Introductory economics cheatsheet

Economics

Problems by Command 1. Information collection 2. Principal-agent 3. Disagreement among multiple decision-makers. Arrows' impossibility theorem. Paradox of voting. 4. Enforcement Coordination by Market Princes as signals of scarcity/abundance Induces coordination Requires much less info No enforcement costs No principal-agent problem No problem with multiple decision makers Qualification: some command systems exist within a market (eg firms) Public Good Has free-rider problem due to non-excludability. Can only be provided by a coercive authority that can force users to pay for these goods. Taxes. Collective Goods

Provide benefits for a group. Cartels and Unions Has free riding problem. Prevent by sanctions Common Resources Non-excludable but exhaustible Natural resources goods Lack of well-defined property rights encourages overuse. The tragedy of the commons. Solve by asserting ownership rights over common resources. Coarse theorem Markets generate themselves for property transfer that internalize externalities. Adverse selection & Moral hazard Market price based on expected quality Reward people for not maintaining quality High quality sellers drop out Cycle continues Market collapse FDI promotestechnologytransfer without moral hazard.

Equilibrium – no one has an incentive to change their behavior. Price ceiling Cause a shortage due to excess demand Leads to rationing or preferential allocation, long queues, inefficiency. Those who do get will benefit from the lower prices. Price floor EgMinimum wageOnly those workers who don't lose their jobs benefit from the higher wages. Consumer surplus When price goes down, CS increase due to 2 reasons. Existing buyers pay less. More buyers

are able to enter market. Producer surplus Markets select low cost suppliers. Only those whose costs of production are below the market price enter.

When price goes down, ' marginal seller' drops out. When price goes up, PS increases due to 2 reasons. Existing producer get a higher price. More producers can enter. Total welfare = CS + PS Govt intervention decreases this Factors of demand Income & substitution effect Change in tastes Expectation of future prices Change in number of buyers Factors of supply Change in technology Change in input prices Expectation of future prices Change in number of sellers Elasticity Price elasticity of demand for a good is the % change in demand when the good's price falls by 1%. Elasticity along a linear demand curve decreases with a decrease in price.

Factors affecting elasticity of demand Number of substitutes/whether the good is a necessity/time frame/broadness of category Income elasticity of demand is the % increase in its demand for a 1% rise in income. Indifference curve Non-lexicographic and non-satiation Convex to origin – preference for variety Cant cross each other due to consistency and transitivity Marginal rate of substitution(MRS) Negative of an indifference curve's slope at any point Equal to the ratio of marginal utilities of the 2 goods at that point Slope of budget line is the negative of the relative prices of the 2 goods.

At tangent, slope of budget line and slope of indifference curve must be equal. MRS= relative prices at this point The ratio of marginal utility to price is equal for both goods at the point chosen (equimarginal principle) Income and substitution effect Cost curve AFC= TFC/Q, AVC= TVC/Q, ATC= AFC+AVC AFC declining with Q. AVC first falls then rises. U shaped. Rising marginal cost. When MCMC. No supply curve. MC Pricing P= MC, lead to

losses for natural monopoly, which govt can subsidize. But tax has its own deadweight loss. P= ATC , zero profits. Alternative, public ownership Pricediscrimination

Increase monopolist profits First degree – extract entire CS, socially optimal but unlikely Second degree – Charge buyers based on observable characteristics Third degree – separated markets Quantity discounts Contestable Market No barrier to entry Maintain monopoly only due to the fact that it entered first P= MC, zero economic profits Durable Goods Monopoly MC= 0 Compete against its future price Cartels and collusion Incentive that monopoly profits are higher Each has an incentive to sell more than the agreed amount, resulting in a collapse of the agreement. Bertrand duopoly Assumption constant MC.

Equilibrium at AC= MC. Naive thinking and no capacity constraint and price easily adjusted Sweezy model Each firm assumes that if it cuts its price, this will be matched by all its rivals while if it increase its price, it will not be matched. Perceive demand curve to be very inelastic below the existing price and very elastic above existing price. Result in price rigidity Reverse kink Each firm assumes that its price increases will be matched by all rivals, while its price cuts will not. Demand curve becomes elastic below the existing price as the cut speedily increases the demand for this firm's product.

Inelastic above the existing price. Result in price instability. Likely duringdepression. Competition in output Cournet Model Supposes wrongly that other firms will not react to its own output decisions. Will not result in zero-profit outcome. MR= MC. Monopolistic competition Large number of

sellers with differentiated products No barriers to entry Each firm faces a downward sloping demand curve Short run, try to max profits by MR= MC. Due to free entry, more firms enter in long run as long as positive economic profits are made. Shifts demand curve to the less are market share reduced. Long run equilibrium, P= AC.

Not at minimum of AC curve, thus inefficiency as each firm has excess capacity. Provide more variety though. Game theory Dominant strategy equilibrium No incentive to deviate as none of the players can do better by choosing a different strategy. Nash Equilibrium Each player has no incentive to deviate by himself. Each guess what other player choose. Coordination problem Multiple equilibrium Solve by convention Focal point – higher payoff for 1 equilibrium Zero-sum games Solve by maximin rule – maximize his minimum payoffs. Repeated games Grim trigger strategy cannot work if the game is repeated a known finite number of times.

If infinitely, can sustain if they do not discount the future heavily(sufficient weight to future punishments). Discount factor $> 1/3$. Sequential game Backward induction - work backwards to solve Subgame perfect Nash equilibrium – additional property of ruling out empty threat GDP – the market value of all final goods and services produced within a country in a given period of time Relies on market prices Includes market value of the stream of services from durable goods Miss out value of non market services Excludes transfer payments Consumption + Investment + Government spending + Net export

$Y= C+I+G+NX$ GDP deflator = (Nominal GDP/real GDP)*100 GDP per capita flawed as a welfare measure as it excludes value of leisure,

cleanenvironment, and safety. CPI measures the cost of a fixed basket of goods bought by a typical consumer. Overstates cost of living because of substitution bias. Introduction of new goods and thus increased living standards is not reflected. Quality changes is not measure. GDP deflator includes goods not bought by typical consumer. CPI includes imports. Real interest= nominal interest - inflation Productivity is a key to rapid growth. Physical capital

Human capital Natural resources Technology Y= AF(L, K, H, N) Productivity is given by Y/L = AF(1, K/L, H/L, N/L) Technology progress continuously expands the resource frontier. Phases of rapid growth have occurred when a technological innovation opens up a new elastic supply source. Eg Industrial revolution, Railway boom, IT. Policies to promote growth Encourage savings and investment. Diminishing marginal productivity of capital implies that high saving will no longer lead to fast growth beyond a point. Convergence effect. Encourage FDI. Builds up physical and human capital accumulation.

Has learning effects through tech transfer and positive externalities. Education. Secure system of property rights Lack of corruption or political instability Pursuing free trade Population growth can lead to lower capital-labor ratio which might decrease productivity Also inefficiency in human capital accumulation as same educational facilities spread thinly Large families may keep woman out of labor force which reduces total productivity C and IM tend to increase as national income rise. So C= C+cY, IM= IM+mY where c and m are marginal propensity to consume and import. An increase in GDP of $1 increases C by c and IM by m. c, m