Econ3236 International Finance

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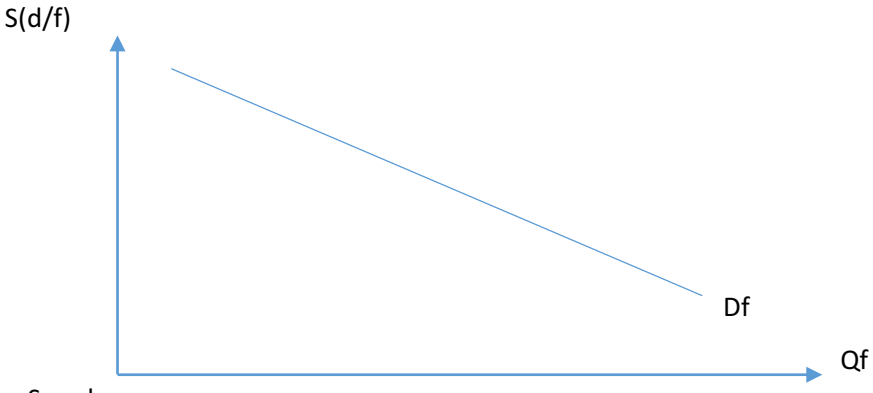
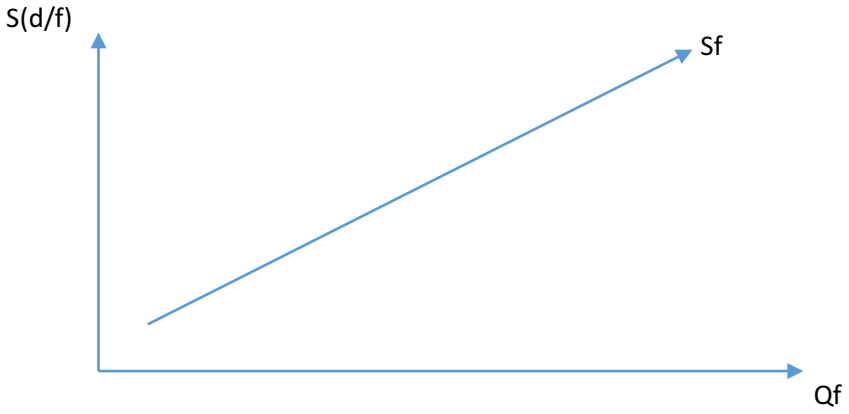
Lecture 7: Models of Exchange Rates: Supply and Demand

Reference: Moosa 3.3

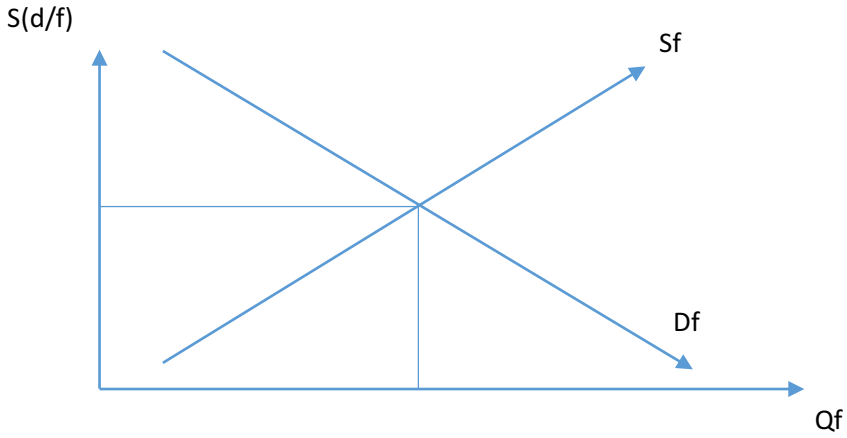
1. Introduction: the purpose of models and an overview of exchange rate models
    a. Modelling: abstract version of reality – simplification – world is too complicated
        i. What is a good model for some purposes is not for other purposes
        ii. Assumptions: State what the abstraction is
        iii. Three types of modelling:
            1. Verbal
            2. Diagrammatic
            3. Algebraic
2. The supply-demand framework
    a. Notation and assumptions
        i. Assumptions:
            1. One foreign country and therefore one exchange rate
            2. Exchange rate is quoted in direct form: dc/fc – S(d/f)
            3. Q_f – quantity of foreign exchange
            4. D_f – demand for foreign exchange
            5. S_f – supply of foreign exchange
    b. Demand (df)
        i. *First thing to note is that it's a derived demand* – we don't demand foreign exchange for its own sake – you don't demand to consume it, you demand to use it for something else, for example:
            1. Buying goods and services priced in foreign currency (imports)
            2. Investing in foreign assets – UK bank deposits – buy foreign currency then buy assets
            3. Repatriate income to foreign income
            4. Make donations or transfers overseas
        ii. Relationship between df and exchange rate goes through derived demand – this basically means that if Australia buys more goods from overseas then D_f goes up
        iii. Df(S(d/f))
            1. What happens to the demand for foreign exchange following an increase in the spot rate? I.e. S(d/f) ↑ → d.c. price of f.c. ↑ → d.c. of the import (given f.c. price of the import) ↑ → Demand for Imports ↓ → Df ↓
            2. Summary: an increase in S(d/f) leads to a decrease in Df

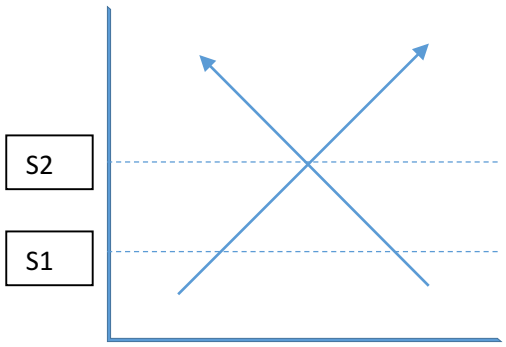


c. Supply
   i. Also a derived supply i.e. receive foreign exchange for something they sell
   ii. S(d/f) → d.c. price of exports (given foreign currency price of exports) → Supply of exports → Sf
   iii. Summary: an increase in S(d/f) leads to a decrease in Sf



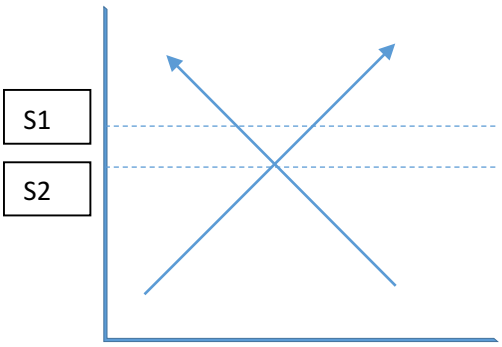
d. Equilibrium
   i. Df = Sf
   ii. At equilibrium Qfo = So, Df = Sf





Df > Sf

Pushes foreign currency price up, S1 – S2

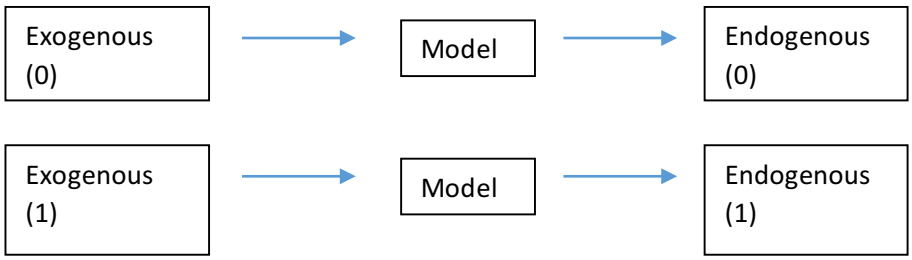


Sf > Df

Less pressure on S, S1 – S2

Lecture 8: The Supply and Demand Model: Applications

1. Introduction: comparative statics
    a. Use the model to trace how a change in an exogenous factor (determined outside but influences the model) affects a model



Comparative statics is a comparison of endogenous variables to the exogenous variables. (only change one exogenous variable to trace the change and effect on endogenous variable)

2. <u>The supply-demand model and international trade</u>
    a. Do this to understand how exogenous variable fit into the model (i.e. how they change the curves)
    b. Df derived from imports (people want Df because they want to use it to buy imports)
        i. Df = F.c value of imports
            = P*m * Qm ----------→ (D-S model of imports underlies this)
            P*m = foreign currency price of imports (star means foreign)
            Qm = quantity of imports
    c. Sf derived from exports
        i. Sf = Foreign currency value of exports
            = P*x * Qx
            P*x = Price of foreign exports → Price is determined by a Demand-Supply model of exports (exchange rate influences this)

3. The supply-demand model: an application to a change in relative growth rates
    a. Hard to do this as it is a dynamic application being applied to a static model
    b. Simplify to two steps –
        i. assume foreign growth rate is constant and there is an increase in domestic growth rate
        ii. 2nd simplification → going to talk about an increase in domestic income rather than
            growth rate → easier to apply to the model
        iii. Question becomes, what is the effect on the S(d/f) of an increase in domestic income? ceteris paribus.

1st Step: which curve shifts?

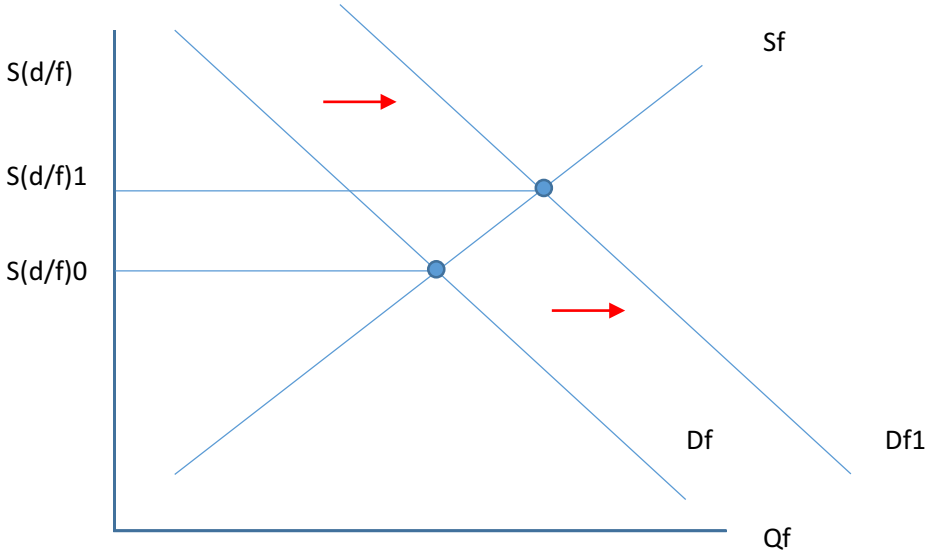
- Demand for imports → equilibrium quantity of imports is affected → Df

2nd Step: how does it shift?

- Increase in income leads to an increase in the demand for imports → increase in the quantity of imports → increase in the demand for foreign exchange
- i.e. rightward shift

3rd Step: What is the effect on the equilibrium S(d/f)?

- For no shift in the supply of imports



So, Increase in S: S0→S1 i.e. depreciation (takes more domestic currency to purchase foreign currency)

Intuitive story is;

As domestic incomes increase, domestic consumers feel better off, so they want to increase their consumption of goods including consumption of imports. Marginal propensity to import of 30% (positive). More imports need more foreign exchange, that forces the price of foreign exchange up and thus leads to a depreciation of the domestic currency.

4. The supply-demand model: an application to a change in the terms of trade

Reference: Moosa 3.3, 4.2