

SA 422: HOUSING ECONOMICS AND FINANCE 2008/2009
Handout 3: Housing Supply and Investment, House Prices and Land Markets

Relationship between Short and Long Run Supply of Housing

1. Builders are prepared to supply if their rate of return $>$ return available elsewhere. Rate of return depends on total revenue (TR) – costs of production (TC) including finance. Total supply depends in addition on the number of firms in the industry (N_s).
2. TR is determined by price (p) x quantity supplied. Marginal revenue is the additional revenue from additional unit sold. When is $MR = P$?
3. An increase in price increases the incentive both for existing firms to expand output and for new firms to enter the market. In a competitive industry, each firm will expand output until $P = MC$. If $MC > \min AC$ this should bring additional firms into the industry and therefore additional supply until price falls and $MC = \min AC$ again (figure 3).
4. Problems in the housebuilding industry because it cannot rapidly adjust output without cost. The most important problems relate to land and planning permission, but also shortages of skilled labour, finance and management (Barker Review, 2004). So S/R MC increases rapidly – supply very inelastic, and suppliers will be able to sell their output at prices reflecting the current market price for existing dwellings. Thus in the short run the price of new units is a function of the price of existing units. New unit premia?
5. In the long run there will be a greater capacity to adjust supply without increasing cost so much (figure 4). Where $P > L/RMC$, will produce more output until excess profits are exhausted. So in L/R the price of new dwellings will be equal to the L/RMC of provision of new dwellings. The price of existing dwellings with the same attributes will also be equal to that L/RMC.
6. This assumes competition among suppliers of new units so that entry/exit occurs until long-run equilibrium in the market, where $P = MC = \min AC$ for each firm (figure 3).
7. The extent of elasticity of supply in the long-run depends on the price and availability of factors of production. The production of most goods can be expanded in the long-run at constant cost because of replicability. The situation for housing is more complex both because the speed of adjustment is much slower (partially as a result of longevity and specificity of assets?) but also because land in particular is in limited supply, even in the long term
8. The demand for housing land is a derived demand – depending on the price of housing, the potential mix of factors of production and the productivity of factors. This includes the productivity of land – e.g. in terms of densities allowed, costs of infrastructure, decontamination etc.
9. Individual firms decide how much to bid for land on the basis of residual values – expected revenue less costs (including required profits). The land then goes to the highest bidder – resulting in allocation to the highest valued use.

10. If the supply of land cannot adjust (is inelastic) then increases in demand for housing will generate higher house prices, which in turn will be passed on to higher land prices. At the limit the only possible adjustment is through density of provision.

The Responsiveness of Land Supply

11. Is the supply of land inelastic with respect to price? In total, land is almost fixed in supply. But the relevant question is the supply to a particular use. So need to look at the range of uses: leave vacant, agriculture, residence, commerce, industry, infrastructure. Land will transfer into residential if highest long-run return is in that use, (if market forces allowed to operate). Likely to be considerable elasticity mainly dependent upon the costs of transfer between uses. Even so, not all land is suitable for housing – e.g. because of location or costs of bringing land into use. So supply certainly not infinitely elastic at alternative use value.
12. In addition, if land prices rise with supply, there is an incentive to substitute between factors so that less land (higher density) used and more services provided – so even if relatively inelastic supply of land, say in particular areas, more dwellings will be supplied as a result of substitution.
13. Why then is the supply of land apparently so relatively inelastic in the medium term?
 - underlying resource costs of transfer from other uses (even in long-run?);
 - costs of infrastructure and problems of providing that infrastructure reasonably quickly;
 - preparation costs (including clearing and building within urban areas;
 - risk and uncertainty;
 - government intervention – land use planning constraints.

Long-run costs of housing

14. Evidence suggests that, even in the long-run, supply of land and therefore of housing is not completely elastic. However, it is certainly not so constrained as is often suggested, even given planning constraints. Distinguish economic concepts of long-run from time dimension. Adjustment very slow because of basic attributes of housing, while demand changes all the time so outcome generally more related to short-term conditions. Also capacity constraints are costly to overcome and may continue for longer because of uncertainty of demand.
15. Evidence also suggests real costs of housing provision have been rising at perhaps as much as 2% p.a. real – in which case the real per unit cost of housing as compared to other goods increases by about 50% every twenty years. The outcome then depends upon price elasticity of demand (pulling demand down) and other real factors such as income growth pulling up demand. Continuing increase in equilibrium quantity and price? Empirical difficulties in distinguishing price and quality changes.
16. The average quantity of housing consumed has increased consistently, even though house prices have risen in real terms. However, plot densities have generally not declined over the last twenty years, as incomes and demand have risen. Instead the type and structure of units have changed. Evidence of the extent of land constraints?

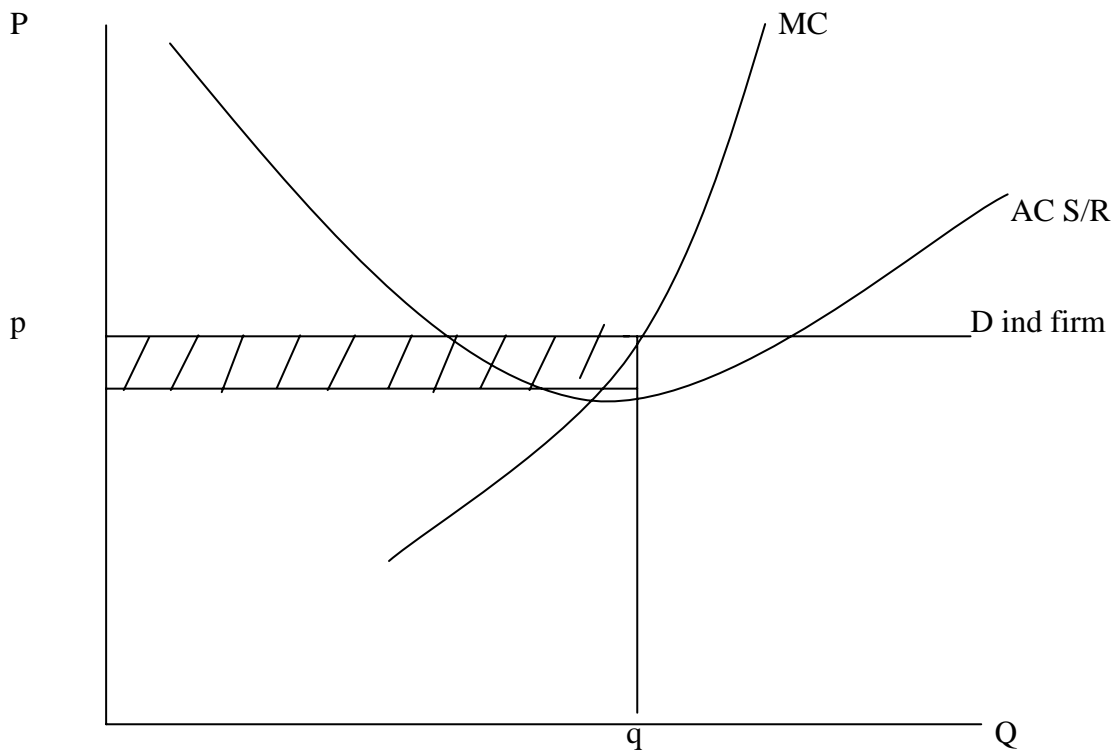


Figure 1.1 Profit Max firm in S/R

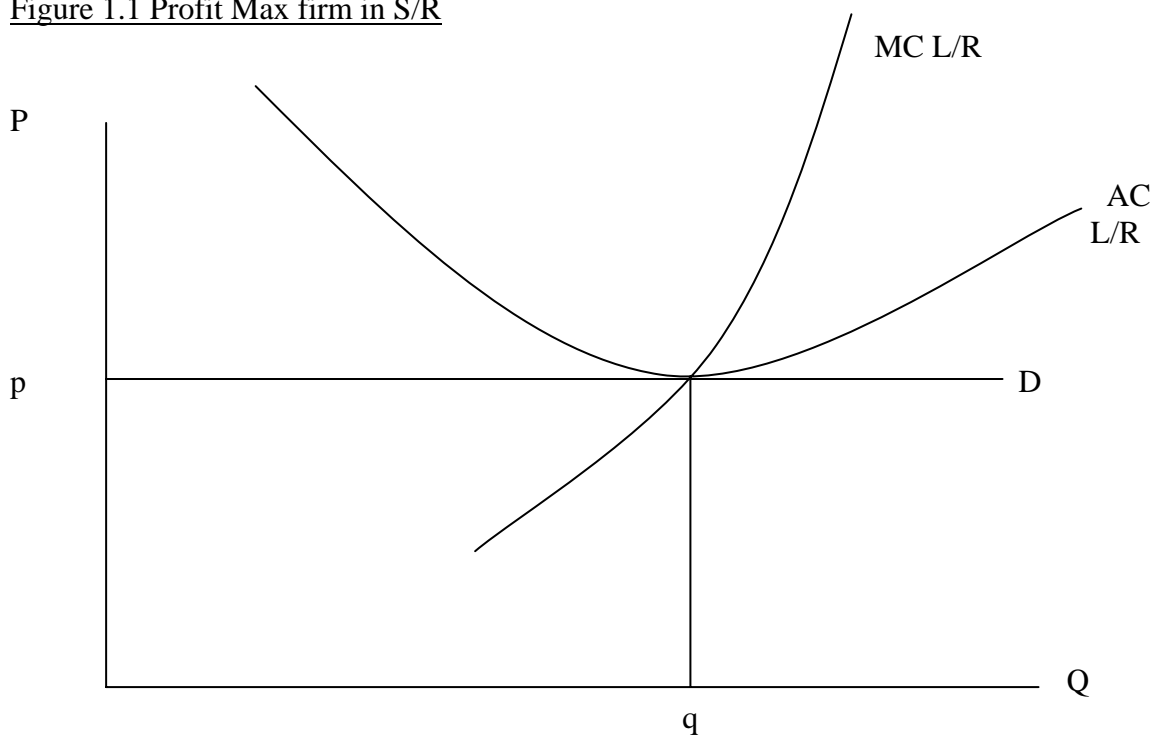


Figure 1.2 Profit maximising firm in L/R

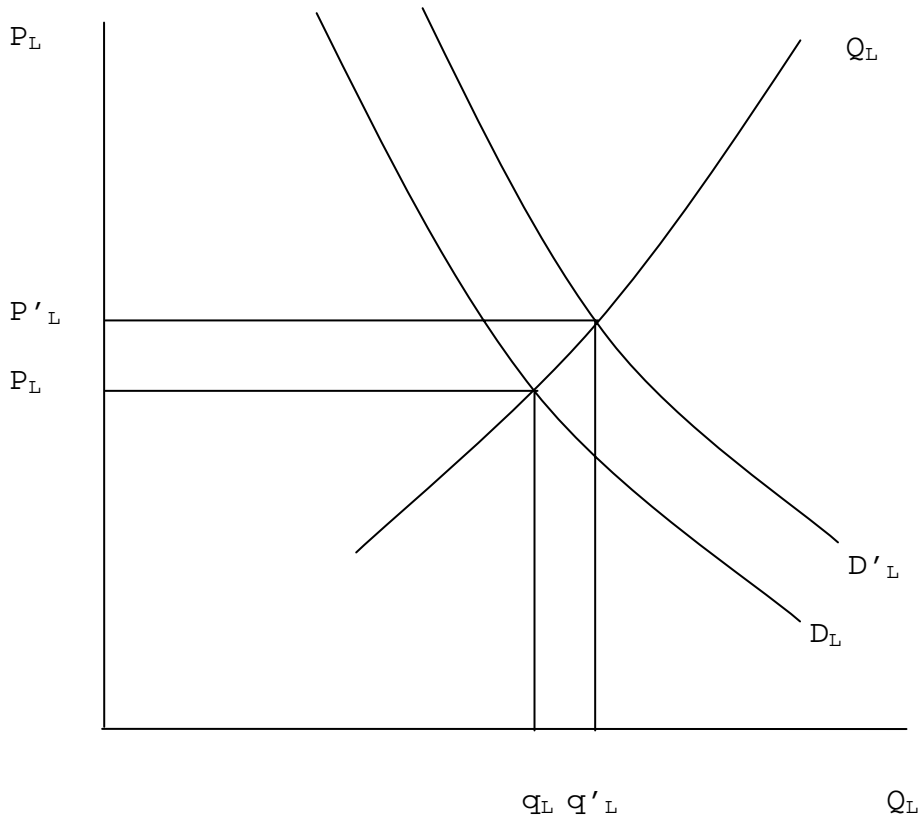


Figure 2: Short Run Price Determinant in Land Market

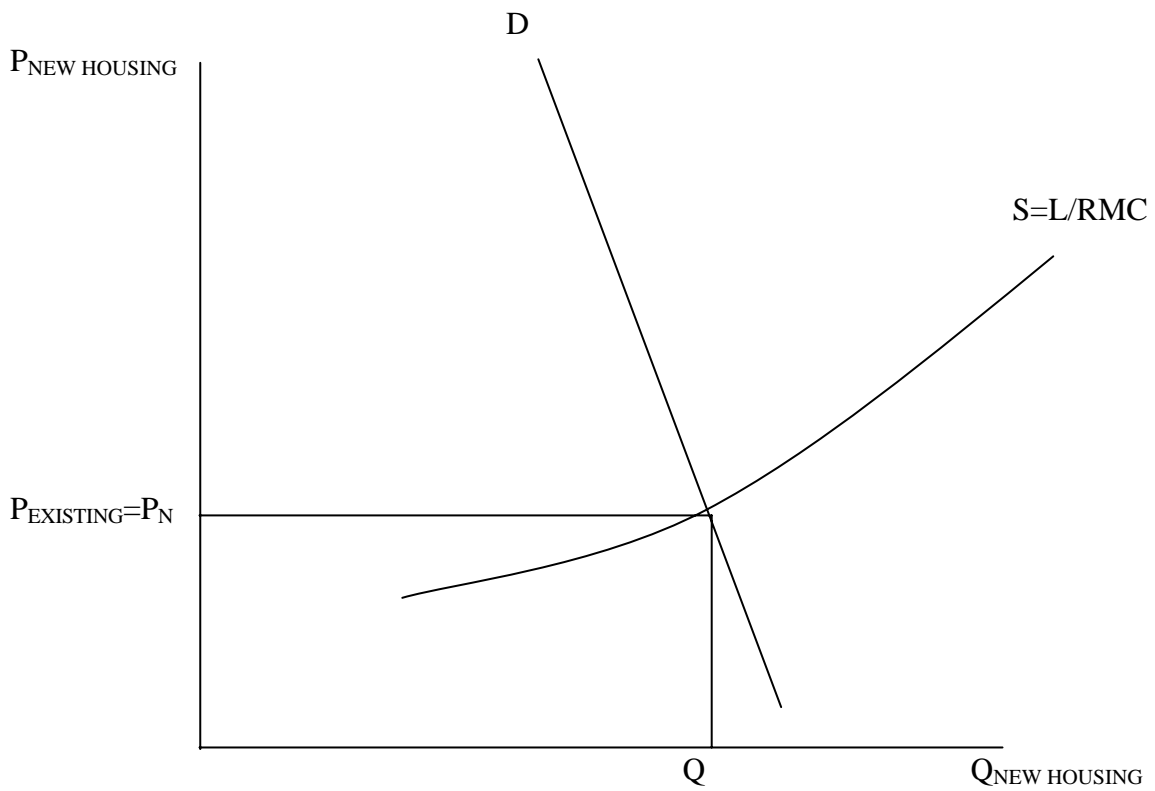


Figure 3: Price Determination in the Long-Run