# Demand analysis in business economics

Business Economics I Syllabus for F. Y. B. Com from June 2012 onwards University of Iambi Semester I Module l: Demand analysis Demand function and determinants of demand - Concept and importance of Elasticity of demand, Income, cross, promotional. Case studiousness surplus, Demand forecasting: meaning significance and methods-case studies Module II Theory of production and cost Production function-short run and long run-Law of variable proportions- Cantankerousness' equilibrium- returns to scale-economies of scale- case studies

Concepts: social costs private costs, economic and accounting costs- fixed and variable costs, Opportunity cost, behavior of cost curves in short and long run producers' surplus- case studies Module Ill Revenue Analysis Average Revenue, Marginal Revenue, Total Revenue- Relationship between Average Revenue and Marginal revenue and elasticity of demand Objectives of firm: Profit, sales and Growth Minimization, Break even analysis Case studies Available for free and private circulation At www. Ranging. Com and www. Vacuole's. Net Business Economics Paper l, F. Y. B. Com (w. E. F. June 2012) 2 DRP.

Rang SAA CONTENT Semester I Module l: Demand analysis Demand function Determinants of demand Consumer surplus Elasticity of demand, Income, cross, promotional. Case standardized forecasting Module II Theory of production and cost Production function Law of variable proportions Squanto-producers' equilibrium- returns to scale Economies of scale Concept of costs Behavior of short cost curves Behavior of long run cost curves Producers' surplus Case studies Module Ill: Revenue Concepts Relationship between AR

and MR. Objectives of firm Break even analysis 3 Centralization takes its toll!!

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Y. B. Com students of University of Iambi, who will be writing their Business Economics Paper l, Semester I examinations on or after March 2012. DistanceEducationstudents are advised to refer the recommended syllabus. This is neither a text book nor an original work of research. It is simple reading material, complied to help the students readily understand the subject and write the examinations. We no way intend to replace text books or any reference material. This is purely foracademicpurposes and do not have any commercial value.

Feel free to use and share. We solicit your opinions and suggestions on this endeavor. DRP. Proof. Rang SAA[email protected]Com June 2012 4 Module l: Demand analysis Demand function Demand refers to the desire backed by willing news of the buyer and willing to pay a price. Demand function provides the relationship between the quantity demanded and various factors determining it. In the demand function, the quantity demand is the

dependent variable and the factors determine demand are independent variables.

The demand function relates the quantity demanded-Q, as an effect of several factors like price-P, income-Y, advertising-A, and tax-T. Quantity demanded, Q = f (P, Y, A, T/F) Yet while studying the relationship as a law, it assumes all factors to be constant and isolates one major determinant. The clause of keeping other factors constant by retaining one major determinant for the purpose of forming a law is called as coteries Paramus. Factors determining quantity demanded Following are the factors determining quantity demanded : Price: Price is major factor and quantity demanded. Ђ Taste, fashions and preferences: The quantity demanded depends on tastes that are personal, fashions that are the external influences on tastes and the preferences that are selected out of given alternatives. Income: Income and quantity demanded are positively related. Quantity demanded increases with increasing income and vise versa. Ђ Price of related goods: There are two types of related goods- substitute goods and complementary goods. 5 Substitute goods are those which give similar utility. The price of substitute goods directly influences the demand for good.

Complementary goods are those which give utility in combination. These are Joint good that have complementary demand The price of complementary goods indirectly influences the demand for a good. Availability of related goods: The availability of substitute and complementary goods effect the quantity demanded. Taxation: taxation increases the price. The effect is that of increasing price. Ђ Advertising: Advertising increases the demand. At the same price or the consumer may demand more goods. Seasons: There are

certain goods where the consumption is seasonal. So the demand changes with changing season. Ђ Utility: Goods with multiple utility have larger demand. This is because use and application increase with utility. Elasticity of Demand Elasticity of demand measures intensity of changes in the quantity of a commodity for changes in the price, income or the price of a related commodity. Accordingly, it is called price elastic, income elasticity or cross price elasticity of demand. Factors determining elasticity of demand Following are the factors determining elasticity of demand: 1 . Price : Goods tend to be more elastic at higher prices and less elastic at lower prices 6 2.

Nature of commodity : Goods of luxurious consumption are more elastic than for essential goods 3. Durability : durable goods are more elastic than semi durable goods and perishables. 3. Utility : Multi utility goods are more elastic than single elastic goods. 4. Factor and using common factors of production are less elastic than high cost goods and containing valuable inputs. 6. Government policy : The government can change the elasticity of demand by liberally changing tax on a commodity. 7. Advertising : Large advertising budget makes demand very elastic. 8.

Fashion and habit : Goods which are of habitual consumption and current fashion are less elastic than neutral and general gods. 9. Supply and price of related goods : the price and availability of complementary and substitute goods affect the elasticity of a commodity. Significance of elasticity of demand 1. Price determination : Concept of elasticity is very important in determination of price. 2. Taxation : The government considers elasticity for the purpose of levying tax on a product. 3. Product design : Price elasticity is considered for design of a product.

Multi-utility goods have higher elasticity and can get higher price. 4. Marketing: Marketing strategies are based on elasticity. The target consumers, buying motives and price are determined as per elasticity. 5. Advertising: Promotional elasticity is important in determining advertising budget. 6. Consumer surplus : The excess of utility over price is consumer surplus. Elasticity determines consumer surplus. Price Elasticity of demand Price elasticity of demand measures proportionate changes in the quality of commodity for proportionate changes in the price.

Price elasticity relates quantity demanded and the price. Price elasticity is measured as The price elasticity has a negative value, because the price decreases for an increase in the quantity demanded. Business Economics Paper l, F. Y. B. Com (w. E. F. June 2012) 8 pep = 1, Unitary elastic, reference elasticity pep ; 1, Relatively elastic, luxury goods pep ; 1, Relatively inelastic, necessary goods ep = m, Perfectly elastic, hypothetical ep = O, Perfectly inelastic, hypothetical The value of elasticity changes with changing responsiveness of quantity changes for hanges in the price.

Larger the responsiveness greater will be the elasticity. No change in the quantity the elasticity will be zero. For highly sensitive quantity, the 9 Income Elasticity of demand Price elasticity of demand measures proportionate changes in the quality of a commodity for proportionate changes in the income. Income elasticity relates quantity demanded and the income. 10 With an increase in the income the consumer increases the consumption. This happens in case of normal goods. Incase of inferior goods with increase in the income the consumer degrease the consumption. This is called negative income effect.

For normal goods the value of income elasticity is positive for inferior goods it is negative, eye = 1, Unitary elastic, reference elasticity eye ; 1, Relatively elastic, luxury goods eye ; 1, Relatively inelastic, necessary goods ey ; O, Inferior goods ey = O, Perfectly inelastic, hypothetical ey = m, Perfectly elastic, hypothetical positive income effect positive income effect positive income effect negative income effect 11 Cross Price Elasticity of Demand Price elasticity of demand measures proportionate changes in the quality of one commodity for proportionate changes in the price of a related commodity.

Cross Price elasticity relates quantity demanded of one commodity and the price of a related commodity. The value of cross price elasticity depends on the type of relationship between the ex. O, Substitute goods When the price of X increases, the demand for x decreases, the consumer increases the demand for Y.

Since, X and Y are substitutes. 12 Substitute gods are those goods which give similar utility. Since the goods give similar utility the consumer can consume one in the place of the other. ex. = O, Unrelated goods If the price of X increase the demand for Y remains unchanged this is because the goods are unrelated and independent in consumption and utility. Point Elasticity of Demand According to Lucas all goods tend to be elastic at higher prices and inelastic at lower prices. This principle can be shown geometrically on a demand curve using point elasticity of demand method.

It is ratio of lower segment to the upper segment. The elasticity increase as it moves upon the demand curve to the left. The demand curve is extended

on both sides so as to make a right angle triangle. Then the elasticity at point is measured as E= Lower segment Upper segment BC ABA or So e = 1, Unitary elastic, reference elasticity e = O, Perfectly inelastic, hypothetical e ; 1, Relatively elastic, luxury goods e ; 1, Relatively inelastic, necessary goods e = Perfectly elastic, hypothetical 13 Promotional Elasticity of Demand commodity for proportionate changes in the promotional budget.

Price elasticity relates sales and the promotional budget. Promotional elasticity is a managerial tool of corporate decision making. It enables the enterprise to decide whether a sales promotion budget is desirable or not in terms of generating corporate incomes and sales. An elastic promotional elasticity means that the sales are in larger proportions than the promotional budget and desirable. If the promotional elasticity is less than one that inelastic it means that the promotional budget has failed in promoting proportionate sales, hence undesirable.

The promotional budget may have components like media, advertising, sales promotions, free samples, gifts, promotional offers etc. Consumer Surplus Consumer surplus is the excess of Utility drawn over the price paid. According to the law of demand the price decreases with increasing quantity. This is because the utility decrease with in creasing consumption as per the law of diminishing marginal utility. A consumer pays the price according to the utility drawn on the last commodity. This price is uniform for all the earlier units. In this process the consumer derives surplus utility over the price paid on earlier units.

This surplus utility is called the Consumer Surplus. Consumer surplus = Utility derived - price paid 14 Consumer surplus is the excess of utility derived by consumer. The producer surplus is the surplus of price charged by the producer over the supply price. The supply curve shows that the price increases with increasing quantity. The price is charged as per the last unit produced, whereas the producer receives a surplus over the supply price. This is called producers' surplus. The producers' surplus can be increased by reducing consumer surplus.

This is called consumer exploitation. Assumptions 1. The concept believes in the law of diminishing marginal utility 2. The law of demand is considered for determining the price. . The price remains uniform. 4. The supply of goods is uniform. 5. The tastes of the consumer remain constant 6. There is perfect competition. Limitations The concept of consumer surplus has several limitations due to its rigid assumptions. 1. The utility can not be measured 2. Consumer surplus can not be easily quantified. 3. Market imperfections deny consumer surplus to the consumer. 4.

Marketing techniques increase consumer surplus by showing greater utility and then in crease price. 5. Consumer surplus encourages the government to levy tax. Applications: Consumer surplus is a very useful concept applied in marketing, reduce design and pricing. 1. It helps in determining the price. Larger the consumer surplus, greater the possibility of increasing the price. 2. The Government can determine tax based on consumer surplus. 3. Under monopoly, the producer charges different prices for the same commodity depending on the consumer surplus. It helps on pricediscrimination. . Necessities have larger consumer surplus than luxury goods. 5. Consumer

surplus helps in demand forecasting. Demand forecasting Demand forecasting refers to future market situation. Demand forecasting is an important technique of corporate decision making. It enables a firm decide upon a commodity for production among several or helps in understanding the future market of a given product. Nature and significance of demand forecasting 1. Demand forecasting starts with defining the product or the product mix. This will depend on the nature of firm and its corporate image. . Once the product is decided the forecast will now describe the buying objectives of the product. The buying objectives will determine the target population for whom the product is being produced. 3. The buying objectives will influence the product design, the cost and ultimately, the price. 4. Depending on the product design, the inputs are drawn. The factors need to be imported or domestically procured. The demand forecast will provide the sources and the costs. 5. To define the market prospects the product is identified with the product cycle.

The product may belong to any of the states of product cycle: interdiction, growth, competition, stagnation or Business Economics Paper l, F. Y. B. Com (W. E. F. June 2012) 16 decay. The stage to which the product belongs will determine the selection of the product and forecast. 6. Specialized inputs and labor may require efforts in procuring and training. 7. The production and delivery schedule is drawn depending on the market. Seasonal good may have different delivery schedule as compared with a regular good of consumption. 8. The price is decided and the cash flows are estimated.

The sales, revenue profits, costs and the rates of return are estimated for period of three to five years. 9. The market is described withrespectto risk of

competition, Government policy, future prospects. In case of any risk the possible methods of overcoming risk will be indicated. Such demand forecast will be useful forecasting depends on the nature of product and nature of firm. The process differs room firm to firm and product to product. 1. The demand forecast has to first consider the corporate policy. The product to be produced depends on the firm and the nature of market image it carries. . There after the approach to demand forecast changes between an existing firm and a new firm. An existing firm will have historical data which can be used for future analysis, where as a new firm has to generate relevant data from the market. 3. Depending on the product, firm and market the method of demand forecasting will be selected. Thus a model is built with all required parameters. 4. The tolerance limits are defined. These are the accuracy levels of the forecast. The accuracy level will determine whether to accept or reject the model. 5.

The Model goes for sample testing in a limited region to see all the needed information is got. The trial run will help in making modifications to the model, if need be. 6. When the model is successful, the larger study is conduced and the results are analyzed. 7. Finally, the forecast will provide projected cash flows for five years to come. Notes, definitions are given together with risk and methods to risk management. A detailed description on the market trends and the prospects of the reduce to be marketed is appended. Business Economics Paper l, F. Y. B. Com (w. . F. June 2012) 17 Methods of Demand forecasting There are different types of demand forecast each meant for a specific objective and has a specific data requirement and ha specific information to offer. The methods of demand forecasting can be

classified into two groups: A. Statistical or Quantitative methods of demand forecasting B. Survey methods of demand forecasting A. Quantitative OR Statistical methods of Demand forecasting Quantitative methods of demand forecasting need a large data base for analysis. It is more suited for older firms with historical data.

Quantitative methods provide accurate results but skills in analysis and interpretation will it more effective. Some of the quantitative methods are static and consider only limited variables. The active forecasts use highly developed mathematical tools of analysis and provide accurate and dependable results. 1. Linear equation Linear equation is the simplest of quantitative methods of demand forecasting applied on time series data. It assumes a constant rate of change of sales and based on the change coefficient, the ales for any future year is estimated.

Illustration Given, initial sales (a) of 1 500 tons and an annual increase (b) of 500 tons, the out put can be estimated for any future year, with the equation: Sales, Y = a + bat, Where a is the initial sales, b is the annual expected change and t is the time period. The projected sales after 5 years will be sales, Y = 1500+( 500 x 5) = 1500 + 2500 = 3, 500 The linear equation a static method of quantitative demand forecasting. It assumes a constant rate of change. Though it is not the most accurate method, it is commonly used as preliminary estimate. 18 2.

Trend line Seasonality is a characteristic of time series data. It prevents the usage of any liner method of demand fore casting. For this reason, the data needs to be corrected for the seasonality before any method is applied. The

seasonality is time series data can be corrected in different ways. One method is applying the statistical method of trend fitting or least squares method. A trend line is fitted in such a manner that the positive variations are same as the negative variations. In other words the trend should be an average of the seasonal changes.

In there words the trend line should be so fitted that the square of the deviations is least. 19 3. Moving averages The seasonality is time series data can be corrected by applying the statistical method of moving averages. The date is studied to first find out the period of seasonality. Then a moving average is calculated by taking average of that period, sequentially, each year. Each year one earlierobservationis dropped and a later observation is included. This way, the set of averages of the reference period is computed. Normally, after applying the moving averages the trend becomes clear.

If he trend can not be found the moving averages is repeated with different time period or on the same period again. In the illustration a moving average of three years is applied and the trend is brought out. 4. Regression equation Regression equation deals with the relation between the quantity demanded and the factors determining it. The process begins with the demand function Quantity demanded, Sq = f( P, Pc, T, A) Once the demand function is identifies the nature of effect is describes and the intensity of relation is qualified in terms of figures. Then the regression equation is cast as an input output relation 20