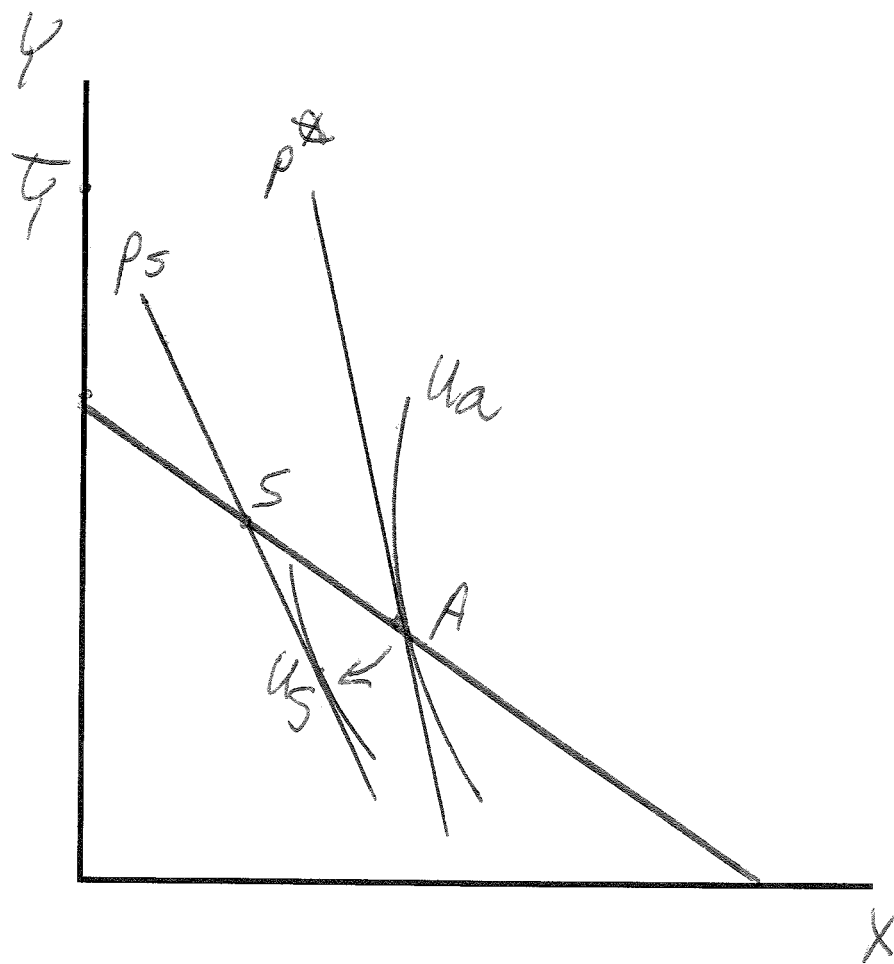
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