A COMPREHENSIVE DICTIONARY Of ECONOMICS

Chief Editor & Compiler :
Nelson Brian

A COMPREHENSIVE DICTIONARY Of

ECONOMICS

Chief Editor & Compiler :
Nelson Brian

ABHISHEK

ISBN : 978-81-8247-031-6

ISBN : 81-8247-031-5

First Edition : 2009

Published by
ABHISHEK PUBLICATIONS,
S.C.O. 57-59, Sector 17-C,
CHANDIGARH-160017 (India)
Ph. - 2707562, Fax- 0172-2704668
Email : abhpub@yahoo.com

Concept & Design by
Xact Ad 'N' Art Studio, Delhi

Printed at : Balaji Offset, Naveen Shadra, Delhi-32

Preface

Economics is the science that deals with the production, distribution and consumption of wealth. It studies the various problems of labour, finance, taxation, etc. and tries to find a solution or the best possible way to tackle these problems. The subject not only deals with the present and future growth of a country's economy at the micro level, like the consumption of a household or an individual firm, but also studies the same at a bigger and more complex level or the macro level, like the national income or the production of an industry. The job of the economists is to identify the economic problems of a country's economy and find solutions for the same, thereby promoting a healthy and smooth economic growth.

There are two schools of thoughts in economics, viz. the Classical and the Modern. The economists belonging to these two schools have contributed a lot in the field of economics through a number of theories. But, as the human wants are endless, so are the economic problems unending and therefore, economists are continuously working towards finding solutions for these new problems.

The dictionary is made with the intent of providing the readers with a handy referral for the terminology used in the subject. The dictionary covers almost all the terms that form a part and parcel of economics in simple and easily comprehensible language. In order to enhance the readers knowledge and bring about more relevance, many examples and pictures have been used along with the definitions of the terms.

a fair trader / fair traders

contrasted with free trader, a fair trader is a holder of the point of view that one's country's government must prevent foreign companies from having artificial advantages over domestic ones.

abilene principle

a description of a group's inability to solve their disagreement. Nobody wants to reach a particular destination (Abilene), for fear of offending or contradicting each other.

absolute advantage

1. a term used in the international trade theory, as per which a country specialises in producing such goods and services that it is able to produce more efficiently (more output per unit of input) than any other country.

2. the ability of a country to produce a good at lower cost, in terms of real resources, than another country. In a Ricardian model, cost is in term of only labour.

absorption

the sum-total of demands for goods and services by all residents (consumers, producers and government) of a country, in contrast to the total demand for that country's output.

absorption approach

a way of understanding the factors of the balance of trade, noting that it is equal to the earnings less absorption.

abstinence

the giving up of the current consumption in order to increase the future consumption. It is often characterised by directing the available resources towards the production of capital goods. Due to this, the future production of the consumer goods will increase.

abundant factor

the factor which is available in abundant supply in a country relative to other countries. Can be defined both with respect to quantity and price.

accelerated depreciation

depreciation of a new asset over a period that is much shorter than the normal. The firms operating in the developing areas usually follow this method of depreciation.

■ accelerating inflation

a sudden inflation rate increase. It is the result of the government's efforts to hold the employment level below its natural rate.

■ acceleration principle; accelerator

indicative of a relationship between income and output and the investment effects associated with the changing output. The size of the accelerator depends on the marginal capital/output (C/O) ratio (i.e. how much new investment is needed in response to the changing demand for output) and on a variety of other factors influencing investment decisions.

■ accelerator

the process in which demand change for the consumer goods leads to an even larger demand change for the capital equipment used to produce them.

■ accelerator co-efficient

states that any increase in the output is always accompanied by a corresponding increase in the capital, like machinery etc., that is used to produce it. The incremented capital output ratio depicts the amount of capital that should be increased in order to raise an additional unit of output.

■ accelerator principle

states that the aggregate net investment level is dependent on the expected change in output.

■ acceptance credit

a way of payment in international trade. In case the accepting house finds the credit of a foreign import merchant satisfactory, it may open an acceptance credit for him in say New York.

■ accepting house

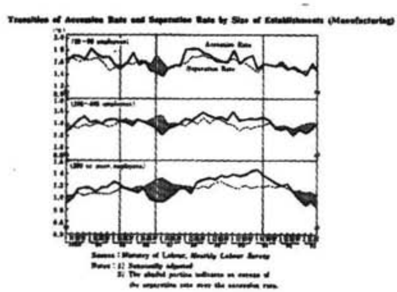
the establishments whose business is to accept or guarantee bills of exchange. Such establishments may also be involved in several other services and functions.

■ access / accessibility

term expressing the ease with which a location can be reached and interacted with from other locations.

■ accession rate

also known as the hiring rate, i.e. the total number of employees added to the payroll in a given period of time. It acts as an important indicator of the future business conditions.



■ accessions tax

the tax on the receiver of gifts and inherited property, it is levied by the government.

■ accommodating movements

the transferring of gold and convertible currency aboard by a country in order to meet its balance of payment deficits.

■ accommodation bill

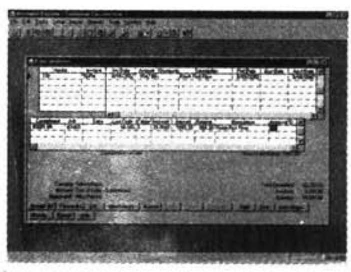
that bill, which is drawn, accepted or endorsed to make some cash available for a short term, without receiving any goods in return. The sole purpose of this is of discounting

■ accommodation endorsement

the endorsing of a note or any other bill of credit by one individual to another in order to grant him the right to obtain a loan.

■ accounts payable

the amount that a business owes to its suppliers and other parties, generally a period of 10 to 90 days is taken as standard to pay for the goods already transported.



■ accounts receivable

the amount that a business is entitled to receive from its customers, generally a period of 10 to 90 days is taken as standard to receive payments for the goods already transported.

■ accounts receivable (finance)

the entitlement of a firm to receive application of money from its debtors for obtaining funds to fincnce the current operating expenses or some other expense.

■ accrual basis

a method of accounting in which the income and expenses are not charged until the time they are actually earned or incurred.

■ accrued

the earnings, sales, expenses or other items of income or expenditure, which are already made or incurred and are outstanding.

■ accrued expenses

an accounting entry wherein a liability is recorded when the cost of a service used but not paid for is observed.

■ accumulation

the acquisition of an increasing quantity of something.

■ ACP countries

a group of African, Caribbean and Pacific less developed countries that were included in the Lomé Convention and now the Cotonou Agreement.

■ across-the-board tariff changes

a change of all tariffs in a country. They are raised or lowered by an equal percentage.

■ action lag

the delay between the formulation of a policy decision and its execution.

■ actionable subsidy

a subsidy which is not prohibited by the World Trade Organisation (WTO), but that member countries are permitted to levy compensating duties against.

■ active balance

a term to indicate a balance of payments that is favourable for a country, when the revenue earned from exports is higher than the expenditure incurred on the import of goods and services.

■ active circulation

at any given time, the part of the RBI's issue which is in circulation.

■ active market

market for a specific set of stock or shares traded quite frequently and regularly.

■ activity rate

the percentage of people in a given population age group that are employed, but not in the defence forces of the country.

■ actual protection rate

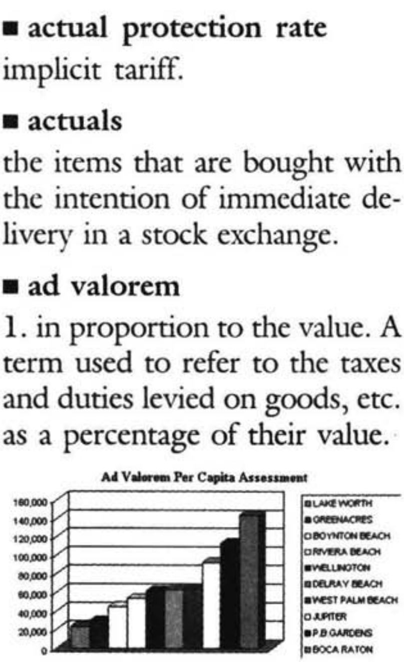
implicit tariff.

■ actuals

the items that are bought with the intention of immediate delivery in a stock exchange.

■ ad valorem

1. in proportion to the value. A term used to refer to the taxes and duties levied on goods, etc. as a percentage of their value.



2. per unit of value i.e. divided by the price.

■ ad valorem equivalent

the ad valorem tariff which would be equivalent, in terms of its effects on trade, price or some other measure, to a non tariff barrier.

■ ad valorem tariff

tariff defined as the percentage of the value of an imported good.

■ ad valorem tax

a tax or duty calculated on the basis of the value of a transaction. It is taken as a percentage of price at the selling or production stage.

■ adaption & adoption dichotomy

a constituent of A.A. Alchian's and Charles M. Tiebout's rationalisation of classical economic theory. The argument is that active, deliberately optimal (adaptive) behaviours are not needed for the viability of optimising theories, since economic actors would be either 'adopted' by the competitive environment or would fail.

■ addition rule

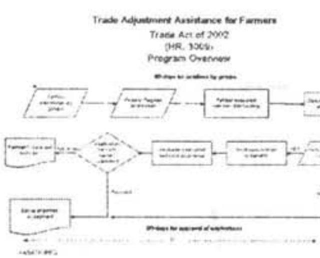
a rule for the determination of the derivative of a function with respect to a variable, where the function constitutes the linear sum of two or more different functions of the variable.

■ adjustable peg

an exchange rate which is pegged, but for which it is understood that the par value will be changed occasionally. Such system can be subject to extreme speculative attack and financial crisis, as speculators may easily anticipate these changes.

■ adjustment assistance

a government program to assist those workers and/or firms whose industry has declined,



either because of competition from imports (trade adjustment assistance) or from other causes. Such programs usually have two (conflicting) goals, which include, to lessen hardship for those affected and to help them change their behaviour.

■ adjustment lags

the time taken by a variable, like ccpital stock to adjust to tje changes in its determinants.

■ adjustment mechanism

the theoretical process through which a market changes in disequilibria, moving toward equilibrium if the process is stable.

■ administered protection

protection resulting from the application of any one of several provisions that respond to specified market circumstances or events, usually as determined by an administrative agency.

■ administrative lag

a delay between the time of implementation and the effect of a monetary policy. It refers to the elapsed time between the recognition by the authorities that action is necessary and the actual implementation of the action. The duration of this time depends upon how efficient the authorities are in implementing the policies formulated.

■ advance deposit requirement

a requirement where a percentage of the value of imports or of import duties should be deposited prior to the payment, without competitive interest being paid.

■ **advance refunding**

to exchange those bonds whose expiry date is approaching for new bonds on advantageous terms.

■ **adverse selection**

the tendency for insurance to be purchased only by those persons who are most likely to need it, thus raising its cost and reducing its benefits.

■ **adverse terms of trade**

a term of trade which is considered unfavourable relative to some benchmark or to past experience.

■ **advice**

note sent by one merchant to another, requesting him to deliver the ordered goods.

■ **agency shop**

the mandatory requirement for a prospective employee joining a firm to pay the union dues without being a part of the trade union. This kind of arrangement is generally found in the US between the ones who are of the view that the employees should be free to decide about joining a union or not and those who state that the employees should not be allowed to enjoy the benefits of a union without paying for them.

■ **agenda 21**

a plan of action adopted at the Rio Summit for promoting sustainable development.

■ **agglomeration**

1. geographical concentration of people and/or activities.

2. a phenomenon of economic activity congregating in or close to a single location, rather than being spread out uniformly over space.

■ **agglomeration economies (of Scale or Scope)**

benefits, savings or drop in average cost resulting from the clustering of activities. Generally, the concept of agglomeration economies refers to savings or benefits derived from the clustering of activities external to the 'firm' and are therefore a part of 'external economies'.

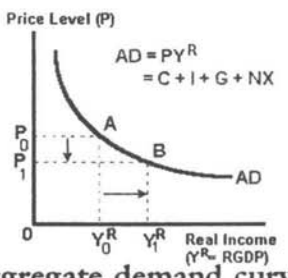
■ **agglomeration economy**

any benefit which accrues to

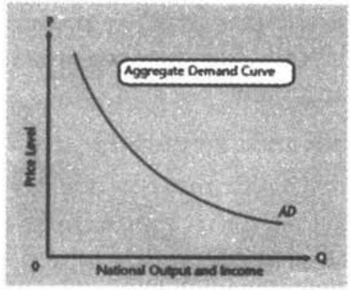
economic agents as a result of having large numbers of other agents geographically close to them, thus tending to lead to agglomeration.

■ **aggregate concentration**
the state in which the goods produced in one sector of the economy or the whole is concentrated around a few large corporations.

■ **aggregate demand**
the total demand in the economy. It takes into account the total of all the desired expenditure at any time by all groups in the economy. The main groups who spend are consumers (consumption), firms (who spend on investment), government (government expenditure) and overseas (exports).

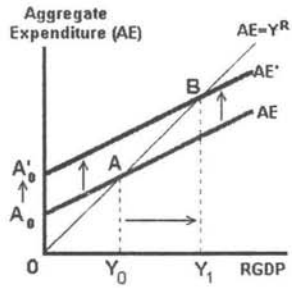


■ **aggregate demand curve**
in macroeconomic theory, the aggregate demand curve relates



the level of real national income (GDP) demanded (the total quantity of goods and services demanded) to the price level (as measured by the GDP deflator).

■ **aggregate expenditure**
in macroeconomic theory, aggregate expenditure is sum-to



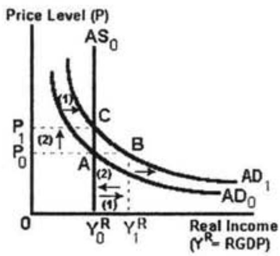
tal of the amount of desired spending by consumers, governments, private investors and foreign buyers (net of spending on imports) at each level of real national income (GDP).

■ **aggregate measure of support**

the measure of subsidy to agriculture used by the WTO as the basis for commitments to reduce the subsidisation of agricultural products. It includes the value of price supports and direct subsidies to specific products, as well as payments which are not product specific.

■ **aggregate supply**

it is the total quantity supplied at every price level, i.e. the total of all goods and services produced in an economy in a given time period.



■ **aggregcte supply curve**

in macroeconomic theory, the short run aggregate supply curve relates the total quantity of goods and services supplied and the price level (as measured by the GDP deflator) and with all else remaining the same.

■ **aggregation**

1. the putting together of the primary data. For example, the aggregate demand is an aggregate, in contrast with the demand of an individual.

2. the amalgation of two or more kinds of an economic entity into a single category. For macroeconomic purposes, all goods and services are usually aggregated into just one.

■ **aggregative model**

a model used in econometrics where the creation of variables is done by using groups of individual variables.

■ **agio**

it refers to the fee that is paid for exchanging one currency for another, or for a foreign bill of exchange.

■ **agistment**

to feed or take care of the cattle with the intention of getting a reward.

■ **allocated cost**

the allocation of expenditures to various accounts.

allocation

an assignment of economic resources to uses. In general equilibrium, an assignment of factors to industries producing goods and services, together with the assignment of resulting final goods and services to consumers, within a country or throughout the world economy.

allocative efficiency

the best possible allocation of resources.

allonge

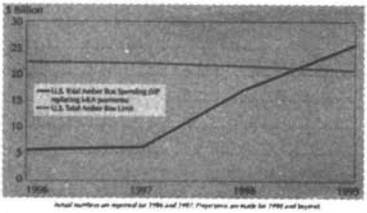
a sheet of paper to provide an additional space for endorsements, usually attached to a bill of exchange.

all-or-none order (US)

a limited price order for buying or selling of shares and stocks, with the condition of being executed entirely or none at all.

amber box

the category of subsidies in the WTO Agriculture Agreement, the total value of which is to be reduced. It includes most domestic support measures that



distort production and trade.

American Depository Receipt (ADR)

a document given to a shareholder and issued by the US Bank in response to the deposit of shares by the shareholder.

amortisation

this term is used in relation to the payment of a loan in advance, over a specified time period. Such fund can also be created when equated instalments are deposited at regular intervals of time, so as to accumulate an amount equivalent to the amount of debt including interest.

AMS

Aggregate Measure of Support.

angel investor

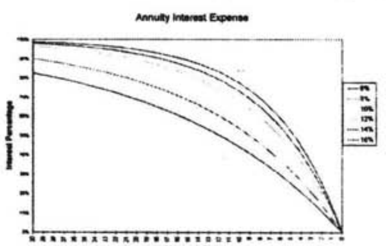
a venture capitalist with a social conscience. They are like other venture capitalists, in the sense that 'angels' are looking for high growth potential with a five-to-ten-year cash-out. Angel investors often look for 'psychic income' beyond just balance sheet and income statement- the chance to help other entrepreneurs, assist with inner city problems... for example.

■ anglo-saxon bias

Walter Isard's characterisation of the 19th century in a spatial economic theory in Britain, in contrast to the 'Germanic Bias' in the development of the classical location theory.

■ annuity

is a type of life insurance contract that gives periodic pay



ments to the insured at some future time, usually retirement.

■ antedate

earlier dating of a document, such as a life insurance policy, than what is current, so that it matures or takes effect sooner.

■ anticipation

in accounting parlance is, to record the earnings or profit before they are actually realised.

■ antitrust legislation

a law that targets healthy competition amongst all the players in a particular industry and thus restricts monopolistic practices followed by a private business.

■ anti-trust policy

the U.S. term for competition policy.

■ ANZCERTA

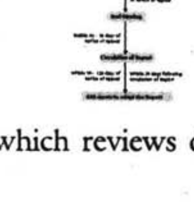
Australia-New Zealand Closer Economic Relations Trade Agreement.

■ APM

Average Propensity to Import.

■ appellate body

the standing committee of the



WTO which reviews decisions

of dispute settlement panels.

■ applied economics

a branch of economics that studies practical problems and uses the principles and tools of economic analysis.

■ applied tariff rate

the effective actual tariff rate at a country's border.

■ appreciation

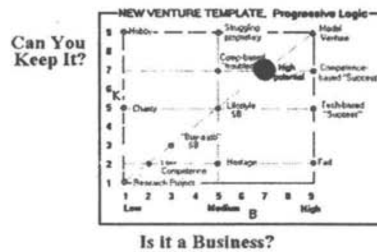
a rise in the value of a country's currency on the exchange market, relative to a particular other currency or to a weighted average of other currencies. The currency is said to appreciate.

■ appreciative theory (Nelson)

attempts to structure qualitative notions about the nature of a firm and its activities, in a manner that is less straining but richer at the formal level.

■ appropriability problem

problems associated with the ability of the firm to capture acceptable levels of benefits, associated with the exploitation of its own technological innovations through confidentiality, patents, etc.



■ appropriation

in accounting, money or materials set aside or spent for a specific purpose or allocating the resources between the numerous uses.

■ arbitrage

the simultaneous buying of currency, securities or goods from one market for the purpose of selling in another market at a higher price.

■ arbitration

is a way of settling a dispute between two parties, by a third person who has interest in that matter.

■ **argument for protection**
the reason given for restricting imports by tariffs.

■ **armington assumption**
the assumption in which internationally traded products are differentiated by the country of origin.

■ **articles of association**
an official document legally required to be filed with the registrar by the promoters of a public limited company.

■ **arubaito**
part-time work.

■ **asset stripping**
the selling of those assets by a company that are not required in its day to day functioning.

■ **assignment**
the right of transference of benefit of loan that a person is entitled to receive from another person, for instance Mr. A has given a loan to Mr. B, then he can authorise another person to recover loan from Mr. B.

■ **assignment problem**
this is aimed at using macroeconomic policies to achieve both internal balance and external balance, specifically, with only monetary and fiscal policies available under fixed exchange rates.

■ **assimilative capacity**
the ambit to which the environment can accommodate or tolerate pollutants.

■ **assisted areas**
those relatively backward areas which are recognised by the concerned administration or the government as being eligible to receive special assistance.

■ **associated company**
the connection or relation of an independent company with another independent company.

■ **asymmetric information**
the failure of two parties to a transaction to have the same relevant information.

asymptotic distribution

the probability distribution towards which a statistic moves or inclines at the point when the sample size reaches infinity. Generally used in econometrics in assessing the large sample properties of its estimators.

at best

in relation to the stock market, an abbreviation used to indicate the lowest possible price in respect of a buying order, and 'the highest possible price' in respect of a selling order.

at discretion

an instruction given by a client to his stockbroker for buying or selling stocks or shares and granting the broker to exercise his own judgement for the price at which to buy.

at limit

an instruction given by a client to his stockbroker for buying or selling stocks or shares, but placing a limit on the highest price that may be paid or the lowest price for making a sale.

at sight

the payment of a bill of exchange or promissory note as and when demanded.

at the market

an instruction given by a client to his stockbroker for buying or selling stocks or shares, and permitting the broker to buy or sell at a price that is around the market price prevailing at the time.

ATC

Agreement on Textiles and Clothing.

atomistic competition

market structure characterised by a large number of firms, who compete independently.

autarky

1. self-sufficiency and independence of a nation in economic terms.

2. the situation of disengagement in international trade, self-sufficiency.

autarky price

price in autarky, i.e. the price of something within a country when it is not traded by that country.

■ authorised capital

the maximum amount of capital that can be raised by a public limited company through the public issue of shares. This amount is also stated in the memorandum of association, which is filed along with the articles of association with the registrar.

■ authority constraints

as and when individual or joint activities occur and who can participate in such activities is constrained by authority constraints, which are related to who controls the particular piece of time-space: working hours, land owners' property rights, zoning, curfew, public transportation schedules and routes, office hours of governments and organisations, etc.

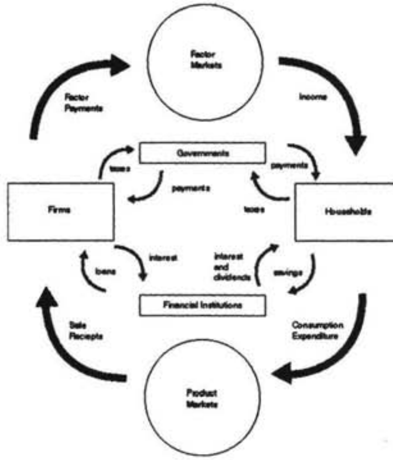
■ automatic stabiliser

1. government spending programs that respond to changes in the level of national income in such a way as to offset those changes.

2. are the ways through which the fluctuations in the different economic variables are streamlined or can be avoided without any specific effort of the government.

■ autonomous expenditures

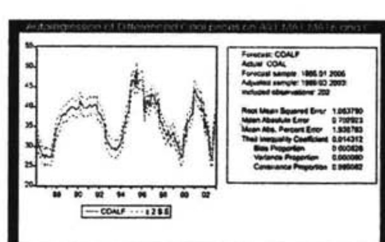
those expenditures which remain unaffected by the level of



income, in the income expenditure model. For example, government expenditure, investment expenditure, etc.

■ autoregression

a set of data wherein the value of each observation is partially

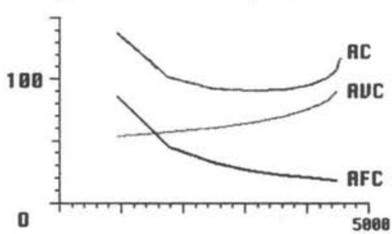


dependendent on the value of the observation that immediately precedes it.

■ Average Fixed Cost (AFC)

1. The average fixed cost is inversely proportional to the output. This is because as output increases the fixed costs are spread further and further.

2. in the theory of the firm, fixed costs are the costs of production that are constant, whatever the level of output. Average fixed costs are total fixed costs divided by the number of units of output, that is, fixed cost per unit of output.



■ average propensity to import

is the ratio of the aggregate value of goods and services that a country imports in a year to the national income.

■ average revenue product

as per the theory of factor pricing, average revenue product is the total revenue divided by the number of units of the factor employed.

■ average tariff

an average of a country's tariff rates. It can be calculated in several ways, none of which are ideal for representing how protective the country's tariffs are.

■ Average Total Cost (ATC)

the amount spent for producing each unit of output. The average cost is calculated by dividing the total cost by the number of units produced. The average total cost comprises of two elements, the average fixed cost and the average variable cost.

■ Average Variable Cost (AVC)

the variable cost per unit of output. It is obtained by dividing the average variable cost by the number of units of output produced.

■ backbone firms

Japanese concept to describe medium-sized firms which exhibit the effects of strong entrepreneurial leadership and vitality. In such firms, strategies are shaped by technological innovation, marketing and attention given to skilled and participatory workforces.

■ backhaul transportation

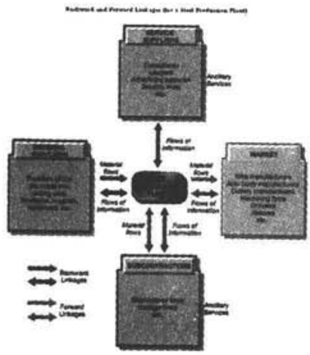
utilisation of otherwise empty cargo space on the return trip, after a primary transport activity has taken place. Since the primary transport function may have paid for the partial or full cost of return transportation, the price of backhaul utilisation may be relatively low.

■ backward bending

a curve which reverses direction, usually if, after moving out away from an origin or axis, it then turns back towards it. The term is used most frequently to describe supply curves for which the quantity supplied declines as price rises above some point, as may happen in a labour supply curve, the supply curve for foreign exchange, or an offer curve.

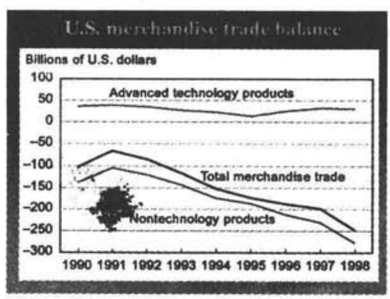
■ backward linkages

linkages to suppliers of inputs. A useful concept to differentiate direction of flows in complex economies.



■ balance of merchandise trade

the value of a country's merchandise exports minus the value of its merchandise imports.



■ balance of payments adjustment mechanism

any process, especially any automatic one, by which a country with a payments imbalance moves towards balance of payments equilibrium.

■ balance of payments argument for protection

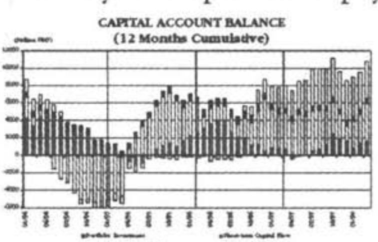
a common reason for restricting imports, particularly under fixed exchange rates, when a country is losing international reserves due to a trade deficit.

■ balance of payments surplus

a number summarising the state of a country's international transactions, usually equal to the balance on current account plus the balance on capital account.

■ balance on capital account

a country's receipts minus pay



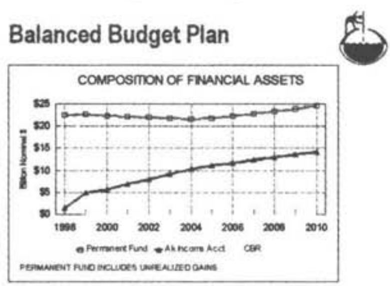
ments for capital account transactions.

■ balance on current account

a country's receipts minus payments for current account transactions. It is equal to the balance of trade plus net inflows of transfer payments.

■ balanced budget

such budget rises where the government receives the same amount of money from taxation as it is spending. Classical



economists argued that this should always be the aim of government policy. Keynesians on the other hand said that in times of low economic activity, the government should run a deficit (spending more than its revenue) to boost the economy and when the economy is booming, they can run a surplus (spending less than revenue). In this way, they can balance the budget in the long-run.

■ balanced growth

a macroeconomics model that exhibits balanced growth if consumption, investment and capital grow at a constant rate while hours of work per time period stays constant.

■ balanced trade

1. a balance of trade equal to zero.

2. the assumption that the balance of trade must be zero in equilibrium, as would be the case with a floating exchange rate and no capital flows.

■ Bank for International Settlements

an international organisation which acts as a bank for central banks, fostering cooperation among them and with other agencies.

■ barriers to entry

factors that prevent firms from entering a market, such as government rules or patents

■ base money

monetary base.

■ basic balance

one of the more frequently used measures of the balance of payments surplus or deficit under pegged exchange rates, the basic balance is equal to the current account balance plus the balance of long-term capital flows.

■ basing-point pricing

a pricing method in which prices are quoted to include transportation from one (or more) given point(s), regardless of the location from which actual shipment is made.

■ Bayesian analysis

developed to provide a subjectively- rational framework for decision-making under uncertainty.

Bayesian Analysis

$$\overset{\text{posterior}}{P(\theta,\lambda|x,I)} = \frac{\overset{\text{likelihood}}{P(x|\theta,\lambda,I)}\overset{\text{prior}}{P(\theta,\lambda|I)}}{\int_{\theta,\lambda} P(x|\theta,\lambda,I)P(\theta,\lambda|I)}$$

$$\overset{\text{marginalization}}{P(\theta|x,I) = \int_{\lambda} P(\theta,\lambda|x,I)}$$

I is the prior information

■ beggar thy neighbour

for a country to use a policy for its own benefit which harms other countries. Examples are optimal tariffs and, in a recession, tariffs and/or devaluation to create employment.

■ benign neglect

doing nothing about a problem, hoping that it will not be serious or will be solved by others.

■ bequest savings motive

people save so that they can leave an inheritance to their children.

■ bicycle theory

with regard to the process of multilateral trade liberalisation, the theory which if ceases to move forward (i.e., achieve further liberalisation), will collapse (i.e., past liberalisation will be reversed).

■ bid price (or rent) function

a set of combinations of land prices and distances, among which the individual (or firm) is indifferent. It describes prices which the household (firm) would be willing to pay at varying locations and for varying amounts of land, in order to achieve a given level of satisfaction (utility/ profits).

■ bid/ask spread

the difference between the price which a buyer must pay on a market and the price that a seller will receive for the same thing. The difference covers the cost of and provides profit for the broker or other intermediary, such as a bank on the foreign exchange market.

■ bill of exchange

a contract entitling an exporter to receive immediate payment in the local currency for goods that would be shipped elsewhere.


EXPORT MANAGER

■ BIS

Bank for International Settlements.

■ blue box

a special category of subsidies permitted under the WTO Agriculture Agreement. It includes payments which are linked to production but with provisions to limit production through production quotas or requirements to set aside land from production.

■ border tax adjustment

rebate on indirect taxes (taxes on other than direct income, such as a sales tax or VAT) on exported goods and levying of them on imported goods.

■ broker's fee

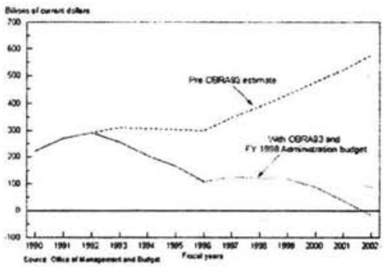
the fee for a transaction charged by an intermediary in a market, such as a bank in a foreign-exchange transaction.

■ bubble economy

term for an economy where the presence of one or more bubbles in its asset markets is a dominant feature of its performance. Japan was said to be a bubble economy in the late 1980s.

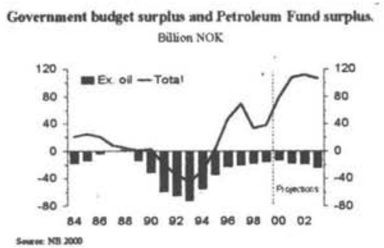
■ budget deficit

the negative of the budget surplus, thus the excess of expenditure over income.



■ budget surplus

in general, an excess of income over expenditure, but usually refers specifically to the government budget, where it is the excess of tax revenue over expenditure (including transfer payments).



■ business cycle

the pattern followed by macroeconomic variables, such as GDP and unemployment that rise and fall irregularly over time, relative to trend.

■ business services

services that are forwardly linked to other business activities. Such services tend to perform functions, which are more efficiently 'externalised' by the client firms, i.e. cannot be efficiently performed in-house. For example banking, insurance, etc.

■ cable transfer

in the context of foreign trade, a bank draft which is sent by cable or telegraph rather than through mail. The payee is then notified about the arrival of the payment by the correspondent bank.

■ CACM

Central American Common Market. Founded in 1960, preceded by Organisation of Central American States.

■ cain rule

a rule used to determine the derivative of a function in relation to a variable, where the function consists of another function.

■ call

in the stock exchange terminology, an option to purchase a specific amount of some stock at a quoted price, known as the striking price, within a specified period of time.

■ call loan

a loan that can be concluded or 'called' at any point of time by the creditor or the debtor.

■ capability constraints

constraints on human activities in time and space, imposed by nature or available tools. Part of Hägerstrand's time-geographic conceptualisation.

■ capital

1. monetary capital: the money used for investment purposes.

2. real or invested capital: the capital goods needed for the production of goods and services.

■ capital account

a part of the balance of payments where flows of savings, investment and currency are recorded.

■ capital consumption

in national accounts, capital consumption is the amount by which gross investment exceeds the net investment. It is the same as replacement investment.

■ capital deepening

an addition in capital intensity, normally in a macro context, where it is measured by something analogous to the capital stock available per labour hour spent. In a micro context, it could mean the amount of capital available for a worker to use, but this use is rare. Capital deepening is a macroeconomic concept, of a faster-growing magnitude of capital in production than in labour.

■ capital intensity

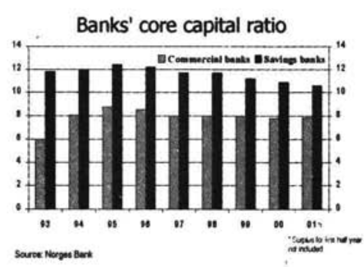
the amount of capital per unit of labour input.

■ capital market

the market in which savings are made available to investors.

■ capital ratio

a measure of a bank's capital strength used by the U.S. regulatory agencies.



■ capital structure

of a firm is broadly made up of its amounts of equity and debt.

■ capitation

a system of payment for each customer served, rather than by the service performed.

■ causation

relationship which results when a change in one variable is not only correlated with, but actually causes the change in another one.

■ CBI

Confederation of British industry.

■ CD

Certificate of Deposit

■ Center for Research in Security Prices (CRSP)

a standard database of finance information at the University of Chicago. It has daily information of NYSE, AMEX, and NASDAQ stocks. Started in early 1970s by Eugene Fama among others. The data there was so much more convenient than alternatives that it drove the study of security prices for decades afterward. It did not have volume data, which meant that volume/volatility tests were rarely done.

■ certainty equivalent

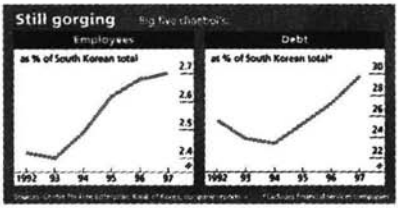
the amount of payoff (e.g. money or utility) which an agent would have to receive, to be indifferent between that payoff and a given gamble is called that gamble's 'certainty equivalent'. For a risk averse agent (as most are assumed to be), the certainty equivalent is less than the expected value of the gamble because the agent prefers to reduce uncertainty.

■ ceteris paribus

all other things remaining the same.

■ chaebol

one of a small number of very large, highly diversified and centralised Korean firms, owned and controlled by the founding patriarch's family by a central holding company.



■ **chained**

an index number which is frequently reweighted. An example is an inflation index made up of prices weighted by the frequency with which they are paid and the frequent recomputation of weights makes it a chained index.

■ **chaotic**

a description of a dynamic system which is very sensitive to initial conditions and may evolve in wildly different ways, from slightly different initial conditions.

■ **characteristic equations**

a polynomial whose roots are eigenvalues.

■ **characteristic roots**

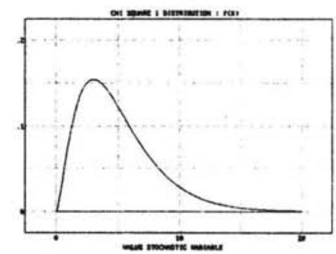
is a synonym for eigenvalues.

■ **chartalism**

also known as 'state theory of money' — 19th century monetary theory, formulated more on the idea that legal restrictions or customs can or should maintain the value of money, not intrinsic content of valuable metal.

■ **chi-square distribution**

a continuous distribution, with natural number parameter r. It



is the distribution of sums of squares of r standard normal variables. Mean is r, variance is 2r, and moment-generating function (mgf) is $(1-2t)^{-r/2}$.

■ **choice**

economic choices involving the alternative uses of scarce resources.

■ **choke price**

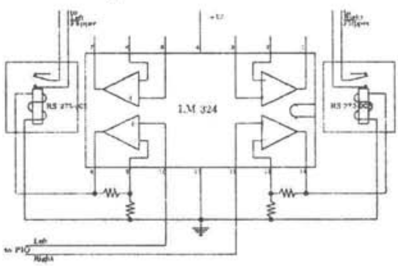
the rock bottom price where the quantity demanded is zero.

■ **CIF**

Cost, Insurance and Freight. A price quotation which covers the merchandise cost, the shipping insurance and the freight charges to a particular landing place.

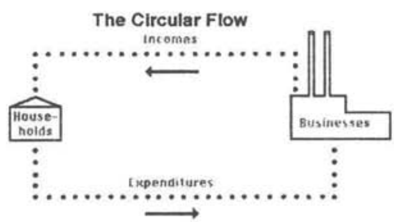
■ circuit

description of a network with one or more loops, creating alternative paths between nodes and thus creating network redundancy.



■ circular flow

the manner in which funds move through the capital, labour and product markets between households, firms, the government and the foreign sector.

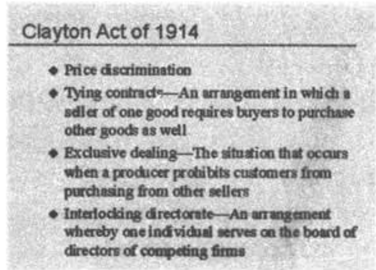


■ classical

according to Lucas (1998), a classical theory would have no explicit reference to preferences.

■ Clayton Act

a 1914 U.S. law on the subject of antitrust and price discrimination.


Clayton Act of 1914

- Price discrimination
- Tying contracts—An arrangement in which a seller of one good requires buyers to purchase other goods as well
- Exclusive dealing—The situation that occurs when a producer prohibits customers from purchasing from other sellers
- Interlocking directorate—An arrangement whereby one individual serves on the board of directors of competing firms

■ clears

in this context it is a verb. A market clears if the vector of prices for goods is such that the excess demand at those prices is zero. That is, the quantity demanded of every good at those prices is met.

■ cliometrics

the study of economic history.

■ closed I/O model

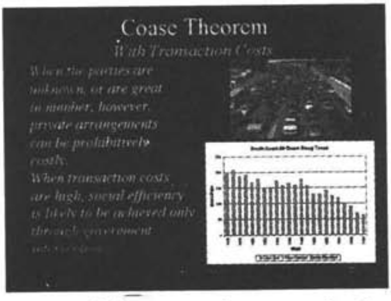
an input-output model is either open or closed with respect to certain sectors or activities.

■ cluster

a concept associated with Michael Porter's work, a 'cluster' is a geographically proximate group or geographic concentration of interconnected companies, specialised suppliers and service providers, firms in related industries and associated institutions linked by commonalities and complementarities. The geographic scope of a cluster can range from a single city or state to a country or even a group of neighbouring countries.

■ coase theorem

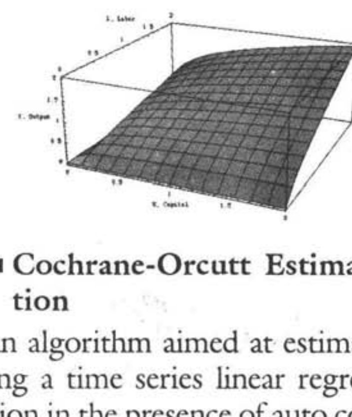
informally, the theorem says that in the presence of complete



competitive markets and the absence of transactions costs, an efficient set of inputs to production and outputs from production will be chosen by agents, regardless of how property rights over the inputs were assigned to the agents.

■ Cobb-Douglas Production Function

relates the productivity of labour to the capital intensity (capital-labour ratio) under the condition of a constant profit wage ratio.



■ Cochrane-Orcutt Estimation

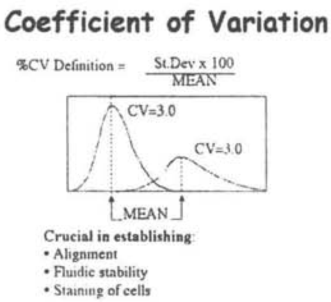
an algorithm aimed at estimating a time series linear regression in the presence of auto correlated errors. The implicit citation is to Cochrane-Orcutt (1949).

■ coefficient of specialisation

this coefficient is calculated just like the coefficient of localisation, except that regions become industries and industries become regions.

■ coefficient of variation

an attribute of a distribution, i.e. its standard deviation divided by its mean.



■ cohort

a group of persons experiencing the same event during the

same period of time. Cohort analysis traces those persons born during the same time period, as they age and live through common time-specific experiences and life stages. The most important experiences of an aging cohort are the cohort birth rates and cohort death rates.

■ collusion

an agreement between parties to refrain in participating in an activity which they normally would in order to reduce competition and gain higher profits.

■ compact sets

a closed and bounded set.

■ competitive equilibrium price

the price at which the quantity supplied and the quantity demanded are equal to each other.

■ complement

a good for which demand decreases when the price of a closely related good increases.

■ concavity of distribution functions

a property of a distribution function-utility function pair. The assumption is to hold in some principal-agent models so as to make certain conclusions possible.

■ concentration ratio

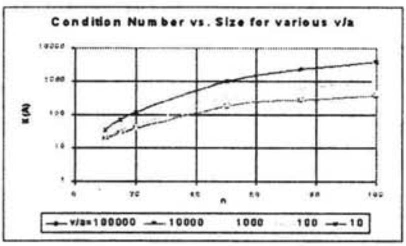
a way of measuring the concentration of market share held by particular suppliers in a market. It is the percentage of total market sales accounted for by a given number of leading firms.

■ conceptual framework for economic geography

the structure that serves to hold the conceptual parts (concepts) together and within which the ideas, facts, principles, insights and circumstances of Economic Geography exist and are related to each other.

■ condition number

a measure of how close a matrix is to being singular. Rel



evant in estimation if the matrix of regressors is nearly singular, the data are nearly collinear and (a) it will be hard to make an accurate or precise inverse (b) a linear regression will have large standard errors.

The condition number is calculated from the characteristic roots or eigenvalues of the matrix. If the largest characteristic root is denoted L and the smallest characteristic root is S (both being presumed to be positive here, that is, the matrix being diagnosed is presumed to be positive definite), then the condition number is:

gamma = $(L/S)^{.5}$

Values larger than 20, according to Greene (93), are observed if and only if the matrix is 'nearly singular'.

■ conditional

it has a special use in finance, when used without other modifiers. Often means 'conditional on time and previous asset returns'. In that context, one might read 'returns are conditionally normally distributed.'

■ conditional factor demands

a collection of functions which give the optimal demands for each of the several inputs as a function of the output expected and the prices of inputs. Often the prices are taken as given and incorporated into the functions and so they are only functions of the output.

■ conformable

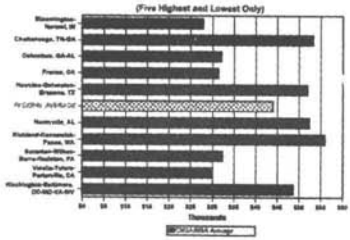
generally used in conjunction with matrices. A matrix may not have the right dimension or shape to fit into some particular operation with another matrix. Take matrix addition — the matrices are supposed to have the same dimensions to be summed. If they don't, we can say that they are not conformable for addition. The most common application of this term comes in the context of multiplication.

■ consistent estimators

an estimator for a parameter is consistent if the estimator converges in probability to the true value of the parameter.

■ Consolidated Metropolitan Statistical Area (CMSA)

an area which meets the requirements for recognition as a 'Metropolitan Statistical Area' (MSA) and also has a population of one million or more can be recognised as a CMSA if separate component areas can be identified within the entire area by meeting statistical criteria specified in the standards, and local opinion indicates that there is support for the component areas.

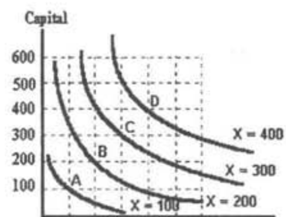


■ Constant Relative Risk Aversion (CRRA)

a property of some utility functions, also said to have isoelastic form. CRRA is a synonym for **CES**.

■ constant returns to scale

when all inputs are increased by a certain proportion, output increases by the same proportion.



■ consumer sovereignty

when resources are allocated as per the wishes of consumers, i.e. in a perfectly free market.

■ consumer surplus

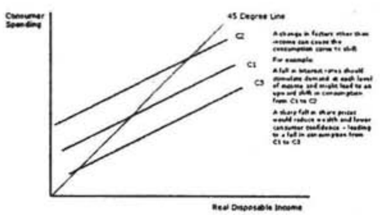
the difference between what a person would be willing to pay and what he actually has to pay for buying a certain amount of a good.

■ consumption

the individuals and corporations which buy products and services. In economics, consumption refers only to consuming that involves a monetary transaction.

■ consumption function

the relationship between disposable income and consumption.



■ contingency theory

regards the design of an effective organisation, as necessarily having to be adapted to cope with the 'contingencies' that derive from the circumstances of environment, technology, scale, resources, work task and other factors.

■ contingent valuations

the use of questionnaires about valuation, to estimate the willingness of respondents to pay for public projects.

■ contract curve

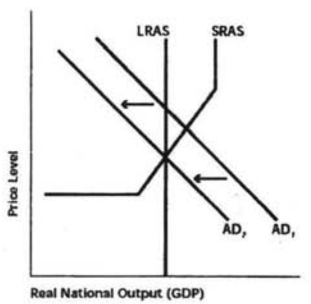
the same as the Pareto set, with the implication that it is drawn in an Edgeworth box.

■ contractionary fiscal policy

a government policy of reducing the spending and raising taxes.

Visual

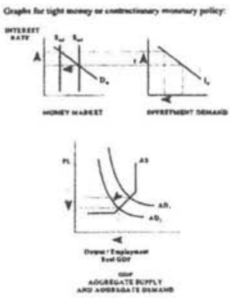
Contractionary Fiscal Policy



List and describe three actions the government could take in order to decrease aggregate demand from AD_1 to AD_2.

■ contractionary monetary policy

a government policy of raising interest rates charged by the central bank. In the texts of some first courses in macroeconomics, it shifts the LM curve (liquidity/money curve) to the left.



■ **control variables**

a variable in a model controlled by an agent in order to optimise something.

■ **convergence in quadratic mean**

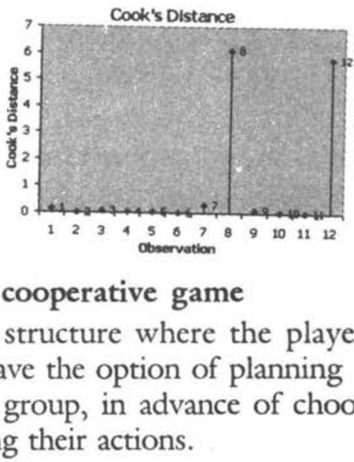
a kind of convergence of random variables. If x_t converges in quadratic mean, it converges in probability but it does not necessarily converge.

■ **convolution**

the convolution of two functions U(x) and V(x) is the function: U*V(x) = (integral from 0 to x of) U(t)V(x-t) dt.

■ **Cook's Distance**

a metric for determining whether a particular point alone affects regression estimates much. After a regression is run, one can consider, for each data point, how far it is from the means of the independent variables and the dependent variable. If it is far from the means of the independent variables, it may be very influential and one can consider whether the regression results are similar without it.



■ **cooperative game**

a structure where the players have the option of planning as a group, in advance of choosing their actions.

■ **corporate welfare**

when a government gives money or a monetary break (like tax cuts or subsidies) to a business. Governments give money to businesses which are very profitable to keep them from moving to other provinces or countries.

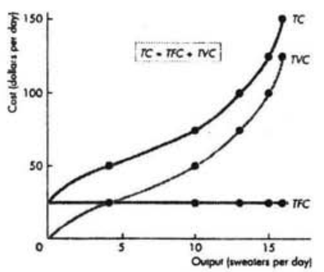
■ Cost And Freight (CAF)

a price quotation that includes both the merchandise cost and the freight charges for its shipment to a given destination.

■ cost curve

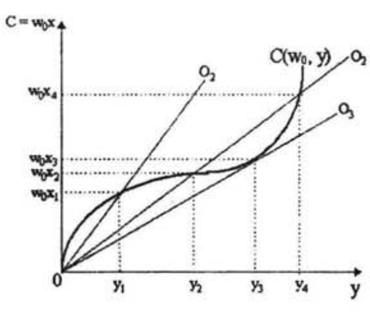
a graph of total costs of production as a function of total quantity produced.

Total Cost Curves



■ cost function

a function of input prices and output quantity. Its value is the cost of making that output, given those input prices.

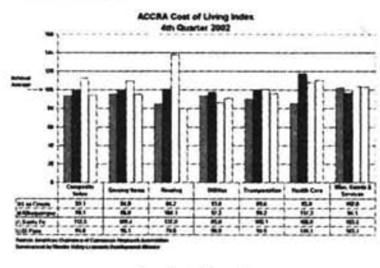


■ costate variables

a Lagrangian multiplier or Hamiltonian multiplier.

■ cost-of-living index

measures the changing cost of a constant standard of living. The index is a scalar measure for each time period. Usually, it is a positive number, that rises over time to indicate that there was inflation. Two incomes can be compared across time by seeing whether the incomes changed as much as the index did.



■ cost-push inflation

inflation whose initial cause is a rise in production costs.

■ countable additivity property

the third of the properties of a measure.

■ countertrading

the bilateral international trading relationships between companies.

countervailing power

J.K.Galbraith' thesis of the tendency of market (monopoly) power to be reduced by the emergence of countervailing groups and forces.

coupling constraints

the need to join with other people, organisations or capital investments (as 'bundles') to accomplish an objective.

Cournot Duopoly

a pair of firms which split a market, modelled as in the Cournot Game.

Cournot Duopoly

- In the Cournot model each of the two firms pick the quantities Q_1 and Q_2 to be produced
- Each firm takes the other firm's output as given and chooses the output that maximizes its profits
- The price that emerges clears the market (demand = supply)

Cournot Models

a generalisation of the Cournot Game, for describing the industry structure. Each of the N firms will choose a quantity of output. Price is a commonly-known decreasing function of total output. All firms know N and take the output of the others as given. Each firm has a cost function $c_i(q_i)$. Usually, the cost functions are treated as common knowledge. Often the cost functions are assumed to be the same for all firms.

covariance stationary

a stochastic process is covariance stationary, if neither its mean nor its autocovariances depend on the index t.

Covariance Stationary

- Class of processes $X(t)$, $t = 0, 1, 2, \ldots$, that have
  - constant mean $\mu = E[X(t)]$
  - finite variance $\sigma^2 = E[(X_t - \mu)^2]$
  - autocorrelation $r(k) = E[(X_t - \mu)(X_{t+k} - \mu)] / E[(X_t - \mu)^2]$ that depends only on k
- We assume the autocorrelation has the form

  $r(k) \sim k^{-\beta} L_1(k)$ as $k \to \infty$

  - where L is slowly varying at infinity

Cowles Commission

a 1950s panel on econometrics, that focused attention on the

In front of the Social Science Building (ca. 1945). Top row: Jacob Cohen, author, Ray Kosloff. Bottom row: Lawrence Klein, Robert Ferber, Leo Hurwicz

problem of simultaneous equations. In some tellings of the history, this had an impact on the field — other problems such as errors-in-variables (measurement errors in the independent variables), were set aside or given lower priority elsewhere too because of the prestige and influence of the Cowles Commission.

■ Cronbach's Alpha

a test for a model or survey's internal consistency. It is sometimes called a 'scale reliability coefficient'. Cronbach's alpha assesses the reliability of a rating, summarising a group of test or survey answers, which measure some underlying factor (e.g., some attribute of the test-taker). A score is computed from each test item and the overall rating called a 'scale' is defined by the sum of these scores over all the test items. Then reliability is defined to be the square of the correlation between the measured scale and the underlying factor that the scale was supposed to measure.

■ cross-section data

is the parallel data on many units such as individuals, households, firms or governments.

■ cross-validation

a way of choosing the **window width** for a **kernel estimation**. The method is to select, from a set of possible window widths, one that minimises the sum of errors made in predicting each data point, by using a kernel regression on the others.

■ CSO

Central Statistical Office.

■ CTT

Capital Transfer Tax.

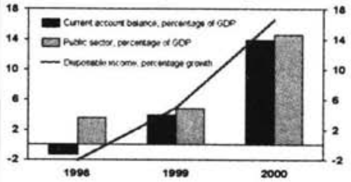
■ current account

a part of balance of payments, where payments for the purchase and sale of goods and services are recorded.

■ current account balance

the difference between a country's savings and its investment. If the current account balance is positive, it measures the portion of a country's saving invested abroad and if it is negative, it measures the portion of the domestic investment financed by foreigners' savings.

Developments in the current account balance, government net lending and real disposable income



■ current balance

difference between total exports and total imports.

■ CWO

Cash With Order.

■ de minimis

a legal term for an amount which is small enough to be ignored, too small to be taken seriously. Used to restrict legal provisions, including laws regarding international trade, to amounts of activity or trade that are not trivially small.

■ deadweight loss

the net loss in economic welfare which is caused by a tariff or other source of distortion, defined as the total losses to those who lose, minus the total gains to those who gain. Usually identified in a supply-and-demand diagram in terms of change in consumer and producer surplus, together with government revenue. The net of these appears as one or two welfare triangles.

■ decision rules

1. a function which maps from the current state to the agent's decision or choice.

2. a mapping from the expressed preferences of each of a group of agents to a group decision.

The first is more relevant to decision theory and dynamic optimisation, while the second is relevant to game theory.

■ decouple

provision of support to an enterprise, usually a farm, in a manner that does not provide an incentive to increase production. Farm subsidies that are decoupled are included in the green box and are therefore permitted by the WTO.

■ deduction

also known as deductive reasoning. A process of inference, which leads from general principles or universal premises via logical reasoning to expectations or conclusions about particular cases.

■ deductive

characterises a reasoning process of logical reasoning from the stated propositions.

■ deep integration

economic integration which goes well beyond the removal of formal barriers to trade and includes various ways of reducing the international burden of differing national regulations, such as mutual recognition and harmonisation. Contrasts with shallow integration.

■ deep markets

a capital market may be said to be deep if it has great depth. May less formally be used to describe a market with a large total market capitalisation.

■ default

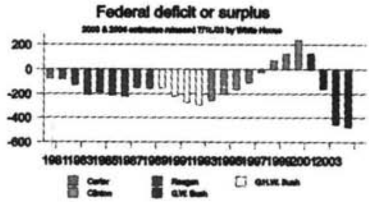
failure to repay a loan. International loans by governments and private agents lack mechanisms to deal with default, comparable to the legal mechanisms that exist within countries.

■ deficiency payment

payment to a producer of an amount equal to the difference between a guaranteed price and the market price, with the latter often determined on the world market. A form of subsidy to production.

■ deficit

in the balance of payments or in any category of international transactions within it, the deficit is the sum of debits minus the sum of credits or the negative of the surplus.



■ degressive

going down with income or over time. A degressive income tax takes a smaller fraction of higher incomes. Degressivity in trade policy might be a tariff, the ad valorem size of which is scheduled to decline over time, or a quota that is scheduled to expand faster than demand for imports.

■ de-industrialisation

a decrease, over time, in the share of the manufacturing in an economy, usually accompanied by growth in the share of services. Typically, accompanied by an increase in manufactured imports.

■ delivered price

the price which includes freight charges to the location of the buyer.

■ delta

is used with respect to options. The rate of change of a financial derivative's price with respect to changes in the price of the underlying asset. Formally, this is a partial derivative. A derivative is perfectly delta-hedged if it is in a portfolio with a delta of zero. Financial firms make some effort to construct delta-hedged portfolios.

■ demand curve

the graph of quantity demanded, as a function of price, normally downward sloping, straight or curved and drawn with the quantity on the horizontal axis and price on the vertical axis.

■ demand deposit

a bank deposit which can be withdrawn 'on demand'. The term usually refers only to checking accounts, even though depositors in many other kinds of accounts may be able to write cheques and regard their deposits as readily available.

■ demand elasticity

normally, the price elasticity of demand.

■ demand price

the price at which a given quantity is demanded. The demand curve viewed from the perspective of price as a function of quantity.

■ demand schedule

a list of prices and corresponding quantities demanded or the graph of that information. Thus, a demand curve.

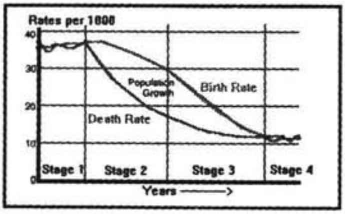
■ demand set

in a model, the set of the most-preferred bundles of goods that an agent can afford. This set is a function of the preference relation for this agent, the prices of goods and the agent's endowment.

■ demographic transition

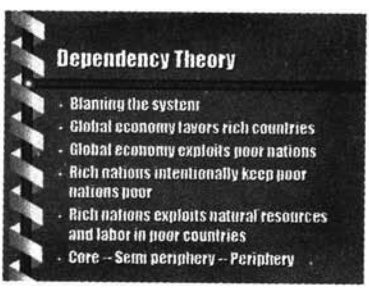
model of population change based on European experiences. The model describes the effects of changes in fertility and mortality, associated with industrialisation, urbanisation and health care improvements.

The Demographic Transition



■ dependency theory

the theory that states that the less developed countries are poor because they allow themselves to be exploited by the developed countries through international trade and investment.



■ dependent variable

the variable to be 'explained' with the help of 'independent variables'. These independent variables serve as the 'explanatory' variables, however, the extent to which this relationship or 'explanation' actually implies 'causality' varies. It may merely refer to a statistical relationship. Thus, the relationship is often expressed as: a dependent variable is a function of one or more 'independent' variable(s).

■ depth

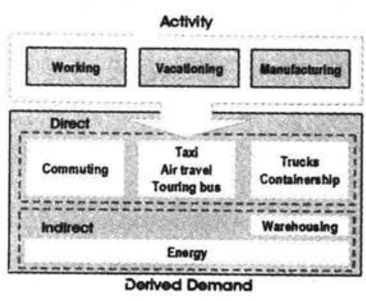
an attribute of a market. In securities markets, depth is measured by the size of an order flow innovation, required to change prices by a given amount.

■ derivatives

securities whose value is derived from the some other time-varying quantity. Usually, that other quantity is the price of some other asset such as bonds, stocks, currencies or commodities. It could also be an index or the temperature.

■ derived demand

the demand that arises or is



defined indirectly from some other demand or underlying behaviour.

■ de-skilling

a decrease in the level and scope of skills within a local/regional labour market, resulting from mainly two corporate strategies: (1) mechanisation and computerisation of production and office activities (2) truncation of corporate activities within the region.

■ destabilising speculation

speculation which increases the movements of the price in the market where the speculation occurs. Movement may be defined by amplitude, frequency or some other measure.

■ deterioration

the process or occurrence of an asset's declining productivity as it ages. This is a component of depreciation.

■ deterministic functions and variables

not random. A deterministic function or variable often means one that is not random, in the context of other variables available.

■ development economics

a sub-discipline within economics specialising in the processes of long term growth and change, especially in the case of the less developed economies.

■ DFS Model

one of the continuum-of-goods models of Dornbusch, Fischer, and Samuelson (1977, 1980).

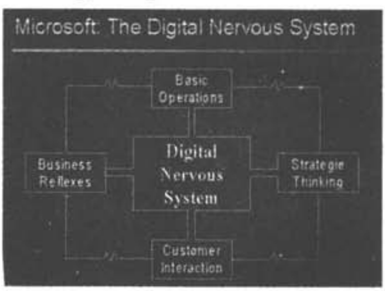
■ differentiated product

1. a firm's product which is not identical to the products of other firms in the same industry. Contrasts with homogeneous product.

2. sometimes applied to products produced by a country, even though there are many firms within the country whose products are the same, if buyers distinguish products based on the country of origin. This is called the Armington assumption.

■ digital nervous system

the digital processes which en



able a company to perceive and react to its environment, to sense competitive challenges and customer needs, and to organise timely responses.

■ direct factor content

a measure of factor content which includes only the factors used in the last stage of production, ignoring factors used in producing intermediate inputs.

■ direct-plus-indirect factor content

a measure of factor content which includes factors used in producing the intermediate inputs and so forth. That is, it includes all the primary factors that contributed, however indirectly, to the production of a good.

■ discount bonds

a bond perchased at a discount or at a price less than its face value. The face value is the amount of money that the holder of the bond receives at the expiry date of the bond. In difference to coupon bonds, discount bonds only pay the bearer once, when the bond expires.

Bonds Issued at a Discount

Jan. 1	Cash	96,149	
	Unamortized Bond Discount	3,851	
	Bonds Payable		100,000
	Sold $100,000 of 9%, 5-year bonds at 96.149		
	Face amount of bonds	$100,000	
	Less purchase price	96,149	
	Unamortized bond discount	$ 3,851	

■ discount factor

in a multi-period model, agents may have different utility functions for consumption (or other experiences) in different time periods. Usually, in these models they value future experiences, but to a lesser degree than present ones. For simplicity, the factor by which they discount next period's utility may be a constant between zero and one and if so, it is called a discount factor.

■ discount rate

the interest rate at which an agent discounts future events in preferences, in a multi-period model. Often denoted as 'r'. A present-oriented agent discounts the future heavily and so has a 'High' discount rate.

■ discrete choice linear models

$\Pr(y_i=1) = F(X_i\text{'}b) = X_i\text{'}b.$

an econometric model in which the actors are presumed to have made a choice from a discrete set. Their decision is modelled as endogenous. Often the choice is denoted y_i.

■ **discrete regression models**

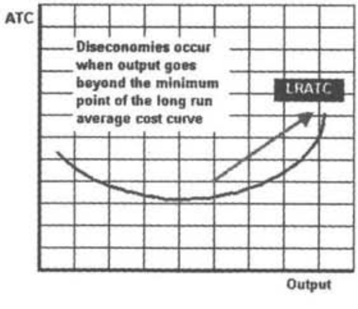
econometrics models in which the dependent variables assume discrete values.

■ **discrete time**

the division of time into indivisible units. In economic models, these units represent periods, such as days, quarters or years.

■ **diseconomies of scale**

similar to economies of scale, but with the implication that they are negative, so larger scale would increase the cost per unit.



■ **diseconomies of scale, scope or agglomeration**

cost increases or other disadvantages associated with the scale or scope of operation or with the agglomeration of population or economic activities.

■ **disembodied technological change**

alters the production function without requiring gross investment to carry it into place.

■ **disintermediation**

the prevention of banks from flowing money from savers to borrowers as an effect of regulations.

■ **dismal science**

refers to economics, which because it is so often used in reference to tradeoffs, is widely thought to be depressing to study.

■ **dispute settlement**

in the GATT, the adjudication of disputes among parties. In the **WTO** this is done by the dispute settlement mechanism.

■ **dispute settlement body**

the entity within the WTO which formally deals with disputes between members. It consists of all WTO members meeting together to consider reports of panels and the Appellate Body.

dissaving

when individuals or households spend more than their current income.

dissipate rent

to use up, in real resources, the full value of the economic rents that are being sought by rent seeking.

distance decay

the diminishing level of interaction or value of a variable, with increasing distance, largely resulting from the effect of various forms of distance-sensitive transaction costs on demand or cost patterns or functions.

distance elasticity of demand

the relative response of effective demand to a change in the distance (or transport costs) which a consumer (or consumers) has (have) to overcome, in order to purchase a good or service at a given price.

distortion

any departure from the ideal of perfect competition which interferes with economic agents, maximising social welfare when they maximise their own. Includes taxes and subsidies, tariffs and NTBs, externalities, incomplete information and imperfect competition.

Dixit-Stiglitz utility

the Dixit-Stiglitz function used as a utility function.

dollar standard

an international financial system in which the U.S. dollar is used by most countries as the primary reserve asset, in contrast to the gold standard in which gold played this role.

dollarisation

official adoption by a country other than the United States of the U.S. dollar as its local currency.

Domar Aggregation

the principle where the growth rate of an aggregate is the weighted average of the growth rates of its components, where each component is weighted by the share of the aggregate it makes up. The idea comes up in the context of national accounts and national statistics.

domestic

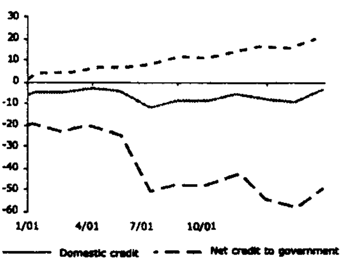
within one's own country. A domestic producer is one that produces inside the home country. A domestic price is the price inside the home country. Opposite of 'foreign' or 'world'.

■ **domestic content requirement**

a requirement where goods sold in a country contain a certain minimum of domestic **value added.**

■ **domestic credit**

credit extended by a country's central bank to domestic borrowers, including the government and commercial banks. In the United States, the largest component by far is the Fed's holdings of U.S. government bonds, but it also makes some short-term loans to banks to use as their reserves.



■ **dominant designs**

after a technological innovation and a subsequent era of ferment in an industry, a basic architecture of a product or process which becomes the accepted market standard. Dominant designs may not be better than the alternatives nor can it be promised that they will be innovative. They have the benchmark features to which subsequent designs are compared.

■ **double coincidence of wants**

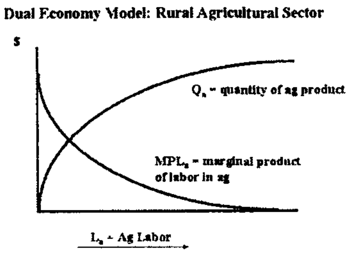
a problem that is generally related to the Barter System. Refers to a situation where the supplier of good X wants good Y and the supplier of good Y wants good X.

■ **drawback**

rebate of import duties when the imported good is re-exported or used as input to the production of an exported good.

■ **dual economy**

an economy that is supposed to consist of two relatively distinct parts, in terms of specific distinguishing attributes. In the development literature, numerous theories use this proposed dualism to isolate relationships between the two parts, which are suggested to reinforce the dualism.



■ dual labour market

a segmented labour market in which one part is, usually and in broad terms, characterised by high skills and wages, job security and desirable working and career development conditions, while the other part has low wages, no or inferior benefits, a temporary or unstable nature, no or little chance of advancement and otherwise poorer working conditions.

■ dummy variables

in an econometric model, a variable which marks or encodes a particular attribute. A dummy variable has the value zero or one for each observation, e.g. 1 for pass and 0 for fail .

■ Durbin's h test

an algorithm for detecting autocorrelation in the errors of a time series regression. The implicit citation is to Durbin (1970). The h statistic is asymptotically distributed normally, if the hypothesis is that there is no autocorrelation.

■ Durbin-Watson statistic

a test for first-order serial correlation, in the residuals of a time series regression. A value of 2.0 for the Durbin-Watson statistic indicates that there is no serial correlation. This result is biased towards the finding that there is no serial correlation if lagged values of the regressors are in regression.

■ dynamic effects

certain effects of trade and trade liberalisation that are poorly understood, including both multilateral and preferential trade agreements, that extend beyond the static gains from trade. Such dynamic effects are thought to make the gains from trade substantially larger than in the static model.

■ dynamic gains from trade

the hoped-for benefits from trade which accrue over time, in addition to the conventional static gains from trade of trade theory. Sources of these gains are not well understood or documented, although there exist a variety of possible theoretical reasons for them and some empirical evidence that countries have benefited more than the static gains alone would suggest.

■ **dynamic multipliers**

the impulse responses in a distributed lag model.

■ **dynamic optimisations**

the maximisation problems to which the solution is a function.

■ **dynamic programming**

the study of dynamic optimisation problems through the analysis of functional equations like value equations. This phrase is normally used, analogously to linear programming, to describe the study of discrete problems.

■ **early harvest**

a term, in trade negotiations, for agreeing to accept the results of a portion of the negotiations, before the rest of the negotiations are completed.

■ **econometrics**

the application of statistical methods to the empirical estimation of economic relationships. Econometric analysis is used extensively in international economics, to estimate the causes and effects of international trade, exchange rates and international capital movements.

■ **Economic and Monetary Union (EMU)**

a currency area formed in 1999, as a result of the Maastricht Treaty. Members of the EMU share the common currency, the Euro.

■ **economic freedom**

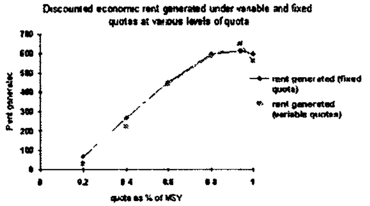
freedom to engage in economic transactions, without government interference, but with the support of the government institutions necessary for that freedom, including rule of law, sound money and open markets.

■ **Economic Overhead Capital (EOC)**

economic infrastructure, such as roads, railways, port facilities, power facilities.

■ economic rent

any return which a factor of production receives, in excess of its opportunity cost.



■ economic union

a common market with the added feature that additional policies: monetary, fiscal, welfare, are also harmonised across the member countries.

■ economies of flexibility

the advantages accruing to a producer with many plants of different sizes, in allocating increases or decreases in operations to that plant whose size is such as to handle the total output change of the producer most efficiently.

■ economies of scale

if all the inputs in a production process are increased and the output increases proportionately, by more amount than the increase in the inputs, economies of scale are being realised. There may also be diseconomies of scale, which occur when an increase in all the inputs brings about a less than proportionate increase in output.

■ economy, economies

two meanings of 'economies' need to be distinguished:

1. the economies of regions (as aggregates of interrelated economic activities).

2. in the sense of economising, savings, cost reductions, etc. as used in agglomeration economies, scale economies, localisation economies.

■ effect of trade

the effect of a change in some policy or other exogenous variable which will increase the quantity of trade. Since in trade models trade itself is endogenous, the effects associated with a change in trade depend on what caused it.

■ effective protection

the concept in which the protection provided to an industry depends on the tariffs and other trade barriers on both its inputs and its outputs, since a tariff on inputs raises cost. Measured by the **effective rate of protec-**

tion.

■ Effective Rate of Protection (ERP)

a measure of the protection provided to an industry by the entire structure of **tariffs**, taking into account the effects of tariffs on inputs, as well as on outputs.

Effective rate of protection, ERP

$$ERP = \frac{\text{value-added(dom prices)} - \text{value-added (world prices)}}{\text{value-added (world prices)}}, \text{ or}$$

$$ERP = \frac{(p_d - c_d) - (p_w - c_w)}{p_w - c_w} = \frac{p_w(1+t_0) - c_w(1+t_i) - (p_w - c_w)}{p_w - c_w} = \frac{p_w t_0 - c_w t}{p_w - c_w}$$

p_d, p_w are the domestic and world price of output,
c_d, c_w are the unit cost of intermediate inputs at domestic and world prices respectively, and
t_0, t_i are the tariff rate output and of intermediate inputs respectively
Dividing by p_w yields the formula in terms of input-output coefficients a_i

$$ERP = \frac{p_w t_0 - c_w t_i}{p_w - c_w} = \frac{t_0 - \sum a_i t_i}{1 - \sum a_i}$$

■ effective tariff

effective rate of protection.

■ efficient allocation

an allocation where it is impossible unambiguously to improve upon, in the sense of producing more of one good without producing less of another.

■ efficient market

a market in which, at a minimum, current price changes are independent of past price changes or, more strongly, price reflects all (publicly) available information. Some believe the foreign exchange markets to be efficient, which in turn implies that future exchange rates cannot profitably be predicted.

■ elastic

having an elasticity greater than one. For price elasticity of demand, this means that expenditure rises as price falls. For income elasticity, it means that expenditure share rises with income, a superior good.

■ elastic offer curve

an offer curve along which import demand is always elastic. It is therefore not backward bending.

■ elasticity

1. when used without a modifier (such as 'cross' or 'income'), elasticity usually refers to price elasticity, that is the percentage change in the quantity demanded of a good or service, divided by the percentage change in its (own) price.

2. a measure of responsiveness of one economic variable to another. Usually, the responsiveness of quantity to **price** along a supply or demand curve — comparing percentage changes (%D) or changes in logarithms (d ln).

■ elasticity of demand for exports

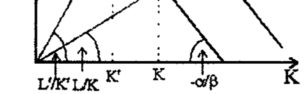
the price elasticity of demand for exports of a country, either for a single industry or for the aggregate of all imports. Equals the rest of world's elasticity of demand for imports.

■ elasticity of demand for imports

this is normally the price elasticity of demand for imports of a country, either for a single industry or for the aggregate of all imports. The latter plays a critical role in determining how the country's **balance of trade** responds to the exchange rate.

■ elasticity of substitution

the elasticity of the ratio of two inputs to a production (or util



ity) function, with respect to the ratio of their marginal products (or utilities). With competitive demands, this is also the elasticity with respect to their price ratio.

■ elasticity of supply

the (price) elasticity of supply is the percentage change in the quantity supplied of a good or service divided by the percentage change in its (own) price.

■ embeddedness

the idea that economic behaviour is influenced by the dominant norms, institutions and social practices which, in turn are culturally embedded.

■ empirical finding

something which is observed from real-world observation or data, in contrast to something that is deduced from theory.

■ employment argument for protection

the use of a tariff or other trade restriction to promote employment, either in the economy at large or in a particular industry. This is a **second best argument**, since other policies, such as a fiscal stimulus or a production subsidy, could achieve the same effect at lower economic cost.

■ enabling clause

the decision of the **GATT** in 1979 to give developing countries special and differential treatment.

■ endogenous growth

economic growth whose long-run rate depends on behaviour and/or policy.

■ endogenous protection

protection which can be explained as the outcome of economic and/or political forces.

■ endogenous variable

an economic variable which is determined within a model. It is therefore not subject to direct manipulation by the modeller, since that would override the model. In trade models, the quantity of trade itself is almost always endogenous.

■ endowment

the amount of something which a person or country simply has, rather than their having somehow to acquire it. In the **H-O Model** of trade theory, endowments refer to **primary factors** of production, ignoring the fact that some of them, especially capital and skill, are deliberately accumulated.

■ Engel's Curve

a general reference to the line that shows the relationship between various quantities of a good that a consumer is willing to purchase at varying income levels (ceteris paribus).

With rising incomes, the share of expenditures for food products declines. The resulting shift in expenditures affects demand patterns and employment structures. It suggests that consumers increase their expenditures for food products at a percentage rate, which is lower than that of their increases in income. Poorer families will spend a larger share of their total expenditures on food than the wealthier families.

■ engine of growth

sometimes used to describe the role that **exports** may have played in economic development, both of some of the regions of recent settlement in the nineteenth century and of today's **NICs**.

■ entrepôt trade

the import and then export of a good without further processing, usually passing through an entrepôt, which is a storage facility from which goods are distributed.

■ envelope

the outermost points traced out by a moving curve.

■ envelope curve

a curve enclosing, by just touching, a number of other curves.

■ environmental dumping

export of a good from a country with weak or poorly enforced environmental regulations, reflecting the idea that the exporter's cost of production is below the true cost to society, providing an unfair advantage in international trade. Also called **eco-dumping**.

■ Environmental Kuznets Curve

an inverse U-shaped relationship hypothesised between per capita income and environmental degradation. Named after the Kuznets Curve dealing with inequality.

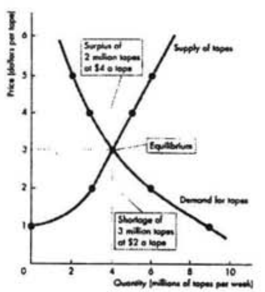
■ equilibrium condition

a condition that must be satisfied for the equilibrium to exist, equilibrium being defined as a situation in which there is no tendency for change. For example, in the Keynesian expenditure model, the equilibrium condition is that planned spending just equals the current level of national income. Once that condition is satisfied, there is no tendency for the level of national income to change.

■ equilibrium price

a price at which the quantity supplied equals the quantity demanded. At this price, there is no excess of quantity demanded or supplied, nor is there any deficiency of either and consequently, the price will remain at this level.

Equilibrium



■ equilibrium quantity

the quantity of a good demanded and supplied at the equilibrium price.

■ equivalent variation

the amount of money which, paid to a person, group or whole economy, would make them as well off as a specified change in the economy. Provides a monetary measure of the welfare effect of that change, which is similar to, but not in general the same as the compensating variation.

■ escape clause

1. the portion of a legal text which permits departure from its provisions in the event of specified adverse circumstances.

2. the US statute (section 201, 1974 trade act) that permits imports to be restricted, for a limited time and on a nondiscriminatory basis, if they have caused injury to US firms or workers.

■ Euro Interbank Offered Rate (EURIBOR)

a euro-denominated interest rate charged by large banks, among themselves, on euro-denominated loans.

■ eurobond

a bond which is issued outside of the jurisdiction of any single country, denominated in a eurocurrency.

■ Europe Agreement

an agreement between the EU and each of the ten Eastern European countries (starting with Hungary and Poland in 1994), creating free trade areas and establishing additional forms of political and economic cooperation in the preparation for these countries' eventual membership in the EU.

■ European Economic Community (EEC)

a customs union formed in 1958 by the Treaty of Rome, among six countries of Europe: Belgium, France, Germany, Italy, Luxembourg, and Netherlands.

■ European Free Trade Association (EFTA)

a free trade area, comprising of countries in Europe that did not join the European Economic Community. EFTA was established in 1960 among Austria, Denmark, Norway, Portugal, Sweden, Switzerland and the United Kingdom. As of 2000, it includes Iceland, Liechtenstein, Norway, and

Switzerland.

■ European Monetary Agreement (EMA)

an intergovernmental organisation, administered by the **OECD** which facilitated settlement of balance of payments accounts among its member states from 1958 to 1972. It replaced the **EPU** and its functions were taken over by the **IMF** in 1972.

■ excess demand

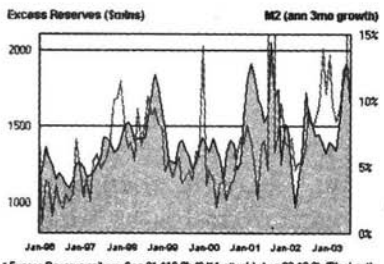
demand minus supply. Thus, a country's demand for imports of a homogeneous good is its excess demand for that good.

■ excess profit

the profit of a firm over and above what provides its owners with a normal return to capital.

■ excess reserves

the difference between the amount of cash which a bank



wishes or is required to hold, in relation to its deposit liabilities and the amount it actually holds.

■ excess supply

supply minus demand. Thus, a country's supply of exports of a homogeneous good is its excess supply of that good.

■ exchange control

rationing of foreign exchange, usually used when the exchange rate is fixed and the central bank is unable or unwilling to enforce the rate by the exchange-market intervention.

■ exchange market

1. the market on which national currencies are exchanged for one another.

2. the actual exchange market, which exists primarily among large international banks. Others, who wish to exchange currencies, do it through these banks.

3. the theoretical representation of the exchange market as, either the interaction of supply and demand arising from exchange-market transactions, or as an asset market equilibrium between currencies.

■ exchange rate overshooting

the response of an exchange rate to a shock, by first moving beyond the point where it will ultimately settle. Thought to help explain exchange rate volatility, this was first modelled by Dornbusch (1976).

■ exchange rate regime

the rules under which a country's exchange rate is determined, especially the way the monetary or other government authorities do or do not intervene in the exchange market. Regimes include floating exchange rates, pegged exchange rate, managed float, crawling peg, currency board, and exchange controls.

■ exchange risk

uncertainty about the value of an asset, liability or commitment, due to uncertainty about the future value of an exchange rate. Unless they cover themselves in the forward market, traders, with commitments to pay or receive foreign currency in the future, bear exchange risk. So do holders of assets and liabilities denominated in foreign currency.

■ exchange stabilisation fund

a government institution sometimes used to handle exchange market intervention, charged with the explicit function of smoothing exchange rate fluctuations.

■ exchange-market intervention

usually done by a country's central bank, this is the purchase and sale of the country's currency on the exchange market, in order to influence or fully determine its price. These transactions, unless they are sterilised, change the monetary base of the country and thus, its money supply.

■ exogenous growth

economic growth that occurs without being the result of deliberate policy or behaviour. The term arises because neoclassical growth models converge to a steady state, in which per capita income is constant over time. Growth, then requires exogenous technical progress.

■ exogenous variable

a variable which is taken as given by an economic model. It therefore is subject to direct manipulation by the modeller. In most models, policy variables such as tariffs and par values of pegged exchange rates are exogenous.

■ expectation

the expectation of a variable is the same as its expected value and is also used with both meanings.

■ expected value maximisation principle

the most widely professed rule in decision theory. It suggests that the option with the largest expected value should be chosen. Calculation of the expected value of a decision option requires the availability of the probabilities attached to each possible environmental state (e.g. probability of any specific action taken by the competitor out of all possible actions). Thus, the EV is the sum of the products of all environmental states multiplied by their respective probabilities.

The EV principle actually consists of a family of principles. These principles differ by the way probabilities and the values (or payoffs) are generated or interpreted (namely either objectively or subjectively). Thus, the following possibilities are there:

	Objective	Subjective Payoffs Payoffs
Objective Probabilities	Objectively Expected Value (OEV)	Expected Utility (EU)
Subjective Probabilities	Subjectively Expected Value (SEV)	Subjectively Expected Utility (SEU)

■ experience good

a product whose value can be better known after having consumed it. Producers of experience goods may temporarily charge a price lower than the marginal cost, to induce buyers to try the product. Done with an export, this would be legally considered dumping.

■ export bias

any bias in favour of exporting. Most often applied to growth that is based disproportionately on accumulation of the factor used intensively in the export industry and/or technological progress favouring that industry.

export credit

a loan to the buyer of an export, extended by the exporting firm when shipping the good prior to payment or by a facility of the exporting country's government. In the latter case, by setting a low interest rate on such loans, a country can indirectly subsidise exports.

export credit insurance

a program to guarantee payment to exporting firms who extend export credits.

export limitation

any policy which restricts exports.

export multiplier

the multiplier for a change in exports, i.e., the increase in GDP caused by one-unit increase in exports.

export pessimism

the view that efforts to expand exports by the LDCs will lead to a decline in their terms of trade because of an inability (due to weak demand) or unwillingness (expressed via protection) of developed countries to absorb these exports.

export platform

describes the role of a host country, as a production location designed to serve international markets, possibly including the home market of the parent firm.

export price index

price index of the goods which a country exports.

export promotion

a strategy for economic development which stresses on expanding exports, often through policies to assist them, such as export subsidies. The rationale is to exploit a country's comparative advantage, especially in the common circumstance, where an over-valued currency would otherwise create bias against exports.

export requirement

a requirement by the government of the host country for FDI, where the investor should export a certain amount or percentage of its output.

■ export substitution

a shift to the export of increasingly processed products. The export of more or less processed raw materials is substituted for the export of raw or relatively unprocessed materials contributing to local (or national) employment and the creation of value added.

■ external balance

1. balance of payments equilibrium.

2. any target value for the balance on current account, balance on capital account or balance of payments.

■ external economies of scale

a form of increasing returns to scale, in which productivity and thus, costs of individual firms depend on the output of their entire industry, rather than just their own. Unlike more conventional (internal) scale economies, these are consistent with perfect competition.

■ externalities

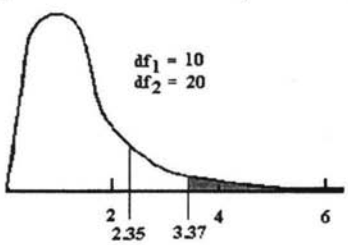
a benefit or cost associated with an economic transaction, that is not taken into account by those directly involved in making it. A beneficial or adverse side effect of production or consumption.

■ externality

an effect of one economic agent's actions on another, such that one agent's decisions make another better or worse off, by changing their utility or cost. Beneficial effects are positive externalities, while the harmful ones are negative externalities.

■ F Distribution / F-Distribution

defined in terms of two independent chi-squared variables. Say u and v be independently



distributed chi-squared variables with u_1 and v_1 degrees of freedom, respectively.

Then, the statistic: $F=(u/u_1)/(v/v_1)$ has an F distribution with (u_1,v_1) degrees of freedom.

As can be computed from the definition of the t distribution, the square of a t statistic may be written:

$t^2=(z^2/1)/(v/v_1)$

where z^2, being the square of a standard normal variable, has a chi-squared distribution. Thus, the square of a t variable with v1 degrees of freedom is an F variable with $(1,v_1)$ degrees of freedom, that is:

$t^2=F(1,v_1)$.

■ F Test/ F-Tests

a test for the joint hypothesis where a number of coefficients are zero. Large values generally reject the hypothesis, depending on the level of significance required.

■ factor abundance

this is fundamental to the H-O Model, the abundance or scarcity of a primary factor of production. Because, in the short run at least, the supplies of primary factors are more or less fixed, this can be taken as given for determining much about a country's trade and other economic variables.

■ factor augmenting

a technological change or technological difference, if production functions differ by scaling of a factor input only.

■ factor endowment

the quantity of a primary factor available in a country.

■ factor intensity

the relative importance of one factor versus others in production, in an industry, usually compared across industries. Most commonly defined by ratios of factor quantities employed at common factor prices, but sometimes by factor shares or by marginal rates of substitution between factors.

■ factor intensity reversal

a property of the technologies for two industries such that their ordering of relative factor intensities is different at different factor prices. For example, one industry may be relatively capital intensive compared to the other at high relative wages and labour intensive at low relative wages.

■ factor intensity uniformity

the absence of factor intensity reversals.

■ factor of production

the input or resource that is combined with other factors of production in a production process, to produce a good or service.

■ factor price

the price paid for the services of a unit of a primary factor of production per unit time. It takes into consideration the wage or salary of labour and the rental prices of land and capital. Does not normally refer to the price of acquiring ownership of the factor itself, which might be called the 'purchase price'.

■ factor price equalisation theorem

one of the major theoretical results of the Heckscher-Ohlin Model, with at least as many goods as factors, showing that free and frictionless trade will cause factor price equalisation between two countries, if they have identical, linearly homogeneous technologies and their factor endowments are sufficiently similar to be in the same diversification cone.

■ factor price equalisation

an effect observed in models of international trade — that the prices of inputs to production in different countries, like wages, are driven towards equality in the absence of barriers to trade. This happens among other reasons because price incentives cause countries to choose to specialise in the production of goods whose factors of production are abundant there, which raises the prices of the factors towards equality, with the prices in countries where those factors are not abundant.

■ factor price frontier

a curve in fact or space showing the minimum combinations of factor prices consistent with the absence of profit in producing one or more goods, given their prices. Since, with perfect competition, profit implies disequilibrium, this shows a lower bound on equilibrium factor prices.

■ factor proportions model

the Heckscher-Ohlin model of trade.

■ factor share

the fraction of payments to value added, in an industry, that goes to a particular primary factor.

■ **factor space**

a graph in which the axis measure the quantities of factors.

■ **factor-price space**

a graph with factor prices on the two axis.

■ **factor-saving**

disproportionately in favour of using less of a particular factor.

■ **factor-using**

biased in favour of using more of a particular factor.

■ **factory systems**

the idea where factories may have been more efficient by reducing transactions costs.

■ **fads**

the conjecture that market prices for securities take long swings away from their fundamental values and tend to return to them.

■ **Fama-MacBeth Regression**

a panel study of stocks to estimate CAPM or APT parameters.

■ **FAS**

Free Alongside Ship. Same as FOB, but without the cost of loading onto a ship.

■ **fast track**

a procedure adopted by the US Congress, at the request of the President, committing it to consider trade agreements without amendment. In return, the President must adhere to a specified timetable and other procedures.

■ **fat-tailed distributions**

describes a distribution with excess kurtosis.

■ **favourable exchange rate**

an exchange rate different from the market or official rate, provided by the government on a transaction as an indirect way of providing a subsidy.

■ **Feasible Generalised Least Squares (FGLS)**

the generalised least squares estimation procedure, but with an estimated covariance matrix, not an assumed one.

■ **Fed Funds Rate**

the interest rate at which US banks lend to one another, their excess reserves held on deposit at the US.

■ **Federal Information Processing Standards (FIPS)**

these are encodings defined by the US government and used to encode some data (like states and counties) in US data sets.

■ **fiat money**

1. a money whose usefulness results, not from any intrinsic value or guarantee that it can be converted into gold or another currency, but only from a government's order (fiat) that it must be accepted as a means of payment.

2. money which is intrinsically useless and is used only as a medium of exchange.

■ **filters**

a way of treating or adjusting data before it is analysed. More exactly, a filter is an algorithm or mathematical operation that is applied to a time series sample to get another sample, often called the 'filtered' data. For example, a filter might remove some high-frequency effects from the data.

■ **final good**

a good which requires no further processing or transformation, to be ready for use by consumers, investors or government.

■ **financial capital**

financial assets, such as stocks, bonds, bank deposits, etc., as opposed to real assets such as buildings and capital equipment.

■ **financial intermediary**

an institution which provides indirect means for funds from those who wish to save or lend, to be channelled to those who wish to invest or borrow. Examples include banks and other depository institutions, mutual funds and some government programs.

■ **FIR**

Factor Intensity Reversal.

■ **first degree homogeneous**

homogeneous of degree 1.

■ **first mover advantage**

the advantage which a firm may derive from being the first to enter a market or from being the first to use a new technology, advertising technique, etc.

First Order Condition (FOC)

one of the mathematical necessary conditions for maximisation, used routinely in solving economic models. Typically, it consists of setting equal to zero the derivative of the function being maximised (or its Lagrangian), with respect to a variable that can be controlled.

first welfare theorem of economics / first theorem of welfare economics

the statement which states that a Walrasian equilibrium is weakly Pareto optimal. Such a theorem is true in a large and important class of general equilibrium models (usually static ones). The standard case is if every agent has a positive quantity of every good and every agent has a utility function that is convex, continuous and strictly increasing, then the First Welfare Theorem holds.

first-order stochastic dominance

usually means stochastic dominance.

fiscal policy

any macroeconomic policy involving the levels of government purchases, transfers or taxes, usually implicitly focused on domestic goods, residents or firms. A fiscal stimulus is an increase in purchases or transfers or a cut in taxes.

fiscalist view

an extreme Keynesian view, that money doesn't matter at all as aggregate demand policy. Assumes that investment demand does not respond to interest rate changes. Relevant only in depression conditions.

Fisher Consistency / Fisher Consistent Estimation

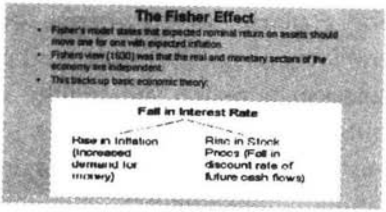
a necessary condition for maximum likelihood estimation to be consistent. Maximising the likelihood function L gives an estimate for parameter b that is Fisher-consistent if:

$E[d(\ln L)/db]=0$ at $b=b_0$, where b_0 is the true value of b.

Another interpretation or phrasing: 'An estimation procedure is Fisher consistent if the parameters of interest solve the population analog of the estimation problem.'

■ Fisher Effect

the theory where a change in the expected rate of inflation will lead to an equal change in the nominal interest rate, thus keeping the real interest rate unchanged.



■ Fisher Equation

nominal rate of interest = real interest rate + inflation

■ Fisher Hypothesis

the real rate of interest is constant. Hence, the nominal rate moves with inflation. The real rate of interest would be determined by the time preferences of the public and technological constraints determining the return on real investment.

■ Fisher Index

is a price index, calculated for a given period by taking the square root of the product of the Paasche index value and the Laspeyres index value.

■ Fisher Information

an attribute or property of a distribution with known form but uncertain parameter values. It is only well-defined for distributions satisfying certain assumptions.

■ Fisherian Criterion

for optimal investment by a firm — that it should invest in real assets until their marginal internal rate of return equals the appropriately risk-adjusted rate of return on securities.

■ Fixed Effects Estimator / Fixed Effects Estimation (FE)

a linear regression in which certain kinds of differences are subtracted out, so that one can estimate the effects of another kind of difference.

■ flexibility strategy

could be considered a strategic 'response to uncertainty'. A flexible firm, investment, set of skills, residential arrangement, etc. is more responsive to unpredictable futures than a rigid firm, etc. Pursuing a flexibility strategy would mean to build appropriate flexibilities into projects and organisations, even if that means higher project or organisational costs, as long as the benefits of possible future adjustments outweighs these costs.

■ flexible exchange rate

same as floating exc hange rate.

■ flexible specialisation

a company- level strategy of 'permanent innovation', 'accommodation to ceaseless change' (rather than to control it). This strategy is based on flexible multi-use equipment, skilled workers and the creation, through politics, of an industrial community that restricts the forms of competition to those favouring innovation.

■ flexible work force

a work force that can be adapted to changing circumstances. In the context of segmented, dual labour markets, it's been suggested that a flexible work force may have two meanings: One part of the labour force is given the chance to be flexible itself, i.e. to be considered functionally sufficiently diversified so that employees can be used for different functions or in different jobs, whereas the other part of the labour force can be hired and fired with ease or employed with variable hours as needed.

■ flexible-accelerator model

a macro model where there is a variable relationship between the growth rate of output and the level of net investment. The relation between the change in output and the level of net investment is the accelerator principle.

■ FOB

the price of a traded good excluding the transport cost. It stands for 'free on board', but is used only as these initials. It means the price after loading onto a ship, but before shipping, thus not including transportation, insurance and other costs needed to get a good from one country to another. Contrasts with **CIF** and **FAS**.

■ FOB pricing

Free On Board Mill base pricing. A pricing system in which prices are quoted for delivery at the point of production, with the buyer to pay freight from that point.

■ FOGS Negotiations

in the Uruguay Round, this portion of the negotiations dealt with the functioning of the GATT System and resulted ultimately in the formation of the WTO and its dispute settlement mechanism.

■ footloose activity

an activity that is viable at many different locations. It does not depend on any specific location factor. An industry is footloose if its long run profitability is the same for any location in an economy.

■ footloose factor

a factor which can move easily across national borders, in contrast to one that, due to inclination or constraints, cannot. Footloose factors are sometimes thought to have an advantage in a globalised economy.

■ footloose industry

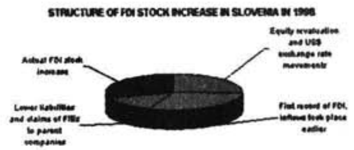
an industry which is not tied to any particular location or country and can relocate across national borders, in response to changing economic conditions. Many manufacturing industries seem to have this characteristic.

■ foreign asset position

the amount of assets which residents of a country own abroad. Also used to mean the net foreign asset position.

■ foreign direct investment

1. acquisition or construction of physical capital by a firm from one (source) country in another (host) country.



2. investments undertaken by multinational firms in pursuit of their own organisational objectives

3. a component of a country's national financial accounts. Foreign direct investment is the investment of foreign assets into domestic structures, equipment and organisations. It does not include foreign investment into the stock markets. Foreign direct investment is believed to be more useful to a country than investments in the equity of its companies because equity investments are potentially 'hot money' which can leave at the

first sign of trouble, whereas FDI is durable and generally useful whether things go well or badly.

foreign investment argument for protection

the use of protection, to attract FDI from abroad. It does work, since much FDI has been motivated by firms trying to get behind a tariff wall to sell their products. In an otherwise nondistorted economy, however, the cost in terms of more expensive goods is higher than the benefit from additional capital.

foreign repercussion

the feedback effect on a domestic economy, when its macroeconomic changes cause large enough changes abroad for those in turn to cause further changes at home. Most commonly, a rise in income stimulates imports, causing an expansion abroad that in turn raises demand for the home country's exports.

Foreign Sales Corporation (FSC)

a provision of the US tax code which grants income-tax rebates to American exporters, if they form what may be a largely artificial foreign subsidiary called an FSC. This has been the subject of a trade dispute with the EU which complained to the WTO that this constitutes an illegal export subsidy.

foreign trade zone

an area within a country where imported goods can be stored or processed without being subject to import duty. Also called a 'free zone', 'free port', or 'bonded warehouse'.

formula approach

a procedure for organising multilateral trade negotiations, using a formula for tariff reductions as a starting point.

forward

on the forward market.

forward discount

opposite of forward premium.

forward linkages

linkages between a producer or supplier and their customers. As different from backward linkages, forward linkages are output-oriented and, in the matrix-context of input-output analysis, are conventionally traced in rows.

■ forward market

a market for exchange of currencies in the future. Participants in a forward market enter into a contract to exchange currencies, not today, but at a specified date in the future, typically 30, 60 or 90 days from now and at a price (forward exchange rate) that is agreed upon today.

■ forward premium

the difference between a forward exchange rate and the spot exchange rate, expressed as an annualised percentage return on buying foreign currency spot and selling it forward.

■ forward rate

also called the forward exchange rate, this is the exchange rate on a forward market transaction.

■ four-firm concentration ratio

the percent of an industry's sales which accrue to the largest four firms, a measure of industrial concentration.

■ fragmentation

the splitting of production processes into separate parts which can be done in different locations, including in different countries.

■ free cash flow

cash flow to a firm, in excess of the requirement to fund all projects that have positive net present values when discounted at the relevant cost of capital.

Free cash flow can be a source of principal-agent conflict between shareholders and managers, since shareholders would probably want it paid out in some form to them and managers might want to control it, e.g. to use it for unprofitable projects, for perquisites, to make acquisitions, to create jobs for friends and allies and so forth.

■ free enterprise

a system in which economic agents are free to own property and engage in commercial transactions.

■ free entry

the assumption where new firms are permitted to enter an industry and can do so without any costs whatsoever. Together with free exit, it implies that profit must be zero in equilibrium.

■ free entry condition

an assumption posted in a search and matching model of a market. The assumption is that there is no institutional constraint on firms entering the market (e.g. to hire workers). There is no fixed number of firms. The number of firms is determined in equilibrium, by the costs of starting up.

■ free exit

the assumption where firms are permitted to leave an industry and can do so costlessly.

■ free good

goods that are unlimited in supply and which therefore have no opportunity cost.

■ free market economy / free market economies

an economy in which the allocation for resources is determined only by their supply and the demand for them. This is mainly a theoretical concept as every country, even capitalist ones, places some restrictions on the ownership and exchange of commodities.

■ free reserves

excess reserves minus borrowed reserves.

■ free rider

someone who enjoys the benefits of a public good without bearing the cost. An example, in trade policy, is that trade liberalisation benefits the majority of consumers without their lobbying for it. This may tip the policy in the direction of protection, for which there are fewer free riders.

■ free spatial demand curve

demand schedule (price/quantity of demand function) of consumers, distributed in space with varying distances from a given, central location, aggregated for a supply location with 'price' (in the mind of consumers) to include transport costs from this location to the consumers.

■ free trade

a situation in which there are no artificial barriers to trade, such as tariffs and NTBs. Usually used, often only implicitly, with frictionless trade, so that it implies that there are no barriers to trade of any kind. For a traded homogeneous product, it follows that domestic and world price must be equal.

■ Free Trade Area (FTA)

a group of countries which adopt free trade (zero tariffs and no other restrictions on trade) on trade among themselves, while not necessarily changing the barriers that each member country has on trade with the countries outside the group.

■ Free Trade Area of the Americas (FTAA)

a preferential trading arrangement being negotiated among most of the countries (all but Cuba) of the western hemisphere.

■ frequency

the speed of the up and down movements of a fluctuating economic variable, that is, the number of times, per unit of time, which the variable completes a cycle of up and down movement.

■ frictional unemployment

unemployment which comes from people moving between jobs, careers and locations.

■ frictionless trade

the absence of natural barriers to trade, such as transport costs.

■ Friedman Rule

in a cash-in-advance model of a monetary system, the Friedman rule for monetary policy is to deflate so that it is not costly for those, who have money, to continue to hold it. Then, the cash-in-advance constraint isn't binding on them.

■ Full Information Maximum Likelihood (FIML)

an approach to the estimation of simultaneous equations.

■ functional / functionals

a mapping from paths of functions to the reals (e.g. a value function defined by a mapping from possible paths of choices.

■ functional distribution of income

how the income of an economy is divided among the owners of different factors of production, into wages, rent, etc.

■ future-oriented agent

discounts the future lightly and so has a low discount rate or equivalently a high discount factor.

■ futures market

a market for exchange (of currencies, in the case of the exchange market) in the future. i.e., participants contract to exchange currencies, not today, but at a specified calendar date in the future, and at a price (exchange rate) that is agreed upon today.

■ gains from trade theorem

the theoretical proposition where (in the absence of distortions) there will be gains from trade for any economy that moves from autarky to free trade, as well as for a small open economy and for the world as a whole if tariffs are reduced appropriately.

■ game

a theoretical construct in game theory in which players select actions and the payoffs depend on the actions of all the players.

■ game theory

the modelling of strategic interactions among agents, used in economic models where the numbers of interacting agents (firms, governments, etc.) is small enough that each has a perceptible influence on the others.

■ gamma index

a measure of the connectivity of a network comparing (through a ratio) the actual number of links with the maximum number of possible links (edges) in this network.

Gamma Index Formula =

$$\frac{\text{actual number of links}}{\text{half the number of nodes (number of nodes - 1)}}$$

■ gastarbeiter

a guest worker.

■ GATT Articles

the individual sections of the GATT agreement, conventionally indentified by their Roman numerals. Most were originally drafted in 1947, and are still included in the WTO.

■ General Agreement on Tariffs and Trade (GATT)

a multilateral treaty entered into in 1948 by the intended members of the International Trade Organisation. The purpose of the same was to implement many of the rules and negotiated tariff reductions that would be overseen by the ITO. With the failure of the ITO to be approved, the GATT became the principal institution regulating trade policy, until it was subsumed within the WTO in 1995.

■ **General Agreement on Trade in Services (GATS)**

the agreement, negotiated in the Uruguay Round, which brings international trade in services into the WTO. It provides for countries to provide national treatment to foreign service providers and for them to select and negotiate the service sectors to be covered under GATS.

■ **general equilibrium**

equanimity of supply and demand in all markets of an economy simultaneously. The number of markets does not have to be large. The simplest Ricardian model has markets only for two goods and one factor, labour, but this is a general equilibrium model. Contrasts with partial equilibrium.

■ **generalised system of preferences**

tariff preferences for developing countries, where some developed countries let certain manufactured and semi-manufactured imports from developing countries enter at lower tariffs than the same products from developed countries.

■ **gentrification**

the widespread emergence of middle-and upper middle-class enclaves in formerly deteriorated-inner-city neighbourhoods.

■ **geobase**

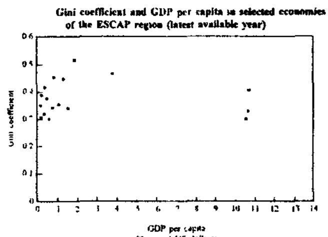
database or index of the international literature of geography, ecology, earth science and marine science.

■ **Giffen good**

a good which is so inferior and so heavily consumed at low incomes that the demand for it rises when its price rises. The reason is that the price increase lowers income sufficiently that the positive income effect (because it is inferior) outweighs the negative substitution effect.

■ **Gini Coefficient**

a measure of income inequality within a population, ranging from zero for complete equality, to one if one person has all the income. It is defined as the area between the Lorenz Curve and the diagonal, divided by the total area under the diagonal.



It measures the degree to which two frequency (percentage) distributions correspond. The Gini coefficient is a number between 0 and 100 (or 0 and 1), where 0 means perfect equality (exact correspondence, e.g. everyone has the same income) and 100 (or 1) means perfect inequality (one person has all the income, everyone else earns nothing).

■ **global**

the world-wide presence of a phenomenon or a world-wide spatial pattern of locations of an organisation and/or a pattern of interdependencies.

■ **global competitiveness**

competitiveness applied internationally.

■ **global optimum**

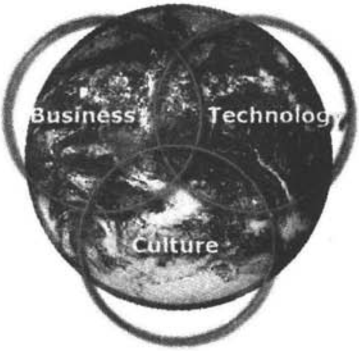
an allocation that is better, by some criterion, than all others possible.

■ **globalisation**

1. the increasing integration of world markets for goods, services and capital that attracted special attention in the late 1990s.

2. also used to encompass a variety of other changes that were perceived to occur at about the same time, such as an increased role for large corporations (MNCs) in the world economy and increased intervention into domestic policies and affairs by international institutions such as the IMF, WTO and World Bank.

3. among countries outside the United States, especially developing countries, the term sometimes refers to the domination of world economic affairs and commerce by the United States.



■ gold standard

a monetary system where both the value of a unit of the currency and the quantity of it in circulation are specified in terms of gold. If two currencies are both on the gold standard, then the exchange rate between them is approximately determined by their two prices in terms of gold.

■ good

a product which can be produced, bought and sold and that has a physical identity. Sometimes said inaccurately to be anything that 'can be dropped on your foot' or, also inaccurately, to be 'visible'. Contrasts with service. Trade in goods is much easier to measure than trade in services and thus much more thoroughly documented and analysed.

■ government procurement

purchase of goods and services by government and by state-owned enterprises.

■ government procurement practice

the methods by which units of government and state-owned enterprises determine from whom to purchase goods and services. When these methods include a preference for domestic firms, they constitute an NTB.

■ graduation

termination of a country's eligibility for GSP tariff preferences, on the grounds that it has progressed sufficiently, in terms of per capita income or another measure, that it is no longer in need to special and differential treatment.

■ Grandfather clause

a provision in an agreement, including the GATT but not the WTO, which allows signatories to keep certain of their previously existing laws that otherwise would violate the agreement.

■ gravity model

a model of the flows of bilateral trade based on analogy with the law of gravity in physics: $T_{ij} = AY_iY_j/D_{ij}$, where T_{ij} is exports from country *i* to country *j*, Y_i, Y_j are their national incomes, D_{ij} is the distance between them and *A* is a constant. Other constants as exponents and other variables are often included.

■ grey area measure

a measure whose conformity with existing rules is unclear, such as a VER under the GATT prior to the WTO.

■ green box

category of subsidies permitted under the WTO Agriculture Agreement includes those not directed at particular products, direct income support for farmers unrelated to production or prices, subsidies for environmental protection and regional development.

■ green field investment

FDI which involves the construction of a new plant, rather then the purchase of an existing plant or firm.

■ Gross domestic product (GDP)

1. the total value of new goods and services produced in a given year, within the borders of a country, regardless of by whom. It is referred as 'gross' in the sense that it does not deduct depreciation of previously produced capital, in contrast to NDP.

2. value of all the goods and services produced by workers and capital located with a country (or region), regardless of nationality of workers or ownership.

■ Gross National Product (GNP)

1. the total value of new goods and services produced in a given year by a country's domestically owned factors of production, regardless of where. It is 'gross' in the sense that it does not deduct depreciation of previously produced capital, in contrast to NNP.

2. total value of all final goods and services produced for consumption in society during a particular time period. The GNP includes allowances for depreciation and indirect business

taxes such as those on sales and property.

3. it is the output of labour and property of a country's nationals, regardless of the location of the labour and property. Gross National Product includes income earned by the factors of production (assets and labour) owned by a country's residents but excludes income produced within the country's borders by factors of production owned by nonresidents.

■ **gross output**

the total output of a firm, industry or economy without deducting intermediate inputs. For a firm or industry, this is larger than its value added, which is net of its own intermediate inputs. For an economy, gross output is greater than net output, which deducts the amount of the good itself, used as an intermediate input.

■ **group of ten**

a group of ten countries, members of the IMF, which, together with Switzerland, agreed to make resources available outside their IMF quotas. Since 1963, the governors of the G10 central banks have met on the occasion of the bimonthly BIS meetings.

■ **growth accounting**

decomposition of the sources of economic growth into the contributions from increases in capital, labour and other factors. What remains, called the Solow residual, is usually attributed to technology.

■ **Grubel-Lloyd index**

the measure of the intra-industry trade suggested by Grubel and Lloyd (1975). For an industry i with exports X_i and imports M_i, the index is $I = [(X_i+M_i) \quad |X_i M_i|]100/(X_i+M_i)$. This is the fraction of total trade in the industry, X_i+M_i, that is accounted for by IIT (times 100).

■ **Gulf Cooperation Council (GCC)**

an agreement among six countries of Persian Gulf region — Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates — in 1981, with the aim of coordinating and integrating their economic policies.

■ H Index (The Herfindahl-Hirschman Index)

It stands for Herfindahl-Hirschman index, which is a way of measuring the concentration of market share held by particular suppliers in the market. The H index is the aggregate of squares of the percentages of the market shares held by the firms in a market. If there is a monopoly, i.e. one firm with all sales, the H index is 10000. If there is perfect competition, with an infinite number of firms with near-zero market share each, the H index is approximately zero. Other industry structures will have H indices between zero and 10000.

■ Harberger triangle

the triangular area or areas in a supply and demand diagram that measure the net welfare loss or dead-weight loss due to a market distortion or policy, such as a tariff.

■ Harberger-Laursen-Metzler Effect

the conjecture or result that a terms of trade deterioration will cause a decrease in savings due to the decrease in real income and therefore that a real depreciation will cause an increase in real expenditure.

■ harmonisation

the change in government regulations and practices, as a result of an international agreement, to make those of different countries the same or more compatible.

■ Harmonised System (HS)

an international system for classifying goods in international trade and for specifying the tariffs on those goods. It was adopted at the beginning of 1989 and it replaced the previously used schedules in over 50 countries.

■ Harrod neutral

a particular specification of technological change or technological difference that is labour augmenting.

■ Hat algebra

the Jones (1965) technique for comparative static analysis in trade models. By totally differentiating a model in the logarithms of its variables, a linear system is obtained relating small proportional changes (denoted by carats (^), or 'hats') in terms of various elasticities and shares.

■ Havana Charter

the charter for the never-implemented International Trade Organisation. The draft was completed at a conference in Havana, Cuba, in 1948.

■ Headquarters services

the activities of a firm which typically occur at its main location and that contribute in a broad sense to its productivity at all of its locations and plants. These may include management, accounting, marketing, and R&D.

■ Heavily Indebted Poor Countries (HIPC)

the name given to those poor countries with large debts, the target of initiatives being to forgive that debt as a means of assisting development.

■ Heckscher-Ohlin Model (H-O Model)

a model of international trade in which comparative advantage derives from differences in relative factor endowments across countries and differences in relative factor intensities across industries. It sometimes refers only to the textbook or 2x2x2 model, but more generally includes models with any numbers of factors, goods, and countries. Model was originally formulated by Heckscher (1919), fleshed out by Ohlin (1933), and refined by Samuelson (1948, 1949, 1953).

■ Heckscher-Ohlin Theorem (HOT)

the proposition of the Heckscher-Ohlin Model that countries will export the goods that use relatively intensively their relatively abundant factors.

■ Heckscher-Ohlin-Samuelson Model (HOS Model)

usually synonymous with the Heckscher-Ohlin Model, although sometimes the term is used to distinguish the more formalised, mathematical version that Samuelson used from the more general but less well-defined conceptual treatment of Heckscher and Ohlin.

■ Heckscher-Ohlin-Vanek Model (HOV)

the Heckscher-Ohlin Model for the case of identical techniques of production, used to derive the strong prediction about the factor content of trade, known as the Heckscher-Ohlin-Vanek Theorem.

■ Heckscher-Ohlin-Vanek Theorem

the prediction of the H-O-V Model where a country's net factor content of trade equals its own factor endowment minus its world-expenditure share of the world factor endowment. That is, for country i, $F^i = V^i - s^iV^W$, where F^i is the factor content of its trade, V^i, V^W its and the world's factor endowment, and s^i its share of world expenditure.

■ hedge

to offset risk. In the foreign exchange market, hedgers use the forward market to cover a transaction or open position and thereby reduce exchange risk. The term applies most commonly to trade.

■ Hicksian Demand Function

denoted h(p,u) and it refers to the amount of a good that is demanded by a consumer given that it costs p per unit and that the consumer will have utility u from all goods, where h(p,u) is the cost-minimising amount.

■ high dimension

in trade theory, this refers to having more than two goods, factors, and/or countries, or to having arbitrary numbers of these. Contrasts with the two-ness of the 2x2x2 Model.

■ high powered money

1. same as monetary base, in the sense of currency plus commercial bank reserves.

2. the monetary base or the total of currency in circulation and commercial bank deposits with the central bank.

■ high-tech industries or activities

the identification of those industries considered to be high-tech has generally relied on a calculation comparing R&D intensities. R&D intensity, in turn, has typically been determined by comparing industry R&D expenditures and/or numbers of technical people employed (i.e., scientists, engineers, technicians) to industry value added or to the total value of its shipments.

■ Hilbert Space / Hilbert Spaces

a complete normed metric space with an inner product. So the Hilbert spaces are also Banach spaces. L^2 is an example of a Hilbert space. Any R^n with n finite is another.

■ hinterland

tributary (factor-supply or product-market) area of a heartland, central region, city or port. A hinterland is delineated by the inter-dependency relationships with the core region.

■ home bias

a preference, by consumers or other demanders, for products produced in their own country, compared to otherwise identical imports. This was proposed by Trefler (1995) as a possible explanation for the mystery of the missing trade.

■ Homogeneous function

a function with the property where multiplying all arguments by a constant changes the value of the function by a monotonic function of that constant: $F(\square V)=g(\square)F(V)$, where $F(\cdot)$ is the homogeneous function, V is a vector of arguments, $\square>0$ is any constant, and $g(\cdot)$ is some strictly increasing positive function. Special cases include homogeneous of degree X and linearly homogeneous.

■ homogeneous of degree 1

the same as linearly homogeneous and, for a production function, constant returns to scale.

■ homogeneous of degree X

a homogeneous function where the monotonic function is the constant raised to the exponent X: $F(\square V)=\square^X F(V)$.

■ homogeneous of degree zero

the property of a function whose value if you scale all arguments by the same proportion, does not change. In the H-O Model, CRTS production functions imply that marginal products have this property, which is critical for **factor price equalisation**.

homogeneous product

the product of an industry in which the outputs of different firms are indistinguishable. Contrasts with differentiated product.

homohypallagic

having a constant elasticity of substitution. One of the inventors of the CES function tried to christen it this in Minhas (1962), where he also explored its theoretical and empirical implications for the Heckscher-Ohlin Theorem, but the name did not catch on.

homothetic

a function of two or more arguments is homothetic if all ratios of its first partial derivatives depend only on the ratios of the arguments, not their levels. For competitive consumers or producers optimising subject to homothetic utility or production functions, this means that ratios of goods demanded depend only on relative prices, not on income or scale.

homothetic demand

demand functions derived from homothetic preferences. The demand functions are not themselves literally homothetic.

homothetic preferences

together with identical preferences, this presumption is used for many propositions in trade theory, in order to assure that consumers with different incomes but facing the same prices will demand goods in the same proportions.

horizontal integration

production of different varieties of the same product or different products at the same level of processing, within a single firm. This may, but need not, take place in subsidiaries in different countries.

horizontal integration

corporate mergers involving competing firms producing the same or similar production at the same stage of production. Such mergers tend to reduce competition in the market.

horizontal intraindustry trade

intraindustry trade in which the exports and imports are at the same stage of processing. Likely due to product differentiation. Contrasts with vertical IIT.

■ Huber-White Standard Errors

the standard errors that have been adjusted for specified assumed-and-estimated correlations of error terms across observations.

■ human capital

1. the stock of knowledge and skill, embodied in an individual as a result of education, training and experience which makes them more productive.

2. the stock of knowledge and skill embodied in the population of an economy.

■ human capital accumulation

the attributes of a person which are productive in some economic context. Often refers to formal educational attainment, with the implication that education is investment whose returns are in the form of wage, salary, or other compensation. These are normally measured and conceived of as private returns to the individual but can also be social returns.

■ IC Constraint

stands for 'incentive compatibility constraint'. When solving a principal-agent maximisation problem for a contract that meets various criteria, the IC constraints are those that require agents to *prefer* to act in accordance with the solution. If the IC constraint were not imposed, the solution to the problem might be economically meaningless, insofar as it produced an outcome that met some criterion of optimality but which an agent would choose not to act in accord with.

■ iceberg transport cost

a cost of transporting a good that uses up only some fraction of the good itself, rather than using any other resources. Based on the idea of floating an iceberg, which is costless except for the amount of the iceberg itself that melts. It is a very tractable way of modelling transport costs since it impacts no other market.

■ idempotent matrix

a matrix M is idempotent if MM=M. (M times M equals M.)

■ identical preferences

the assumption that individuals, either within a country or in different countries, have the same preferences. To be useful, since individuals' and countries' incomes may differ, the assumption is often used together with homothetic preferences.

■ identity matrix

a square matrix of any dimension whose elements are ones on its northwest-to-southeast diagonal and zeroes everywhere else. Any square matrix multiplied by the identity matrix with those dimensions equals itself. One usually says 'the' identity matrix, since in most contexts the dimension is unambiguous. It is standard to denote the identity matrix by I.

■ Illiquid Assets

assets which are not easily and quickly converted into money.

■ ILS / Indirect Least Squares

ILS stands for Indirect Least Squares, an approach to the estimation of simultaneous equations models. Steps:

a. Rearrange the structural form equations into reduced form.

b. Estimate the reduced form parameters.

Solve for the structural form parameters in terms of the reduced form parameters, and substitute in the estimates of the reduced form parameters to get estimates for the structural ones.

■ immiserising growth

economic growth which makes the country worse off. Bhagwati (1958) coined the term for growth that expands exports and worsens the terms of trade sufficiently that its real income falls. Johnson (1955) had shown that a market distorted by a tariff could lose from growth and had also, independently, worked out conditions for Bhagwati's result.

■ imperfectly competitive

refers to an economic agent (firm or consumer), group of agents (industry), model or analysis that is characterised by imperfect competition. Contrasts with perfectly competitive.

■ implicit contract

a non-contractual agreement which corresponds to a Nash equilibrium, to the repeated bilateral trading game other than the sequence of Nash equilibria, to the one-shot trading game. In the labour market, an implicit contract is formally represented by a series of games in which the firm pays a salary and the employee works effectively because they expect to play the game again (continue the agreement) if it goes well, not because they have an explicit, enforceable contract.

■ implicit price deflator

a broad measure of prices derived from separate estimates of real and nominal expenditures for GDP or a subcategory of GDP. Without qualification, the term refers to the GDP deflator and is thus an index of prices for everything that a country produces, unlike the CPI, which is restricted to consumption and includes prices of imports.

■ implicit tariff

1. tariff revenue on a good or group of goods, divided by the corresponding value of imports. Often lower than the official or statutory tariff, due both to PTAs and due to failures in customs collection.

2. the difference between the price just inside a border and the price just outside it, especially in the case of a good protected by an import quota.

■ import bias

1. any bias in favour of importing.

2. applied to growth, it tends to mean a bias against importing, and against trading more generally. Thus, growth that is based disproportionately on accumulation of the factor used intensively in the import-competing industry and/or technological progress favouring that industry.

■ import demand elasticity

the elasticity of demand for imports with respect to price.

■ import elasticity

usually means the import demand elasticity.

■ import penetration

a measure of the importance of imports in the domestic economy, either by sector or overall, usually defined as the value of imports divided by the value of apparent consumption.

■ import price index

price index of the goods that a country imports.

■ import substitute

a good produced on the domestic market that competes with imports, either as a perfect substitute or as a differentiated product.

■ import substituting industrialisation(ISI)

a strategy for economic development based on replacing imports with domestic production. (ISI)

■ import substitution

a strategy for economic development that replaces imports with domestic production. It may be motivated by the infant industry argument, or simply by the desire to mimic the industrial structure of advanced countries. Contrasts with export promotion.

■ import surveillance

the monitoring of imports, usually by means of automatic licensing.

■ import-competing

refers to an industry which competes with imports. That is, in a two-good model with trade, one good is the export good and the other is the import-competing good.

■ impossibility theorem

one of a class of theorems following Arrow (1951), showing that social welfare functions cannot have certain collections of desirable attributes in common.

■ impulse response function

a graph of the response of the system over time after a shock is known an impulse response function graph. One use is in models of monetary systems. One graphs for example the percentage deviations in output or consumption over time after a one-time one percent increase in the money stock.

■ Inada conditions

a function f() satisfies the Inada conditions if: f(0) = 0, f'(0) = infinity and f'(infinity) = 0. f() is usually a production function in this context.

■ inadmissibility

a possible action by a player in a game may be said to be inadmissible if it is dominated by another feasible actions. The term comes with view of a game as a math problem. An action is or is not admissible as a candidate solution to the problem of choosing a utility-maximising strategy for the game player.

■ income effect

1. the effect of a change in income on the quantity of a good or service consumed.

2. that portion of the effect of price on quantity demanded that reflects the change in real income due to the price change. Contrasts with substitution effect.

■ income elasticity

1. normally, the income elasticity of demand; that is, the elasticity of demand with respect to income.

2. when used without another referent, income elasticity appears to mean 'of consumption'. That is for income I and consumption C: income elasticity $= (I/C)*(dC/dI)$

■ income elasticity of demand

the percentage change in quantity demanded divided by the percentage change in income.

■ incomplete specialisation

production of goods that compete with imports.

■ indebtedness

the amount that is owed, thus the amount of an entity's (individual, firm, or government's) financial obligations to creditors.

■ indemnity payment

a kind of insurance, where payment is made (often in previously determined amounts) for injuries suffered, not for the costs of recovery. The indemnity payment is designed not to be a dependent on anything the patient can control. From the point of view of the insurer, the indemnity mechanism avoids the moral hazard problem of victim spending too much in recovery.

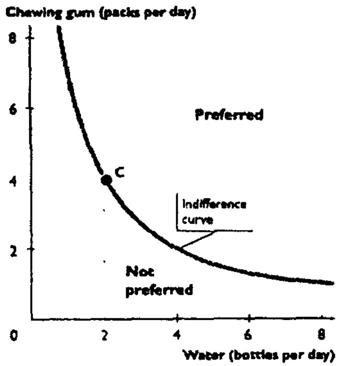
■ indicator variable

in a regression, an indicator variable is a variable that is one if a condition is true, and zero if it is false.

■ indifference curve

a means of representing the

preferences and well being of consumers. Formally, it is a curve which represents the combinations of arguments in a utility function that yield a given level of utility.



■ **indifference theory**

the analysis of consumer demand using indifference curves and an income constraint to demonstrate the reason for the inverse relationship between price and quantity demand. An alternative to the older marginal utility explanation of this phenomenon.

■ **indirect taxes**

taxes levied on a producer that the producer then passes on to the consumer as part of the price of a good. Distinguished from direct taxes, such as sales taxes which are visible to the person who pays them.

■ **indirect utility function**

denoted v(p, m) where p is a vector of prices for goods, and m is a budget in the same units as the prices. The indirect utility function takes the value of the maximum utility that can be achieved by spending the budget m on the consumption goods with prices p.

■ **individually rational allocation**

an allocation is individually rational if no agent is worse off in that allocation than with his endowment.

■ **induction**

a process of reasoning ('generalising') leading from the observation and recording of particular cases to general conclusions or 'laws'.

■ **inductive reasoning**

characterises a reasoning process of generalising from facts, instances or examples.

■ **industrial concentration**

the extent to which a small number of firms dominates an industry, often measured by the four-firm concentration ratio.

Concentration is, in effect, the opposite of competition, though in an open economy, imports complicate the relationship.

■ **indwelling**

a term M. Polanyi used to suggest that 'human beings create knowledge by involving themselves with objects, that is, through self-involvement and commitment...'

■ **inelastic**

having an elasticity less than one. For a price elasticity of demand, this means that expenditure falls as price falls. For an income elasticity, it means that the expenditure share falls with income. Contrasts with elastic and unit elastic.

■ **inferior good**

a good for which the demand decreases when income increases. When a household's income goes up, it will buy a smaller quantity of such a good.

■ **informal economy**

a reference to those parts of the economy which operate without official recognition or with only ambiguous or tenuous ties to governmental institutions. Activities operating outside the regulatory and often also outside the taxation system.

■ **information literacy**

implicit in a full understanding of information literacy is the realisation that several conditions must be simultaneously present. First, someone must desire to know, use analytic skills to formulate questions, identify research methodologies, and utilise critical skills to evaluate experimental results. Second, the person must possess the skills to search for answers to those questions in increasingly diverse and complex ways. Third, once a person has identified what is sought, he should be able to access it.

■ **informational cascades**

economic actors improve on their limited private information by observing and mimicking the actions of others.

■ **infrastructure**

the facilities which must be in place in order for a country or area to function as an economy and as a state, including the capital needed for transportation, communication, and provision of water and power and the institutions needed for security, health and education.

■ **injury**

harm to an industry's owners and/or workers.

■ **input-output table**

a table representing all inputs and outputs of an economy's industries, including intermediate transactions, primary inputs, and sales to final users. As developed by Wassily Leontief, the table can be used to calculate gross outputs and primary factor inputs needed to produce specified net outputs. Leontief (1954) used this to find the factor content of U.S. trade, generating the Leontief Paradox.

■ **institutional thickness**

a reference to the institutional structure and qualities of institutions of a region, more specifically the presence, interaction, collective action (lack of inter-institutional conflict) and legitimacy of institutions in a region.

■ **instrument**

an economic variable that is controlled by policy makers and can be used to influence other variables, called targets. Examples are monetary and fiscal policies used to achieve external and internal balance.

■ **intelligent enterprise**

such enterprises that convert intellectual resources into a chain of service outputs and integrate these into a form most useful for certain customers.

■ **intensity of land use**

factor inputs (capital, labour, fertiliser, etc.) per unit area of land, generally yielding high returns per unit area of land, as, e.g., in 'intensive agriculture' (as different from 'extensive land use' and 'extensive agriculture').

■ **intensive**

of production, using a relatively large input of an input.

■ **intensive agriculture**

system of farming characterised by relatively high levels of factor inputs (capital [including fertiliser] and/or labour) per unit of land.

■ **interbank rate**

the rate of interest charged by a bank on a loan to another bank.

■ interest parity

equality of returns on otherwise identical financial assets denominated in different currencies. May be uncovered, with returns including expected changes in exchange rates, or covered, with returns including the forward premium or discount. Also called interest rate parity.

■ interindustry trade

trade in which a country's exports and imports are in different industries. Typical of models of comparative advantage, such as the Ricardian Model and Heckscher-Ohlin Model. Contrasts with intraindustry trade.

■ intermediate input

an input to production which has itself been produced and that, unlike capital, is used up in production. As an input, it is in contrast to a primary input and as an output, it is in contrast to a final good. A very large portion of international trade is in intermediate inputs.

■ intermediate transaction

the sale of a product by one firm to another, presumably to be used as an intermediate input.

■ internal balance

a target level for domestic aggregate economic activity, such as a level of GDP that minimises unemployment without being inflationary.

■ internal economies of scale

economies of scale that are internal to a firm, that is, the firm's average costs fall as its own output rises. Likely to be inconsistent with perfect competition. Contrasts with external economies of scale.

■ internalise

to cause, usually by a tax or subsidy, an external cost or benefit of someone's actions to be experienced by them directly, so that they will take it into account in their decisions.

■ international adjustment process

1. any mechanism for change in international markets.

2. the mechanism by which payment imbalances diminish under pegged exchange rates and nonsterilisation. Similar to the specie flow mechanism, ex-

change-market intervention causes money supplies of surplus countries to expand and vice versa, leading to price and interest rate changes that correct the current and capital account imbalances.

■ **international factor movement**

the international movement of any factor of production, including primarily labour and capital. Thus includes migration and foreign direct investment. Also may include the movement of financial capital in the form of international borrowing and lending.

■ **international macroeconomics**

same as international finance, but with more emphasis on the international determination of macroeconomic variables such as national income and the price level.

■ **International Monetary Fund (IMF)**

1. an organisation formed to help countries to stabilise exchange rates, but today pursuing a broader agenda of financial stability and assistance. As of July 2000, it had 182 member countries.

2. an international organisation with liquidity services to maintain financial stability.

■ **interoperability**

ability of diverse intelligent devices to communicate with one another in performing meaningful tasks.

■ **intra-firm (international) trade**

flow of imports and exports of goods and services across national boundaries between different components of a corporate network (e.g. between home-country parent firms and their foreign affiliates).

■ **Intraindustry trade (IIT)**

trade in which a country exports and imports in the same industry, in contrast to inter-industry trade. Ubiquitous in the data, much IIT is due to aggregation. Can be horizontal or vertical.

■ **intra-mediate trade**

another term for fragmentation. Used by Antweiler and Trefler (2002).

intra-product specialisation

another term for fragmentation. Used by Arndt (1997).

inventories

stocks of goods in the hands of producers. These stocks are included in the definition of capital and an increase in inventories is considered to be investment.

invertible

said of a matrix if its inverse exists. That is, a matrix A is invertible if there exists another matrix B such that BA=I, where I is the identity matrix.

investing

creating capital goods. Acquiring or producing structures, machinery and equipment or inventories.

investment spending

the total amount of spending during some period of time on capital goods.

invisible

with reference to international trade, used as a synonym for 'service'. 'Invisibles trade' is trade in services. Contrasts with visible.

invisible trade

(imports or exports of a region or country) trade in non-commodity services such as finance (banking, insurance etc.), communications, transportation or tourism.

involuntary unemployment

unemployment as result of deficiency in aggregate demand.

IS-Curve

in the IS-LM model, the curve representing the combinations of national income and interest rate at which aggregate demand equals supply for all goods. It is normally downward sloping because a rise in income increases output by more than aggregate demand (through consumption), while a rise in the interest rate reduces aggregate demand through investment.

ISI

Import-Substituting Industrialisation

IS-LM model

a Keynesian macroeconomic

model, popular particularly in the 1960s, in which national income and the interest rate were determined by the intersection of two curves, the IS-curve and the LM-curve.

■ **IS-LM-BP model**

a particular version of the Mundell-Fleming Model that extends the IS-LM model by including in the diagram a third curve, the BP-curve, representing the balance of payments and/or the exchange market.

■ **isocost line**

a line along with the cost of something — generally a combination of two factors of production — is constant. Since these are usually drawn for given prices, which are therefore constant along the line, an isocost line is usually a straight line, with slope equal to the ratio of the (factor) prices.

■ **isodapane**

points of equal additional transport costs around the minimum-total-transport-cost point.

■ **iso-price curve**

a curve along which price is (or prices are) constant, most commonly in factor-price space where it shows the combinations of prices of factors consistent with zero profit in producing a good at a specified price of the good.

■ **isoquant**

a curve representing the combinations of factor inputs that yield a given level of output in a production function.

■ **isostante**

term used by Tord Palander (following Schilling) to refer to the boundary between two market areas served by two market centres with varying prices and transport costs. The isostante specifies the points with equal delivered prices from both centres.

■ **isotim**

line connecting points which are subject to equal transport cost for given materials (or products) around a point of supply or around a market. Isotims are the basis for calculating aggregate 'isodapanes'.

■ **Israel-US Free Trade Area**

a free trade area between the

United States and Israel that was initiated in 1985.

■ J-curve

the dynamic path followed by the balance of trade in response to a devaluation, which typically causes the trade balance to worsen before it improves, tracing a path that looks like a letter 'J'.

■ Jensen's Inequality

if X is a real-valued random variable with E(|X|) finite and the function g() is convex, then E[g(X)] >= g(E[X]). Jensen's inequality is the inequality one can refer to when showing that an investor with a concave utility function prefers a certain return to the same expected return with uncertainty.

■ Jigyobusei (jp)

multidivisional system of organisation.

■ job lock

describes the situation of a person with a U.S. job who is not free to leave for another job because the first job has medical benefits associated with it which the person needs, and the second one would not, perhaps because 'pre-existing conditions' are often not covered under U.S. health insurance.

■ just-in-time

an organisational system of production designed to minimise the time and thereby associated cost between different stages of production as well as between initial expressions of demand and the delivery of goods or services. Just-in-time principles and methods were first applied by Japanese car manufacturers but have found wide application in other activities.

■ k percent rule

a monetary policy rule of keeping the growth of money at a fixed rate of k percent a year. This phrase is often used as stated, without specifying the percentage.

■ Kaldor-Hicks criterion

the criterion which, for a change in policy or policy regime to be viewed as beneficial, the gainers should be able to compensate the losers and still be better off. The criterion does not require that the compensation actually be paid, which, if it did, would make this the same as the Pareto criterion.

■ keiretsu system

the framework of relationships in post-war Japan's big banks and big firms. Related companies organised around a big bank (like Mitsui, Mitsubishi, and Sumitomo) which own a lot of equity in one another and in the bank and do much business with one another. The keiretsu system has the virtue of maintaining long term business relationships and stability in suppliers and customers. The keiretsu system has the disadvantage of reacting slowly to outside events since the players are partly protected from the external market.

■ kernel estimation

the estimation of a regression function or probability density function. Such estimators are consistent and asymptotically normal if as the number of observations n goes to infinity, the bandwidth (window width) h goes to zero, and the product nh goes to infinity.

■ Keynes effect

as prices fall, a given nominal amount of money will be a larger real amount. Subsequntly, the interest rate would fall and investment demanded rise. This Keynes effect disappears in the liquidity trap. Contrast the Keynes effect with the Pigou effect.

■ Keynesian growth models

models in which a long run growth path for an economy is traced out by the relations between saving, investing and the level of output.

■ Keynesian macroeconomics

the theory which shows how a market-based capitalist economy may reach equilibrium with large scale unemployment and how government spending may be used to raise it out of this to a new equilibrium at the full-employment level of output.

■ kitchen sink regression

a regression where the regressors are not in the opinion of the writer thoroughly 'justified' by an argument or a theory. Often used pejoratively; other times describes an exploratory regression.

■ k-nearest-neighbour estimator

it is a kind of nonparametric estimator of a function. Given a data set $\{X_i, Y_i\}$, it estimates values of Y for X's other than those in the sample. The process is to choose the k values of X_i nearest the X for which one seeks an estimate, and average their Y values. Here, k is a parameter to the estimator. The average could be weighted, e.g. with the closest neighbour having the most impact on the estimate.

■ knightian uncertainty

unmeasurable risk.

■ knots

if a regression will be run to estimate different linear slopes for different ranges of the independent variables, it's a spline regression, and the endpoints of the ranges are called knots. The spline regression is designed so that the resulting spline function, estimating the dependent variable, is continuous at the knots.

■ Kruskal's theorem

let X be a set of regressors, y be a vector of dependent variables and the model be: y=Xb+e where E[ee'] is the matrix OMEGA. The theorem is that if the column space of (OMEGA)X is the same as the column space of X; that is, that there is heteroskedasticity but not cross-correlation, then the GLS estimator of b is the same as the OLS estimator of b.

■ kurtosis

an attribute of a distribution, describing 'peakedness'. Kurtosis is calculated as $E[(x\text{-}mu)^4]/s^4$ where mu is the mean and s is the standard deviation.

■ Kuznets curve

a graph with measures of increased economic development (presumed to correlate with time) on the horizontal axis, and measures of income inequality on the vertical axis, hypothesised by Kuznets (1955) to have an inverted-U-shape. That is, Kuznets made the proposition that when an economy is primarily agricultural, it has a low level of income inequality, that during early industrialisation income inequality increases over time, then at some critical point it starts to decrease over time. Kuznets (1955) showed evidence for this.

■ **labour market outcomes**

shorthand for worker (never employer) variables that are often considered endogenous in a labour market regression. Such variables, which often appear on the right side of such regressions: wage rates, employment dummies or employment rates.

■ **labour-using**

a technological change or technological difference that is biased towards usage of more labour, compared to some definition of neutrality.

■ **LAD estimation / LAD estimator**

can be used to estimate a smooth conditional median function, that is an estimator for the median of the process given the data. Say the data are stationary $\{x_t, y_t\}$. The dependent variable is y and the independent variable is x. The criterion function to be minimised in LAD estimation for each observation t is:

$q(x_t,y_t,\square) = |y_t = m(x_t,\square)|$

where m() is a guess at the conditional median function.

■ **lag operator**

denoted by L, a lag operator operates on an expression by moving the subscripts on a time series back one period, so:

$Le_t = e_{t-1}$

■ **lagging indicator**

a measurable economic variable that varies over the business cycle, reaching peaks and troughs somewhat later than other macroeconomic variables such as GDP and unemployment. Contrasts with leading indicator.

■ **Lagrangian**

a function constructed in solving economic models that include maximisation of a function (the 'objective function') subject to constraints. It equals the objective function minus, for each constraint, a variable 'Lagrange multiplier' times the amount by which the constraint is violated.

■ **laissez faire economics**

a school of economics inspired by Adam Smith who believed that if we would just let the market function without any sort of intervention, competition would create order and eventually prosperity for all.

■ Laissez-faire

a economic theory advocating minimum role for government in the economy, such as providing for defence against external enemies, a system of law to protect individuals and their property, and production of such goods and services which for some reason are needed, but would not be produced by private firms.

■ large country

a country that is large enough for its international transactions to affect economic variables abroad, usually for its trade to matter for world prices. Contrasts with a small open economy.

■ Latin American Free Trade Association (LAFTA)

a group of Latin American countries formed in 1960, with the aim of establishing a free trade area. This aim was never achieved, and LAFTA was replaced in 1980 with the Latin American Integration Association.

■ Latin American Integration Association (LAIA)

an organisation of Latin American countries which replaced the failed LAFTA. LAIA has the more limited goal of encouraging free trade but with no timetable for achieving it.

■ law of comparative advantage

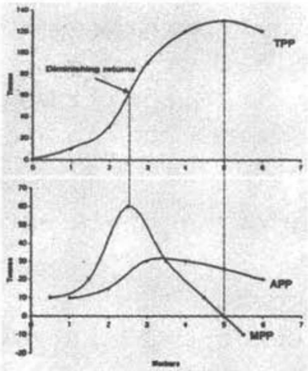
the principle which, given the freedom to respond to market forces, countries will tend to export goods for which they have comparative advantage and import goods for which they have comparative disadvantage, and that they will experience gains from trade by doing so.

■ law of diminishing marginal utility

as a person increases her consumption of a good or service (other consumption being held constant), the marginal utility of the good or service eventually will tend to decline.

■ law of diminishing returns

the principle that, in any production function, as the input of one factor rises, holding other factors fixed, the marginal product of that factor must eventually decline.



■ law of one price

the principle where identical goods should sell for the same price throughout the world if trade were free and frictionless.

■ LDC

for many years, the acronym LDC has stood for Less Developed Country, which was more or less the same as developing country. However, in recent years, LDC has also been used for Least Developed Country, which has a narrower and more formal definition.

■ leading indicator

a measurable economic variable which varies over the business cycle, reaching peaks and troughs somewhat earlier than other macroeconomic variables such as GDP and unemployment and therefore useful for forecasting them. Contrasts with lagging indicator.

■ learning by doing

refers to the improvement in technology that takes place in some industries, early in their history, as they learn by experience so that average cost falls as accumulated output rises.

■ learning curve

a relationship representing either average cost or average product as a function of the accumulated output produced. Usually reflecting learning by doing, the learning curve shows cost falling, or average product rising.

■ learning curve effects

cost reductions resulting from skill improvements based on repetitive (usually production related) experiences.

■ learning objective

a written statement describing

measurable achievements you hope can be accomplished during your class experience or any other definable learning activity.

■ learning organisation

an organisation that is continually expanding its capacity to create its future. A learning organisation is not merely trying to survive, i.e. engage in adaptive learning, but it adds 'generative learning'.

■ learning web

an integrated system of Internet-based, hypertextually organised course or program materials, resources, links to resources and communication opportunities designed to facilitate learning environments and processes.

■ least squares learning

the kind of learning that an agent in a model exhibits by adapting to past data, by running least squares on it to estimate a hypothesised parameter and behaving as if that parameter were correct.

■ lemons model

describes models like that of Akerlof's 1970 paper, in which the fact where a good is available suggests that it is of low quality. For example, why are used cars for sale? In many cases because they are 'lemons', that is, they were problematic to their previous owners.

■ lender of last resort

the function whereby the central bank readily makes cash advances to commercial banks in the event they misjudge their cash reserve requirements.

■ Leontief composite

a composite of two or more goods or factors which includes them in fixed proportions, analogous to the Leontief technology.

■ Leontief paradox

the finding of Leontief (1954) that U.S. imports embodied a higher ratio of capital to labour than U.S. exports. This was surprising because it was thought that the U.S. was capital abundant, and the Heckscher-Ohlin Theorem would then predict that U.S. exports would be relatively capital intensive.

■ Leontief Production Function

has the form q=min{x1,x2}, where q is a quantity of output and x1 and x2 are quantities of inputs or functions of the quantities of inputs.

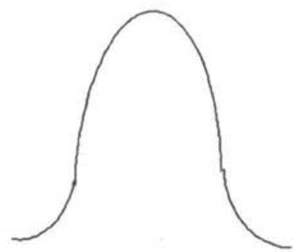
■ Leontief technology

a production function in which no substitution between inputs is possible: F(V) = mini(Vi/ai), where V is a vector of inputs Vi, and ai are the constant per unit input requirements. Isoquants are L-shaped.

■ leptokurtic

an adjective describing a distribution with high kurtosis. 'High' means the fourth central moment is more than three times the second central moment, such a distribution has greater kurtosis than a normal distribution. This term is used in Bollerslev-Hodrick 1992 to characterise stock price returns. Lepto- means 'slim' in Greek and refers to the central part of the distribution.

Leptokurtic



■ Lerman Ratio

a government benefit to the underemployed will presumably reduce their hours of work. The ratio of the actual increase in income to the benefit is the Lerman ratio, which is ordinarily between zero and one. Moffitt (1992) estimates it in regard to the U.S. AFDC program at about .625.

■ Lerner Diagram

this diagram, drawn for given prices and technology, uses unit-value isoquants of two or more goods to deduce patterns of specialisation and factor prices as they depend on factor endowments. Due originally to Lerner (1952) and popularised by Findlay and Grubert (1959).

■ Lerner Index

a measure of the profitability of

a firm that sells a good: (price - marginal cost) / price.

One estimate, from Domowitz, Hubbard, and Petersen (1988) is that the average Lerner index for manufacturing firms in their data was .37.

■ Lerner paradox

the possibility, identified by Lerner (1936), where a tariff might worsen a country's terms of trade. This can happen only if the country spends a disproportionately large fraction of the tariff revenue on the imported good, and it will not happen (from a stable equilibrium) if the tariff revenue is redistributed.

■ Lerner Symmetry Theorem

the proposition where a tax on all imports has the same effect as an equal tax on all exports, if the revenue is spent in the same way. The result depends critically on balanced trade, as in a real model, so that a change in imports leads to an equal change in the value of exports. Due to Lerner (1936).

■ Lerner-Pearce Diagram

this name is sometimes given to the Lerner Diagram. In fact, Pearce's (1952) diagram uses unit isoquants rather than unit value isoquants and is much more cumbersome.

■ leverage ratio

often, the ratio of debts to total assets. Can also be the ratio of debts (or long-term debts in particular, excluding for example accounts payable) to equity.

Normally used to describe a firm's accounts but could describe the accounts of some other organisation or an individual or a collection of organisations

■ Leveraged Buy-Out (LBO)

the act of taking a public company private by buying it with revenues from bonds and using the revenues of the company to pay off the bonds.

■ Leviathan

the all-powerful kind of state that Hobbes thought 'was necessary to solve the problem of social order.

■ Likert Scale

measures the extent to which a

person agrees or disagrees with the question in a survey (e.g. 1=strongly disagree, 2=disagree, 3=not sure,4=agree, and 5=strongly agree).

■ limited dependent variable

a dependent variable in a model is limited if it is discrete (can take on only a countable number of values) or if it is not always observed because it is truncated or censored.

■ linear model / linear econometric model

an econometric model is linear if it is expressed in an equation in which the parameters enter linearly, whether or not the data require nonlinear transformations to get to that equation.

■ linear pricing schedule

say the number of units, or quantity, paid for is denoted q and the total paid is denoted T(q), following the notation of Tirole. A linear pricing schedule is one that can be characterised by T(q)=pq for some price-per-unit p.

■ linear transport cost function

a reference to a theoretical, linear mathematical function, generally involving the variables like the total transport costs and the distance. The function would be linear if it is suggested that the increase in transport cost is proportional to the increase in distance. Linearity may exist with or without terminal (or distance-fixed) cost. The latter would result in a curvi-linear, downward sloping average transport-cost function.

In general, non-linear total transport costs with declining marginal distance costs would tend to make long-haul transportation relatively inexpensive and might create the incentive to select locations which reduce the number of short-haul links and take advantage of the 'distance-economies' of (fewer but) long hauls.

■ linearly homogeneous

homogeneous of degree 1. Sometimes called linear homogeneous.

■ linking scheme

a requirement that, in order to get an import license, the importer must buy a certain amount of the same product from local producers.

■ liquidity

the capacity to turn assets into cash, or the amount of assets in a portfolio that have that capacity. Cash itself (i.e., money) is the most liquid asset.

■ liquidity constraint

many households or families, e.g. young ones, cannot borrow to consume or invest as much as they would want, but are constrained to current income by imperfect capital markets.

■ little giants

a reference to those medium-sized firms which are technologically and organisationally particularly innovative and forward-looking in terms of employee relations. In contrast to corporate giants, such medium-sized firms are more entrepreneurial, less bureaucratic, with fewer managerial layers.

■ living wage

a wage which allows families to meet their basic needs without resorting to public assistance and provides them some ability to deal with emergencies and plan ahead. It is not a poverty wage.

■ Ljung-Box Test

the same as the portmanteau test.

■ LM-Curve

in the IS-LM model, the curve representing combinations of income and interest rate at which demand for money equals the money supply in the domestic money market. It is normally upward sloping because an increase in income increases the demand for money while an increase in the interest rate reduces the demand for money.

■ local optimum

an allocation where by some criterion is better than all those in its neighbourhood.

■ locality

localisation economies or external economies of localisation. Agglomeration economies (benefits, cost reductions) resulting from the concentration of the same or similar activities: eg. benefits resulting from the local access to a specialised work force or the specialised reputation of a locality to which some but maybe not all of these specialised activities contribute.

■ Locally Asymptotically Normal (LAN)

a characteristic of many ('a family of') distributions.

■ locally identified

linear models which are either globally identified or there are an infinite number of observably equivalent ones. But for models that are nonlinear in parameters, 'we can only talk about local properties'. Thus, the idea of locally identified models, which can be distinguished in data from any other 'close by' model. 'A sufficient condition for local identification is that' a certain Jacobian matrix is of full column rank.

■ locally nonsatiated / local nonsatiation

an agent's preferences are locally nonsatiated if they are continuous and strictly increasing in all goods.

■ location decisions and locational decision-making

decisions and behaviours related to locational choices.

■ location quotient

a measure of the relative significance of a phenomenon (e.g. employment in software activities) in a region compared with its significance in a larger ('benchmark') region. A high location quotient for a specific activity implies specialisation and the export of the goods or services produced by the activity.

■ locational advantage

any reason for a firm to locate production, or a stage of production, in a particular place, such as availability of a natural resource, transport cost, or barriers to trade. May explain why a country's firms succeed in trade, or why a multinational firm locates there.

■ locational triangle

the triangle which has been devised and used by Wilhelm

Launhardt and Alfred Weber to construct their basic locational model. This model was used to demonstrate the impact of the forces of attraction of three (in a polygon more) reference locations (originally 2 raw material locations and one market) vis-a-vis the (dependent) optimal (=least-transport-cost) location of a processing plant. Subsequently, the triangle was used by Isard and Moses to demonstrate the impact of substitution between distances and/or materials, and by Beyers and Krumme substitution between products (outputs) on optimal locations.

■ locomotive effect

the effect that economic expansion in one large country can have on other parts of the world economy, causing them to expand as well, as the large country demands more of their exports.

■ log concavity

a function f(w) is said to be log-concave if its natural log, ln(f(w)) is a concave function; i.e., assuming f is differentiable, $f''(w)/f(w) - f'(w)^2 <= 0$ Since log is a strictly concave function, any concave function is also log-concave.

A **random variable** is said to be log-concave if its density function is log-concave. The uniform, normal, beta, exponential, and extreme value distributions have this property. If pdf f() is log-concave, then so is its cdf F() and 1-F(). The truncated version of a log-concave function is also log-concave. In practice, the intuitive meaning of the assumption that a distribution is log-concave is that (a) it doesn't have multiple separate maxima (although it could be flat on top), and (b) the tails of the density function are not 'too thick.'

An equivalent definition, for vector-valued random variables, is in Heckman and Honore, Random vector **X** is log-concave iff its density

f() satisfies the condition that $f(ax_1 + (1-a)x_2) . [f(x_1)]^a[f(x_2)]^{(1-a)}$ for all x_1, and x_2 in the support of **X** and all a satisfying 0.a.1.

■ log convexity

a random variable is said to be log-convex if its density function is log-concave. Pareto distributions with finite means and variances have this property, and so do gamma densities with a coefficient of variation greater than one.

A log-convex random vector is one whose density f() satisfies the condition that $f(ax_1+(1-a)x_2)$. $[f(x_1)]^a[f(x_2)]^{(1-a)}$ for all x_1, and x_2 in the support of **X** and all a satisfying 0.a.1.

■ log or natural log

in economics, log always means 'natural log', that is $\log_e$, where e is the natural constant that is approximately 2.718281828. So x=log y <=> $e^x=y$.

■ logical omniscience

an assumption underlying the information facets of most micro-economic models: If an agent has knowledge of a phenomenon, he/she also has perfect knowledge of all its implications.

■ L^1

the set of Lebesgue-integrable real-valued functions on [0,1].

■ L^2

a Hilbert space with inner product (x,y) = integral of x(t)y(t) dt.

Equivalently, L^2 is the space of real-valued random variables that have variances. This is an infinite dimensional space.

■ L^n

the set of continuous bounded functions with domain R^N.

■ logistic distribution

a logistic distribution has the cdf $F(x) = 1/(1+e^{-x})$

This distribution is quicker to compute than the normal distribution but is very similar. Another advantage over the normal distribution is that it has a closed form cdf.

pdf is $f(x) = e^x(1+e^x)^{-2} = F(x)F(-x)$

■ logit model

a univariate binary model. i.e., for dependent variable y_i that can be only one or zero, and a continuous indepdendent variable x_i, that:

$Pr(y_i=1)=F(x_i'b)$

Here, b is a parameter to be estimated, and F is the **logistic** cdf. The probit model is the same but with a different cdf for F.

■ lognormal distribution

let X be a random variable with a standard normal distribution. Then, the variable $Y=e^X$ has a lognormal distribution. Example: Yearly incomes in the United States are roughly log-normally distributed.

■ Lomé Convention

an agreement originally signed in 1975 committing the EU to programs of assistance and preferential treatment for the ACP Countries. The Lomé Convention was replaced by the Cotonou Agreement in June 2000.

■ London Interbank Offered Rate (LIBOR)

the interest rate which the largest international banks charge each other for loans, usually of Eurodollars. In fact, LIBOR includes rates quoted each day for many currencies, excluding the euro, but it is the rate for dollar loans that is used as a benchmark for other transactions.

■ long run average costs

total costs divided by the number of units of output. The long run average cost curve plots the relationship between output and the lowest possible average total cost when all inputs can be varied.

■ long run costs

production costs when the firm is using its economically most efficient size of plant.

■ longitudinal data

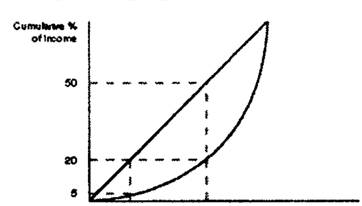
a synonym for panel data.

■ long-term capital

in the capital account of the balance of payments, long-term capital movements include FDI and movements of financial capital with maturity of more than one year (including equities).

■ Lorenz curve

a curve indicating the cumulative percentage of income plotted against the cumulative percentage of population.



■ Louvre Accord

an agreement reached in 1987

among the central banks of France, Germany, Japan, US, and UK to stop the decline in the value of the US dollar that they had initiated at the Plaza Accord.

■ love of variety

preference for variety.

■ lump sum

a tax or subsidy which does not distort behaviour. By using a tax (or subsidy) in an amount (the lump sum) independent of any aspect of the payer's or recipient's behaviour, it does not alter behaviour. Nondistorting lump sum taxes and subsidies do not exist, but are a convenient fiction for theoretical analysis, especially of gains from trade.

■ lump sum taxes

a tax of a fixed amount that has to be paid by everyone regardless of the level of his or her income. Lump sum taxes are considered efficient taxes because they do not influence a person's decision on how much to work.

■ M1 Money Supply

a measure of total money supply. M1 includes only chequable demand deposits.

■ M2 Money Supply

a measure of total money supply. M2 includes everything in M1 and also savings and other time deposits.

■ macroeconomics

the branch of economic theory concerned with the economy as a whole. It deals with large aggregates such as total output, rather than with the behaviour of individual consumers and firms.

■ made-to-measure tariff

a tariff set so as to raise the price of an imported good to the domestic price, so as to leave domestic producers unaffected. Also called a scientific tariff.

■ magnification effect

the property of the Heckscher-Ohlin Model where changes in certain exogenous variables lead to magnified changes in the corresponding endogenous variables: goods prices as they affect factor prices in the Stolper-Samuelson Theorem; factor endowments as they affect outputs in the Rybczynski

Theorem. Due to Jones (1965).

■ **managed float**

an exchange rate regime in which the rate is allowed to be determined in the exchange market without an announced par value as the goal of intervention, but the authorities do nonetheless intervene at their discretion to influence the rate.

■ **Management Buy-Out / Management by Objectives (MBO)**

the purchase of a company by its management. Sometimes means Management By Objectives, a goal-oriented personnel evaluation approach.

■ **Maquiladora**

this is a program for the temporary importation of goods into Mexico without duty, under the condition that they contribute — through further processing, transformation, or repair — to exports. The program was established in 1965 and expanded in 1989.

■ **marginal benefit**

the increase in total benefit consequent upon a one unit increase in the production of a good.

■ **marginal principle**

to maximise the net benefits, the strategic or action variable should be increased until MB = MC, i.e. marginal benefits equal marginal costs.

■ **marginal propensity to import**

the increase in expenditure on imports per unit increase in (disposable) income.

■ **marginal propensity to save**

the increase in saving per unit increase in (disposable) income.

■ **marginal rate of substitution**

1. generally referring to the rate at which the consumer is willing to substitute one good for another (without loss or gain of satisfaction).

2. the rate at which factor inputs can be exchanged in a production process without a change in the production (output) level.

■ **marginal rate of transformation**

the increase in output of one good made possible by a one-unit decrease in the output of another, given the technology and factor endowments of a country. Thus, the absolute value of the slope of the transformation curve.

■ **marginal revenue**

the addition to total revenue resulting from the sale of one additional unit of output.

■ **marginal revenue product**

the change in total revenue which results from employing one more unit of a factor.

■ **market clearing**

equality of supply and demand. A market-clearing condition is an equation (or other representation) stating that supply equals demand.

■ **market equilibrium**

equality of supply and demand.

■ **market failure**

1. instances of a free market being unable to achieve an optimum allocation of resources.

2. any departure from the ideal benchmark of perfect competition, particularly the complete absence of a market due to incomplete or asymmetric information.

■ **market for corporate control**

when shares of public firms are traded and in large enough blocks, this means control over corporations is traded. That puts some pressure on managers to perform, otherwise their corporation can be taken over.

■ **market power**

1. the power held by a firm over price and the power to subdue competitors.

2. a continuum from *perfectly competitive* to monopsony and there's an extensive practice/industry/science of measuring the degree of market power.

Examples: For workers in an isolated company town, created by and dominated by one employer, that employer is a monopsonist for some kinds of employment.

■ **market power theory of advertising**

the theory of advertising is that established firms use advertising as a barrier to entry through product differentiation. Such a firm's use of advertising differentiates its brand from other brands to a degree that consumers see that its brand is a slightly different product, not perfectly substituted by existing or potential competitors. This makes it hard for new competitors to gain consumer acceptance.

■ market price of risk

is a synonym for the Sharpe ratio.

■ market structure

the way that suppliers and demanders in an industry interact to determine price and quantity. There are four main idealised market structures that have been used in trade theory: perfect competition, monopoly, oligopoly, and monopolistic competition.

■ marketing board

a form of state trading enterprise. A marketing board typically buys up the domestic supply of a good and sells it on the international market.

■ Markov Process

a stochastic process where all the values are drawn from a discrete set. In a first-order Markov process, only the most recent draw affects the distribution of the next one; all such processes can be represented by a Markov transition density matrix. A Markov process can be periodic only if it is of higher than first order.

■ Markov Property

a property that a set of stochastic processes may have. The system has the Markov property if the present state predicts future states as well as the whole history of past and present states — that is, the process is memoryless.

■ Markov Strategy

in a game, a Markov strategy is one which does not depend at all on state variables that are functions of the history of the game except those that affect payoffs.

■ Markov's Inequality

if Y is a nonnegative random variable, i.e., if $Pr(Y<0)=0$, and k is any positive constant, then $E(Y) = kPr(Y = k)$.

■ markup

1. the amount (percentage) by which price is in excess of marginal cost. A profit-maximising

seller facing a price elasticity of demand, h will set a markup equal to (p-c)/p=1/h. One effect of international trade that increases competition is to reduce markups.

2. in WTO terminology, sometimes used for the extent to which an applied tariff exceeds the bound rate.

3. the ratio of price to marginal cost. Can be used as a measure of market power across firms, industries, or economies.

■ Marshallian Demand Function

denoted x(p,m), it is the amount of a factor of production which is demanded by a producer given that it costs p per unit and the budget limit that can be spent on all factors is m. p and x can be vectors.

■ Marshall-Lerner condition

the condition where sum of the elasticities of demand for exports and imports exceed one (in absolute value); that is, hX + hM > 1, where hX, hM are the demand elasticities for a country's exports and imports respectively, both defined to be positive for downward sloping demands. Under certain assumptions, this is the condition for a depreciation to improve the trade balance, for the exchange market to be stable and for international barter exchange to be stable.

■ mass production

a production system characterised by mechanisation, high wages, low prices, and large-volume output.

■ Matlab

a matrix programming language and programming environment. Used more by engineers but increasingly by economists.

■ matrix multiplications

the multiplication of matrices or vectors is 'commutative', i.e. the order of the multiplicand and the multiplier cannot be altered as is the case in regular multiplications. The process of multiplication of matrices proceeds by multiplying (more exactly: 'post-multiplying') horizontal vectors by vertical vectors. The sum of the products of this multiplication of corresponding numbers of the respective vectors results in a number which is placed in the position of the resulting matrix (or vector) where the two vectors would intersect (overlap).

Thus,

horizontal vector x vertical vector = a number

vertical vector x horizontal vector = matrix

matrix x vertical vector = vertical vector

horizontal vector x matrix = horizontal vector

matrix A x matrix B = matrix C

matrix B x matrix A = matrix D

■ maturity date

the maturity date of a financial asset is the date at which that asset is converted into a specified amount of money or physical assets.

■ maximum price system

similar to a minimum price system, except that the price specified is the highest, rather than the lowest, permitted for an imported good.

■ maximum revenue tariff

a tariff set to collect the largest possible revenue for the government.

■ median voter theorem

the proposition where political parties will tend to adopt moderate policies to appeal to voters near the middle of the political spectrum.

■ mental models

one of Senge's five learning disciplines for the learning organisation: 'reflecting upon, and continually clarifying, and improving our internal pictures of the world, and seeing how they shape our actions and decisions.'

■ mercantilism

an economic doctrine of the 16th and 17th centuries that international commerce should primarily serve to increase a country's financial wealth, especially of gold and foreign currency. To that end, exports are viewed as desirable and imports as undesirable unless they lead to even greater exports.

■ merchandise trade

exports and imports of goods. Contrasts with trade in services.

■ MERCOSUR

a common market among Argentina, Brazil, Paraguay and Uruguay, known as the 'Common Market of the South' ('Mercado Comun del Sur'). It was created by the Treaty of Asunción on March 26, 1991, and added Chile and Bolivia as associate members in 1996 and 1997.

■ M-Estimators

estimators that maximise a sample average. The 'm' means 'maximum-likelihood-like'.

■ metatheorem

an informal term for a proposition which can be proved in a class of economic model environments.

■ method of moments estimation

a way of generating estimators: set the distribution moments equal to the sample moments, and solve the resulting equations for the parameters of the distribution.

■ Metzler paradox

the possibility, identified by Metzler (1949), that a tariff may lower the domestic relative price of the imported good. This will happen if it drives the world price down by even more than the size of the tariff, as it may do if the foreign demand for the importing country's export good is inelastic.

■ micro-micro theory:

concerned with the 'study of what goes on inside the black box' (i.e. the artefact of classical micro-economic theory of the firm).

■ milestones

subprojects where a project is broken up (to be able to monitor development progress and adhere to deadlines.

■ milestone stabilisations:

while there may be some freedom to make changes to the design of an evolving product, there is a need to adhere to intermittent milestone deadlines.

■ millennium round

the name suggested by the European Union for the trade round which they and others hoped would be initiated at the Seattle Ministerial in 1999. That ministerial ended without agreement to start a new round.

■ Mill's test

one of two conditions needed for infant industry protection to be welfare-improving. This requires that the protected industry become, over time, able to compete internationally without protection.

■ minimum efficient scale

the smallest output of a firm consistent with minimum average cost. In small countries, in some industries the level of demand in autarky is not sufficient to support minimum efficient scale.

■ Ministry of Economy, Trade and Industry (METI)

the Japanese government ministry which deals with economic issues, including the vitality of the private sector, external economic relations, energy policy, and industrial development.

■ Ministry of International Trade and Industry (MITI)

the Japanese government ministry which deals with trade and industrial policies. Established in 1949 as the Ministry of Commerce and Industry, MITI was renamed METI as of January 6, 2000.

■ mixing regulation

1. specification of the proportion of domestically produced content in products sold on the domestic market.

2. specification of an amount of domestically produced product that must be bought by an importer for given quantities of imports, under a linking scheme.

■ mobile and immobile factors of production ('factor mobility')

the mobility between different uses or occupations of factors of production (land, labour, capital, etc.).

■ mode of supply

the method by which suppliers of internationally traded services deliver their service to buyers. The four modes usually identified are: cross-border supply, consumer movement, producer presence and movement of natural persons.

■ monetarism

a view where market economies are inherently self-stabilising and that variations in the quantity of money are the main cause of fluctuations in the level of aggregate demand.

■ monetarist view

in extreme form, the monetarist view is the view where only the quantity of money matters by way of aggregate demand policy. Relevant only in an overheated economy.

■ monetary base

the same as high-powered money. It refers to the cash in commercial banks, plus cash in circulation and deposits of the commercial bank at the central bank.

■ money income

nominal income.

■ money market

the money market, in macroeconomics and international finance, refers to the equilibration of demand for a country's domestic money to its money supply. Both refer to the quantity of money that people in the country hold (a stock), not to the quantity that people both in and out of the country choose to acquire during a period in the exchange market, mostly for the purpose of then using it to buy something else.

■ money overhang

a money supply which is larger than what people want to hold at prevailing prices. This was said to be a major cause of inflation in Russia after the fall of the Soviet Union, which left an excess of money in circulation.

■ money supply

there are several formal definitions, but all include the quantity of currency in circulation plus the amount of demand deposits. The money supply, together with the amount of real economic activity in a country, is an important determinant of its price level and its exchange rate.

■ monopolistic competition

essentially the same as imperfect competition. A market situation in which one or more firms may be capable of influencing the price of the product. It is characterised by product differentiation, often established through advertising.

monopoly argument

the monopoly argument for a tariff is the same as the optimal tariff argument. It gets its name from the fact that a country using a tariff to improve the terms of trade is acting much like a monopoly firm, restricting its sales to get a better price.

monopsonistic firm

a firm that is the sole buyer of a good or service, most likely of labour in a particular market.

monopsony

a state where demand comes from one source. If there is only one customer for a certain good, that customer has a monopsony in the market for that good. Analogous to monopoly, but on the demand side not the supply side. A common theoretical implication is that the price of the good is pushed down near the cost of production. The price is not predicted to go to zero because if it went below where the suppliers are willing to produce, they won't produce.

Monte Carlo Simulations

the data obtained by simulating a statistical model in which all parameters are numerically specified.

One might use Monte Carlo simulations to check how an estimation procedure would behave, for example under conditions when exact analytic descriptions of the performance of the estimation are not algebraically feasible or when one wants to verify that one's analytic calculation for a confidence interval is correct.

moral hazard

the tendency of individuals, firms, and governments, once insured against some contingency, to behave so as to make that particular contingency more likely. A pervasive problem in the insurance industry, it also arises internationally when international financial institutions assist countries in financial trouble.

morbidity

an incidence of ill health. It is measured in various ways, often by the probability that a randomly selected individual in a population at some date and location would become seriously ill in some period of time. Contrast to mortality.

■ mothballing

the preservation of a production facility without using it to produce, but keeping the machinery in working order and supplies available. This may be preferable — if the facility's operating costs are high and the aim is to have it available in time of war — to having it produce in peacetime under a subsidy or import protection.

■ movement of natural persons

one of four modes of supply under the GATS, this involves the temporary movement across national borders of natural persons employed by or associated with a firm in order to participate in the firm's business. Also called temporary producer movement.

■ multi-cone equilibrium

a free-trade equilibrium in the Heckscher-Ohlin Model in which prices are such that all goods cannot be produced within a single country, and instead there are multiple diversification cones. This, or a two cone equilibrium, will arise if countries' factor endowments are sufficiently dissimilar compared to factor intensities of industries. Contrasts with one cone equilibrium.

■ multifactor model

a model with more than two factors. In the context of trade theory, this is likely to mean a Heckscher-Ohlin Model with more than two factors.

■ multi-factor productivity(MFP)

same as total factor productivity, a certain type of Solow residual.

$$MFP = d(\ln f)/dt = d(\ln Y)/dt - s_L d(\ln L)/dt - s_K d(\ln K)/dt$$

where f is the global production function; Y is output; t is time; s_L is the share of input costs attributable to labour expenses; s_K is the share of input costs attributable to capital expenses; L is a dollar quantity of labour; K is a dollar quantity of capital.

■ Multifiber Arrangement (MFA)

an agreement (OMA) amongst developed country importers and developing country exporters of textiles and apparel to regulate and restrict the quantities traded. It was negotiated in 1973 under GATT auspices as a temporary exception to the rules that would otherwise apply, and was superceded in 1995 by the ATC.

■ multifunctionality

the purposes that an industry may serve in addition to producing its output. Most often applied to agriculture by countries that wish to subsidise it, who argue that subsidies are needed to serve these other purposes, such as rural viability, land conservation, cultural heritage, etc.

■ Multilateral Agreement on Investment (MAI)

an agreement to liberalise rules on international direct investment that was negotiated in the OECD but could not be completed or adopted because of adverse public reaction to it. Preliminary text of the agreement was leaked to the Internet in April 1997, where many groups opposed it. Negotiations were discontinued in Novemer 1998.

■ Multilateral Investment Guarantee Agency (MIGA)

one of the five institutions that form the World Bank Group, MIGA helps encourage foreign investment in developing countries.

■ multiplier

1. a numerical coefficient which relates the change of a component of aggregate demand (such as the export demand for a region's products) to a consequent change in income (or employment).

2. in Keynesian macroeconomic models, the ratio of the change in an endogenous variable to the change in an exogenous variable. Usually means the multiplier for government spending on income. In the simplest Keynesian model of a closed economy, this is 1/s, where s is the marginal propensity to save.

■ multiplier effect

the tendency for a change in aggregate spending to cause a more than proportionate change in the level of real national income.

■ multistage production

another term for fragmentation. Used by Dixit and Grossman (1982).

■ multivariate discrete choice model

a discrete choice model in which the choice is made from a set with more than one dimension is said to be a multivariate discrete choice model.

■ Mundell-Fleming Model

an open-economy version of the IS-LM model that allows for international trade and international capital flows. Due to Mundell (1962,63) and Fleming (1962).

■ Mundell-Tobin Effect

says that nominal interest rates would rise less than one-for-one with inflation because in response to inflation, the public would hold less in money balances and more in other assets, which would drive interest rates down.

■ mutual recognition

the acceptance by one country of another country's certification that a satisfactory standard has been met for ability, performance, safety, etc.

■ mystery of the missing trade

the empirical observation, by Trefler (1995), for the amount of trade which is far less than predicted by the HOV version of the Heckscher-Ohlin Model. More precisely, the factor content of trade is far less than the differences between countries in their factor endowments.

■ Nash

used as an adjective applied to a strategy in a game, this means that it is part of a Nash equilibrium.

■ Nash equilibrium

an equilibrium in game theory where each player's action is optimal, given the actions of the other players. E.g., in a tariff-and-retaliation game, with each country able to improve its terms of trade with a tariff, zero tariffs are not Nash, since each can do better by raising its tariff. A Nash equilibrium, with positive tariffs, is likely to be inferior to free trade for both.

■ National defence argument for protection

the argument that imports should be restricted in order to sustain a domestic industry so that it will be available in case of trade disruption due to war. This is a second best argument, since there are a variety of ways of providing for defence at lower economic cost, including production subsidies, mothballing, and stockpiling.

■ **national income**

1. the general term used to refer to the total value of a country's output of goods and services in some accounting period, without specifying the formal accounting concept such as Gross Domestic Product.

2. the income generated by a country's production, and therefore the total income of its factors of production. Except for some adjustments that don't usually enter theoretical models, NI is the same as GDP.

■ **national income (GDP) deflator**

a general way of referring to the price index that measures the average level of the prices of all the goods and services comprising the national income or GDP.

■ **national treatment**

the principle of providing foreign producers and sellers the same treatment provided to domestic firms.

■ **natural increase**

growth of the population due to an excess of births over deaths.

■ **natural monopoly**

a market situation where economies of scale are such that a single firm of efficient size is able to supply the entire market demand.

■ **natural person**

this term appears in the GATS and it deals with the international movement of employees of firms that are providing services in another country. Persons are called 'natural' to distinguish them from 'juridical persons', such as partnerships or corporations, that are given certain rights of persons under the law.

■ **natural rate of unemployment**

the rate of unemployment which would exist when the economy is operating at full capacity. It would be equal to the amount of frictional unemployment in the system.

■ natural trade

trade which is either free or restricted, but that is not artificially encouraged by subsidies or other stimulants.

■ necessity test

a procedure to determine whether a trade restriction intended to serve some purpose is necessary for that purpose.

■ negative externality

a harmful externality, i.e., a harmful effect of one economic agent's actions on another. Considered a distortion because the first agent has inadequate incentive to curtail their action. Examples are pollution from factories (a production externality) and smoke from cigarettes (a consumption externality).

■ negative introspection

implicit assumption of most decision models: If an agent does not know something than he/she, however, knows that he/she does not know it.

■ negative list

in an international agreement, a list of those items, entities, products, etc. to which the agreement will not apply, the commitment being to apply the agreement to everything else. Contrasts with positive list.

■ neighbourhood production structure

a structure of technology for a general equilibrium model due to Jones and Kierzkowski (1986). With an arbitrary but equal number of goods and factors, each factor produces two (different) goods, each good uses two (different) factors, in a way that yields more unambiguous results than one normally finds in high-dimension trade models without specific factors.

■ neighbourhood

in mathematical Euclidean space, a small set of points surrounding and including a particular point. Thus, for an economic variable, such as an allocation, the neighbourhood of a particular allocation includes all those allocations that are sufficiently similar to it.

■ Nemawashi (jp)

a Japanese term that refers to the practice of broad consultation before taking action.

neoclassical

a collection of assumptions customarily made by mainstream economists starting in the late 19th century, including profit maximisation by firms, utility maximisation by consumers, and market equilibrium, with corresponding implications for determination of factor prices and the distribution of income. Contrasts with classical, Keynesian, and Marxist.

neoclassical economics

most of modern, mainstream economics based on neoclassical assumptions. Tends to ascribe inevitability, if not necessarily desirability, to market outcomes.

neoclassical growth model

a model of economic growth where income arises from neoclassical production functions in one or more sectors displaying diminishing returns to saving and capital accumulation. Due to Solow (1956) and Swan (1956).

neoclassical production function

a production function with the properties of constant returns to scale and smoothly diminishing returns to individual factors.

neoliberalism

a view of the world which favours social justice while also emphasising economic growth, efficiency, and the benefits of free markets.

Net Domestic Product (NDP)

gross domestic product minus depreciation.

Net National Product (NNP)

gross national product minus depreciation.

net present value

same as present value, being sure to include (negative) payments as well as (positive) receipts.

neutral

1. said of a technological change or technological difference if it is not disproportionately in favour of using more or less of one factor than another. This can be defined in several different ways that are not normally equivalent: Hicks-neutral, Harrod-neutral, and

Solow-neutral.
2. said of economic growth if it expands actual or potential output of all goods at the same rate, not being biased in favour of one over another. In the Heckscher-Ohlin Model neutral growth will occur if all factor endowments grow at the same rate or if there is Hicks Neutral technological progress at the same rate in all industries.
3. said of a trade regime if the structure of protection favours neither exportables nor importables.

■ new bancor

a proposed new non-national world currency to be used for payment and reserve purposes, to be issued by the IMF and intended to maintain a fixed purchasing power in the dollar and euro countries.

■ new economic geography

the study of the location of economic activity across space, particularly a strand of literature begun by Krugman (1991a) using agglomeration economies to help explain why industries cluster within particular countries and regions.

■ new economy

this term was used in the late 1990's to suggest that globalisation and/or innovations in information technology had changed the way that the world economy works. Conjectures included changes in productivity, the inflation-unemployment tradeoff, the business cycle, and the valuation of enterprises.

■ new trade theory

models of trade that, particularly in the 1980s, incorporated aspects of imperfect competition, increasing returns, and product differentiation into both general equilibrium and partial equilibrium models of trade and trade policy. Many contributed to this literature, but the most prominent was Krugman, starting with Krugman (1979).

■ Newly Industrialising Country (NIC)

a group of countries previously regarded as LDCs which have recently achieved high rates and levels of economic growth.

■ nominal

1. in the form most directly

observed or named, in contrast to a form that has been adjusted or modified in some fashion.

2. as measured in terms of money, usually in contrast to real.

■ **nominal exchange rate**

the actual exchange rate where currencies are exchanged on an exchange market. Contrasts with real exchange rate.

■ **nominal interest rate**

the interest rate actually observed in the market, in contrast to the real interest rate.

■ **nominal rate of protection**

the protection afforded an industry directly by the tariff and/or NTB on its output, ignoring effects of other trade barriers on the industry's inputs. Contrasts with the ERP.

■ **nominal tariff**

the nominal protection provided by a tariff, i.e., the tariff itself. Contrasts with effective tariff.

■ **non-actionable subsidy**

a subsidy which is permitted by the rules of the WTO, thus not subject to countervailing duties. These include non-specific subsidies, subsidies for industrial research, regional aids and some environmental subsidies.

■ **non-automatic licensing**

import licensing that is discretionary, based on an import quota or performance related.

■ **nonconvexity**

the property of an economic model or system that states representing technology, preferences, or constraints are not mathematically convex. Because convexity is needed for proof that competitive equilibrium is efficient and well-behaved, nonconvexities may imply market failures.

■ **nondistorted**

without distortions. Many propositions in trade theory are strictly valid, often only implicitly, only in nondistorted economies.

■ **nondistorting lump sum**

redundant appellation for a lump sum tax or subsidy.

■ **noneconomic objectives argument for protection**

the view where a restriction on imports may serve a purpose outside of conventional economic models. Unless that purpose is itself the restriction of trade, then this is a second-best argument, since changes in output, consumption, etc. can be achieved at lower economic cost in other ways.

■ nonhomothetic

any function which is not homothetic, but usually applied to consumer preferences that include goods whose shares of expenditure rise (and others that fall) with income.

■ non-market economy

a country in which most major economic decisions are imposed by government and by central planning rather than by free use of markets. Contrasts with a market economy.

■ non-specific subsidy

a subsidy which is available to more than a single specific industry and is therefore non-actionable under WTO rules.

■ nonsterilisation

the exchange market intervention which is done without sterilising its effects on the domestic money supply.

■ Nontariff Measure (NTB)

any policy or official practice that alters the conditions of international trade, including ones that act to increase trade as well as those that restrict it. The term is therefore broader than nontariff barrier, although the two are usually used interchangeably.

■ nontraded good

a good which is not traded, either because it cannot be or because trade barriers are too high. Except when services are being distinguished from goods, they are often mentioned as examples of nontraded goods, or at least they were until it became common to speak of trade in services.

■ nonviolation

in WTO terminology, this is shorthand for a complaint that a country's action, though not a violation of WTO rules, has nullified or impaired a member's expected benefits from the agreement.

■ normal good

any good for which the demand increases as incomes increase.

■ normal value

price charged for a product on the domestic market of the producer. Used to compare with export price in determining dumping.

■ normative

the value judgements as to 'what ought to be', in contrast to positive which is about 'what is?'.

■ normative theory

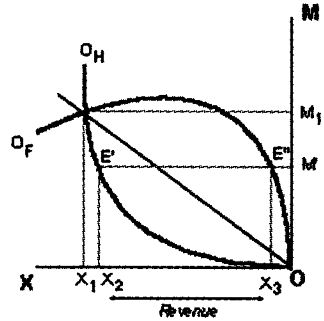
the theory which depends on underlying values, not on facts. It identifies 'what ought to be' if such values are adhered to.

■ numeraire

the unit in which prices are measured. This may be a currency, but in real models, such as most trade models, the numeraire is usually one of the goods whose price is then set at one. The numeraire can also be defined implicitly by, for example, the requirement that prices sum to some constant.

■ offer curve

a curve showing, for a two-good model, the quantity of one good which a country will export (or 'offer') for each quan



tity of the other that it imports. Also called the reciprocal demand curve, it is convenient for representing both exports and imports in the same curve and can be used for analysing tariffs and other changes.

■ offer curve diagram

a diagram which combines the offer curves of two countries (or one country and the rest of world) to determine equilibrium relative prices.

■ official reserve transactions

transactions by a central bank which cause changes in its official reserves. These are usually purchases or sales of its own currency in the exchange market, in exchange for foreign currencies or other foreign-currency-denominated assets. In the balance of payments, a purchase of its own currency is a credit (+) and a sale is a debit (-).

■ offset requirement

as a condition for importing into a country, a requirement that foreign exporters purchase domestic products and/or invest in the importing country.

■ offsets

side payments or other commitments made by countries or corporations to secure export orders. In the aerospace industry, companies often have to subcontract parts production and/or to transfer technology, in order to receive a purchase order. However, offsets can take many other forms, including barter trade.

■ Ohlin definition

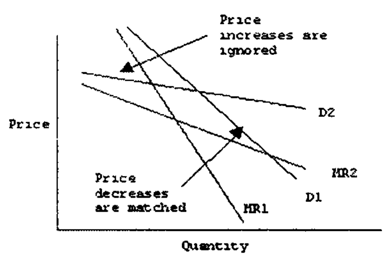
the price definition of factor abundance. In contrast to the quantity definition, the price definition incorporates differences in demands as well as supplies. Due to Ohlin (1933).

■ OLI Paradigm

represents a mix of three different FDI theories = O + L + I, each with a different focus or question: O: Ownership Advantages (Firm Specific Advantages) address the why question. L: Location Advantages (Country Specific Advantages) focus on the where question. I: Internalisation Advantages refer to the how or organisational question.

■ oligopoly

a market structure where there are a small number of sellers, at least some of whose individual decisions about price or quantity matter to the others.



■ oligopsony

a market structure in which there are a small number of buyers.

■ one cone equilibrium

a free-trade equilibrium in the Heckscher-Ohlin Model where prices are such that all goods can be produced within a single country, and there is only one diversification cone. This will arise if countries' factor endowments are sufficiently similar compared to factor intensities of industries. Contrasts with multi-cone equilibrium.

■ one-way arbitrage

the use, by a potential supplier or demander in a market, of a different market or markets to accomplish the same purpose, taking advantage of a discrepancy among their prices. With transaction costs, this enforces smaller price discrepancies than would be permitted by conventional arbitrage. Due to Deardorff (1979).

■ one-way option

the situation of a speculator on an exchange market with a pegged exchange rate. If there is doubt about the viability of the peg, the speculator can sell the currency short, knowing that there is only one direction (one way) that the currency is likely to move. Therefore, there is little risk associated with such speculation.

■ Open Market Operation (OMO)

the sale or purchase of government bonds by a central bank, in exchange for domestic currency or central-bank deposits. This changes the monetary base and therefore the domestic money supply, contracting it with a bond sale and expanding it with a bond purchase.

■ open position

an obligation to take or make delivery of an asset or currency in the future without cover, that is, without a matching obligation in the other direction that protects them from effects of change in the price of the asset or currency. Aside from simple ownership and debt, an open position can be acquired or avoided using the forward market.

■ open regionalism

regional economic integration which is not discriminatory against outside countries, typically, a group of countries that agrees to reduce trade barriers on an MFN basis.

Adopted as a fundamental principle, but not defined, by APEC in 1989. Bergsten (1997) offers five definitions, ranging from open membership to global liberalisation and trade facilitation.

■ open-economy multiplier

the simple Keynesian multiplier for a small open economy. Equals 1/(s+m), where s is the marginal propensity to save and m is the marginal propensity to import.

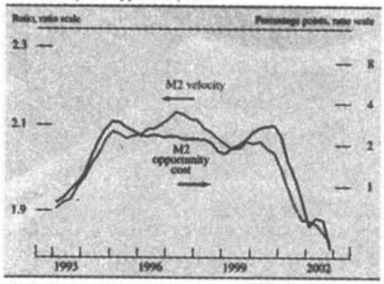
■ opportunism

the suggestion (widely associated with transaction cost analysis) where a decision-maker may unconditionally seek his/her self-interests, and that such behaviour cannot necessarily be predicted. This proposition extends the simple self-interest seeking assumption to include 'self-interest seeking with guile', thereby making allowance for strategic behaviour.

■ opportunity cost

the cost of something in terms of opportunity foregone. The

M2 velocity and opportunity cost



Note. The data are quarterly and extend through 2002:Q4. The velocity of M2 is the ratio of nominal gross domestic product to the stock of M2. The opportunity cost of holding M2 is a two-quarter moving average of the difference between the three-month Treasury bill rate and the weighted average return on assets included in M2.

opportunity cost to a country of producing a unit more of a good, such as for export or to replace an import, is the quantity of some other good that could have been produced instead.

■ optimal currency area

the optimal grouping of regions or countries within which exchange rates should be held fixed. First defined (as 'optimum currency areas') by Mundell (1961).

■ optimal tariff

the level of a tariff which maximises a country's welfare. In a nondistorted small open economy, the optimal tariff is zero. In a large country, it is positive, due to its effect on the terms of trade.

■ optimal tariff argument

an argument in favour of levying a tariff in order to improve the terms of trade. The argument is valid only in a large country, only if other countries do not retaliate by raising tariffs themselves. Even then, this is a beggar thy neighbour policy, since it lowers welfare abroad.

■ optimum

the best. Usually refers to a most preferred choice by consumers subject to a budget constraint, a profit maximising choice by firms or industry subject to a technological constraint, or in general equilibrium, a complete allocation of factors and goods that in some sense maximises welfare.

■ optimum optimorum

the best of the best or the global optimum. This term is used, when there are several allocations each of which is locally optimal, to refer to the best among these.

■ Orderly Marketing Arrangement (OMA)

an agreement among a group of exporting and importing countries to restrict the quantities traded of a good or group of goods. Since the impetus normally comes from the importers protecting their domestic industry, an OMA is effectively a multi-country VER.

■ Organisation for Economic Cooperation and Development (OECD)

an international organisation of developed countries which 'provides governments a setting in which to discuss, develop and perfect economic and social policy.' As of July 2002, it had 30 member countries.

■ Organisation for European Economic Cooperation (OEEC)

an international organisation established in 1948 as the recipient institution of aid through the Marshall Plan. In 1961, it was replaced by the OECD.

■ output augmenting

said of a technological change or technological difference if one production function produces a scalar multiple of the other. Also called Hicks neutral.

■ over-valued currency

the situation of a currency whose value on the exchange market is higher than is believed to be sustainable. This may be due to a pegged or managed rate that is above the market-clearing rate, or, under a floating rate, it may be due to speculative capital inflows. Contrasts with under-valued currency.

■ para tariff

a charge on imports which is not included in a country's tariff schedule, such as a statistical tax, stamp fee, etc.

■ parallel import

trade which is made possible when the owner of intellectual property causes the same product to be sold in different countries for different prices. If someone else imports the low-price good into the high-price country, that is a parallel import.

■ para-tariff

a charge on an imported good instead of, or in addition to, a tariff.

■ Pareto criterion

the criterion that for change in an economy to be viewed as socially beneficial, it should be Pareto-improving.

■ Pareto optimality

the condition which exists when it is impossible to make any individual better off without making any other individual worse off.

■ Pareto-improving

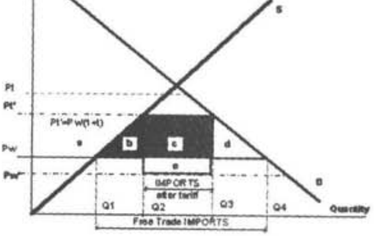
making no one worse off and making at least one person better off.

■ Pareto-optimal

a situation where no Pareto-improving change is possible.

■ partial equilibrium

equality of supply and demand in only a subset of an economy's markets, usually just one, taking variables from other mar



kets as given. Partial equilibrium models are appropriate for products that constitute only a negligibly small part of the economy. They are used routinely (not always appropriately) for analysis of trade policies in single industries. Contrasts with general equilibrium.

■ pass-through

the extent to which an exchange rate change is reflected in the prices of imported goods. With full pass-through, a currency depreciation, which increases the price of foreign currency, would increase the prices of imported goods by the same amount, and vice versa. With no pass-through, prices of imports remain constant.

■ path dependency

reference to effects of past commitments or acquired knowledge on subsequent actions and decisions. Recognising that 'history matters' for a future course of action or development, such past commitments or learning activities could entail previous investments, e.g. in transaction-specific assets, contracts, research & devèlopment, or the pool of (usually locally) learned behaviours and organisational routines which constrain (including spatially) future activities.

■ path dependent

the property where you get to depend on how you got there. That is, if the equilibrium that will ultimately be reached by a system depends on the values of variables taken on away from equilibrium, then the equilibrium is path dependent.

■ patriotism argument for protection

the view in which one is helping one's country by buying domestically produced goods instead of imports. In a nondistorted economy, this is not correct, since the country can do better producing where it has a comparative advantage rather than using scarce resources where it does not.

■ pattern of specialisation

what all goods a country produces and what it does not produce.

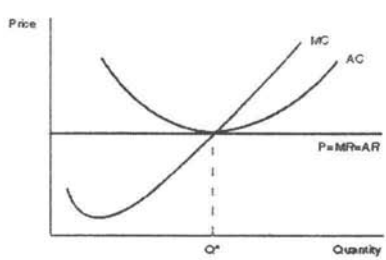
■ Pauper labour argument

the view that a country loses by

importing from another country which has low wages, presumably by lowering wages at home. This view ignores the fact that low wages are due to low productivity, and that the high-wage home country, with high productivity, will have comparative advantage in some products and will gain from trade.

■ **perfect competition**

an idealised market structure where there are large numbers of both buyers and sellers, all of them small, so that they act as price takers. Perfect competition also assumes homogeneous products, free entry and exit, and complete information. Most international trade theory prior to the New Trade Theory assumed perfect competition.



■ **perfect foresight**

exact knowledge of the future. Under perfect foresight, for example, the forward rate would exactly equal the spot rate, that later prevails when the forward contract matures.

■ **perfect substitute**

a good which is regarded by its demanders as identical to another good, so that the elasticity of substitution between them is infinite.

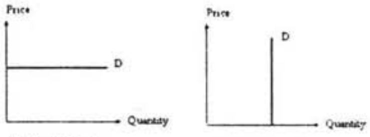
■ **perfectly competitive**

refers to an economic agent (firm or consumer), group of agents (industry), model or analysis that is characterised by perfect competition. Contrasts with imperfectly competitive.

■ **perfectly elastic**

refers to a supply or demand curve with a price elasticity of infinity, implying that the supply or demand curve as usually drawn is horizontal. A small open economy faces perfectly elastic demand for its exports and supply of its imports, and a foreign offer curve that is a straight line from the origin.

Perfectly Elastic & Inelastic Demand



Perfectly Elastic *Perfectly Inelastic*

■ **performance requirement**
a requirement where an importer or exporter achieves some level of performance, in terms of exporting, domestic content, etc., in order to obtain an import or export license.

■ **permatemps**
workers arbitrarily classified as 'temporary' by employers while they perform regular jobs and work over extended periods of time with other workers who are given regular employee status. Permatemps tend to receive lower wages and less benefits.

■ **personal distribution**
the distribution of income on the basis of income groups. For example, by dividing all income recipients into ten groups (deciles) and showing the share each of these groups had of the total income.

■ **personal mastery**
one of Senge's 5 principles for the learning organisation: 'learning to expand our personal capacity to create the results we most desire, and creating an organisational environment which encourages all its members to develop themselves towards the goals and purposes they choose.'

■ **pessimum distance**
reference to the (possibly) disadvantageous location of a smaller city relative to a larger one.

■ **phytosanitary**
pertaining to the health of plants.

■ **Pittsburgh Plus**
a form of spatial price discrimination based on oligopolistic collusion. The mill price at one location determines the delivered price at all locations, regardless of the location of the plant from which delivery is actually made.

■ **place utility**
the utility (benefits, satisfaction) associated with or derived from the attributes of a place or location.

Planned Unit Development (PUD)

a land development project comprehensively planned as an entity via a unitary site plan which permits flexibility in building sitting, mixtures of housing types and land uses, usable open spaces and the preservation of significant natural features.

planning curve

the long run average cost curve.

plasticity

resources and investments are called 'plastic', to indicate that there is a wide range of discretionary, legitimate decisions within which the user may choose.

Plaza Accord

an agreement reached in 1985 among the central banks of France, Germany, Japan, US and UK to bring down the value of the U.S. dollar, which had appreciated substantially since 1980. By the time of the Louvre Accord, two years later, the dollar had fallen 30%.

plurilateral

among several countries — more than two, that would be bilateral, but not a great many, which would be multilateral.

plurilateral agreement

the plurilateral agreements of the WTO contrast with the larger multilateral agreements, in which the former are signed onto by only those member countries that choose to do so, while all members are party to the multilateral agreements.

political economy

1. early name for the discipline of economics.

2. a field within economics encompassing several alternatives to neoclassical economics, including Marxist economics. Also called radical political economy.

3. a field within economics that concerns the interactions between political processes and economic variables, especially economic policies.

political economy of protection

the study of reasons, especially political ones, in which the countries choose to use protection.

Includes models of voting, lobbying, and campaign contributions, as these lead policy makers to erect tariffs.

■ **portfolio approach**

an approach to explaining exchange rates which stress their role in changing the proportions of different currency-denominated assets in portfolios. The exchange rate adjusts to equate these proportions to desired levels.

■ **portfolio flow**

the sale or purchase of financial assets across countries.

■ **portfolio investment**

the acquisition of portfolio capital. Usually refers to such transactions across national borders and/or across currencies.

■ **portfolio theory**

the analysis as to how an investor can maximise the expected return from a 'portfolio' of various kinds of financial assets, having given degrees of risk and uncertainty associated with them (or minimise the risk involved in realising some given expected return).

■ **positional goods**

goods which are at least in part demanded because their possession or consumption implies social or other status of those acquiring them.

■ **positive**

refers to 'what is', in contrast to normative which involves value judgements as to 'what ought to be'. The word is not, in this use, the opposite of either 'negative' or 'harmful'.

■ **positive externality**

a beneficial externality, i.e., a beneficial effect of one economic agent's actions on another. Considered a distortion because the first agent has inadequate incentive to act. Examples are the attractiveness of well-kept farms for the tourism industry (a production externality) and reduced contagion of disease due to vaccines (a consumption externality).

■ **positive list**

in an international agreement, a list of those items, entities, products, etc. to which the agreement will apply, with no commitment to apply the agreement to anything else. Contrasts with negative list.

■ postmodernism

a still tenuous attempt to lend identity to a new era beginning in the early 1970s which is associated with changes from and reaction to certain attributes of modernity or modernism.

■ Prebisch-Singer Hypothesis

the idea where the relative prices of primary products would decline over the long term, and therefore that developing countries that were led by comparative advantage to specialise in them would find their prospects for development diminished. Due to Prebisch (1950) and Singer (1950).

■ precautionary principle

the view that when science has not yet determined whether a new product or process is safe or unsafe, policy should prohibit or restrict its use until it is known to be safe. Applied to trade, this has been used as the basis for prohibiting imports of GMOs, for example.

■ predation

the use of aggressive (low) pricing to put a competitor out of business, with the intent, once they are gone, of raising prices to gain monopoly profits.

■ predatory dumping

dumping for the purpose of driving competitors out of business and then raising price. This is the one motivation for dumping that most economists agree is undesirable, like predatory pricing (predation) in other contexts.

■ predatory pricing

a company engages in predatory pricing when it sets the price of its goods very low, in order to eliminate its competitors and prevent new companies from entering into the marketplace.

■ preference for variety

the increased utility which people experience when they have access to a larger number of differentiated product varieties. In reality, this may reflect their ability to find products more closely suited to their own particular needs, but as modelled in the Dixit-Stiglitz utility function, they are better off consuming small quantities of each of a larger number of products.

■ preferences

1. in trade policy, this refers to special advantages, such as lower-than-MFN tariffs, accorded to another country's exports, usually in order to promote that country's development.

2. in trade theory, this refers to the attitudes of consumers towards different goods, as represented by a utility function. Some propositions in trade theory use the assumption of identical and/or homothetic preferences.

■ preferential trading arrangement

a group of countries which levy lower (or zero) tariffs against imports from members than outsiders. Includes FTAs, customs unions, and common markets. Encouragement to use this term instead of the more misleading FTA has come from Jagdish Bhagwati, as in Bhagwati and Panagariya (1996).

■ present value

the value today of a stream of payments and/or receipts over time in the future and/or the past, converted to the present using an interest rate. If Xt is the amount in period t and r the interest rate, then present value at time t=0 is V = St (Xt)/(1+r)t.

■ preshipment inspection

certification of the value, quality, and/or identity of traded goods done in the exporting country by specialized agencies or firms on behalf of the importing country. Traditionally used as a means to prevent over- or under-invoicing, it is now being used also as a security measure.

■ price definition

a method of defining relative factor abundance based on ratios of factor prices in autarky: Compared to country B, country A is abundant in factor X relative to factor Y iff wXA/wYA < wXB/wYB, where wIJ is the autarky price of factor I in country J, I=X,Y, J=A,B.

■ price discrimination

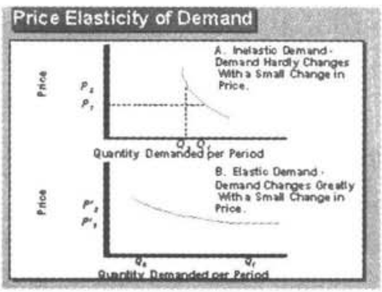
the sale by a firm to buyers at two different prices. When this occurs internationally and the lower price is charged for export, it is regarded as dumping.

■ price elasticity

the elasticity of supply or demand with respect to price.

■ price elasticity of demand

change in the quantity de



manded of a good or service in response to a change in price

■ price inelastic

having a price elasticity of less than one (in absolute value).

■ price level

the overall level of prices in a country, generally measured empirically by a price index, but often captured in theoretical models by a single variable.

■ price line

a straight line representing the combinations of variables, usually two goods, that cost the same at some given prices. The slope of a price line measures relative prices, and changes in prices can therefore be represented by changing the slope of, or rotating, a price line. A steeper line means a higher relative price of the good measured on the horizontal axis.

■ price support

government action to increase the price of a product, usually by buying it. May be associated with a price floor.

■ price taker

an economic entity which is too small relative to a market to affect its price, and that therefore must take that price as given in making its own decisions. Applies to all buyers and sellers in markets that are perfectly competitive. Applies also to a country if it is a small open economy.

■ price undertaking

a commitment by an exporting firm to raise its price in an importing-country market, as a means of settling an anti-dumping suit and preventing an anti-dumping duty.

■ pricing to market

the practice of an exporting firm holding fixed (or not fully adjusting) the price it charges in the export market when its costs or exchange rates change.

■ primary budget surplus

the primary budget surplus (or deficit) of a government is the surplus excluding interest payments on its outstanding debt.

■ primary factor

an input which exists as a stock providing service that contributes to production. The stock is not used up in production, although it may deteriorate with use, providing a smaller flow of services later. The major primary factors are labour, capital, human capital (or skilled labour), land, and sometimes natural resources.

■ principle of diminishing marginal utility

the proposition that the satisfaction derived from consuming an additional unit of a good or service declines as additional units are acquired.

■ principle of diminishing returns

the proposition which states that the marginal product of the last unit of labour employed declines as additional units of labour are employed.

■ Prisoners' dilemma

a strategic interaction where two players both gain individually by not cooperating, leading to a Nash equilibrium in which both are worse off than if they cooperated. Important especially for explaining why countries may choose protection even though all lose as a result.

■ private benefit

the benefit to an individual economic agent, such as a consumer or firm, from an event, action, or policy change. Contrasts with social benefit.

■ private cost

the cost to an individual economic agent, such as a consumer or firm, from an event, action, or policy change. Contrasts with social cost.

■ private goods

a good that cannot be consumed without paying for it and the supply of which is reduced when it is consumed by a particular user of it.

■ probability density

for a continuous random variable, a function whose integral over any set is the probability of the variable being in that set.

■ probability distribution

a specification of the probabilities for each possible value of a random variable.

■ producer presence

a mode of supply of a traded service in which the producer establishes a presence in the buyer's country by FDI and/or permanent relocation of workers.

■ producer subsidy equivalent

1. producer support estimate.

2. this ought logically to measure the extent to which existing policies serve to subsidise producers, defined as the ad valorem subsidy that, if paid directly to producers per unit of production, would lead to the same level of output as existing policies.

■ Producer Support Estimate (PSE)

introduced by the OECD to quantify support in agriculture, it measures 'transfers from consumers and taxpayers to agricultural producers as a result of measures (of) support,' expressed as percentage of gross farm receipts. Also called producer subsidy equivalent.

■ product cycle

the life cycle of a new product, that first can be produced only in the country where it was developed, then as it becomes standardised and more familiar, can be produced in other countries and exported back to where it started. Due to Vernon (1966).

■ product cycle

associated with observed regularities in the way in which the production and marketing of products change during the life of a product and thereby change their interaction with and demands on their environment.

■ **product differentiation**
causing buyers to believe that a particular version of a product is superior to that being offered by competitors.

■ **product localisation**
modifying and adapting foreign-made products/services, to render them suitable for a new market.

■ **production externality**
an externality arising from production.

■ **production function**
a function that specifies the output in an industry for all combinations of inputs.

■ **production possibilities**
levels of output that are within the range of possibilities for a particular economy.

■ **production worker**
a worker directly engaged in production. In empirical studies of skilled and unskilled labour, data on production workers are often taken to represent unskilled labour.

■ **profit maximising**
the level of a variable or behaviour that maximises the profit of a firm.

■ **profit shifting**
the use of government policies to alter the outcome of international oligopolistic competition so as to increase the profits of domestic firms at the expense of foreign firms. This is a key element of strategic trade policy.

■ **prohibited subsidy**
a subsidy which is prohibited under the rules of the WTO. These include subsidies that are specifically designed to distort international trade, such as export subsidies or subsidies that require use of domestic rather than imported inputs.

■ **prohibition**
denial of the right to import or export, applying to particular products and/or particular countries. Includes embargo.

■ **prohibitive tariff**
a tariff that reduces imports to zero.

■ **protectionism**
advocacy of protection. The word has a negative connotation, and few advocates of protection in particular situa-

tions will acknowledge being protectionists.

■ protocol of accession

legal document specifying the procedures for a country to join an international agreement or organisation, including the rights and responsibilities that accompany such accession.

■ public goods

a good that can only be supplied to all if it is supplied to one and the availability of which is not diminished by any one consumer's use of it.

■ purchasing power parity exchange rate

an exchange rate, computed to yield absolute purchasing power parity. Useful for making comparisons of real values (wages, GDP) across countries with different currencies. Since the purchasing power parity theory is rarely correct, this contrasts with the nominal exchange rate.

■ purchasing power parity theory

a theory of the exchange rate that the rate will adjust to achieve purchasing power parity, in either its absolute or its relative form.

■ push-pull factors

push factors act to drive people or goods and services away from a place whereas pull factors draw them to a new location.

■ quad

refers both to the Quadrilateral Meetings and to the participants in those meetings, the U.S., Canada, EU and Japan.

■ quadrilateral meetings

meetings which occur occasionally, involving the trade ministers of the U.S., Canada, EU and Japan to discuss trade policy issues.

■ quality multiplier

secondary effects resulting from learning, innovative activities and quality improvements of existing products or technologies.

■ quantity definition

a method of defining relative factor abundance based on ratios of factor quantities: Compared to country B, country A is abundant in factor X relative to factor Y, iff XA/YA >

XB/YB, where IJ is the quantity of factor I with which country J is endowed, I=X,Y, J=A,B.

■ quantity theory of money
the idea that there is a direct link between the quantity of money in the economy and the price level.

■ quasi-linear utility
a utility function of the form U(x0,x1,...,xn) = x0 + Siui(xi), where ui(×) are strictly concave functions. This is useful for generating demand functions for goods xi that depend only on their own prices in terms of the numeraire x0.

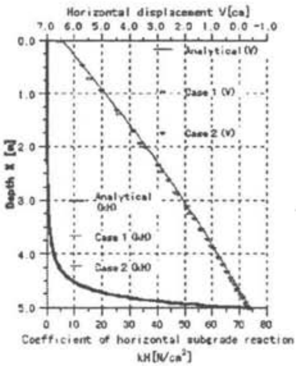
■ quid pro quo FDI
FDI in response to the threat of protection. Done by a firm which exports into the domestic market, the motive is to create jobs there and lessen the threat that its exports will be restricted. Due to Bhagwati (1985).

■ quota rent
the economic rent received by the holder of the right (or license) to import under a quota. Equals the domestic price of the imported good, net of any tariff, minus the world price times the quantity of imports.

■ range
usually used in the context of the 'outer range' of a good. This range refers to the maximum distance over which a product can be sold at a given F.O.B. price.

■ ration foreign exchange
to ration access to scarce foreign currency under a pegged exchange rate with an over-valued currency. Usually done by means of import licensing.

■ reaction coefficient
terms used as a relatively general reference to the manner in which a dependent subsystem is (structurally) linked to another subsystem within a larger systems model. The coefficient specifies the impact of a change in one variable (representing the independent subsystem) on another variable (representing the dependent subsystem). Input-output coefficients, 'propensities to consume locally' (pcl) and probabilities in transition matrices represent examples.



■ reaction curve

the graph of a reaction function.

■ reaction function

the function that specifies the choice of a strategic variable by one economic agent as a function of the choice of another agent. Most familiar specifying output choices of firms in a Cournot duopoly.

■ real

1. adjusted for inflation.

2. referring only to real economic variables as opposed to nominal, or monetary ones, as in real models.

3. used with 'appreciation' or 'depreciation', refers to the real exchange rate. Thus, a real appreciation means that the nominal value of a country's currency has increased by more than its relative price level, which may have decreased, so that the prices of its goods relative to foreign goods have increased.

■ real balance effect

the influence that a change in the quantity of real money has on the quantity of real national income demanded.

■ Real Estate Investment Trust (REIT)

a trust (corporation) which pools the capital of different investors to acquire (or provide financing for) all forms of real estate. A REIT functions like a mutual fund for real estate.

■ real exchange rate

1. the nominal exchange rate adjusted for inflation. Unlike most other real variables, this adjustment requires accounting for price levels in two currencies. The real exchange rate is: $R = EP^*/P$ where E is the nominal domestic-currency price of foreign currency, P is the domestic price level, and P^* is the foreign price level.

2. the real price of foreign goods; i.e., the quantity of domestic goods needed to purchase a unit of foreign goods.

Equals the reciprocal of the terms of trade. Equivalent to definition 1.

3. the relative price of traded goods in terms of nontraded goods.

■ **real interest rate**

the nominal interest rate which is adjusted for inflation, to get the percentage yield an asset holder gets in terms of real resources. Equals the nominal interest rate minus the rate of inflation.

■ **real model**

an economic model without money. Most general equilibrium models of trade are real models. This includes the Ricardian Model, the Heckscher-Ohlin Model, and the models of the New Trade Theory.

■ **real national income**

national income adjusted for inflation.

■ **real terms**

same as real. A 'wage expressed in real terms' is just the real wage.

■ **red box**

a category of subsidies which are forbidden under WTO rules. This terminology is used in the Agriculture Agreement, where however there is no red box. Presumably equivalent to prohibited subsidies.

■ **redistributed tariff revenue**

a common assumption that tariff revenue is given to consumers as transfer payments (not in proportion to what they paid by importing) to be spent like any other income. Since in general equilibrium the effects of a tariff depend on how the revenue is spent, this is a useful neutral assumption.

■ **redistribution policy**

measures taken by government to transfer income from some individuals to others.

■ **redundant tariff**

a tariff which, if changed, will not change the quantity of imports, either because the tariff is prohibitive, or because some other policy such as a quota or an embargo is limiting quantity.

■ **reflexivity**

a post-structuralist concept increasingly used in industrial social geography to capture the ability of a person to 'reflect on their own reflections' and to understand the foundations of one's own knowledge and understanding of one's local environment and context.

■ **region**

contiguous areas with common or complementary characteristics or linked by intensive interaction or flows.

■ **regional policy**

in a trade context, this usually refers to a regional aid.

■ **regionalism**

the formation or proliferation of preferential trading arrangements.

■ **regression analysis**

the statistical technique of finding a straight line which approximates the information in a group of data points. Used throughout empirical economics, including in both international trade and finance.

■ **regressive tax**

a tax on income in which the proportion of tax paid relative to income decreases as income increases.

■ **regulation school/theory**

a body of thought originating in French political economy, focusing on structure and change of the capitalist economy. Rejecting market forces as allocative mechanisms, these theories suggest the dominance of the 'mode of regulation' (social norms, government rules and private practices) which motivate(s) individuals to achieve economic stability.

■ **Reilly's law of retail gravitation**

a statement related to the distribution of market share in hinterlands of competing cities or shopping centres.

■ **relative demand**

the ratio of the demand for one good to the demand for another, most useful in representing general equilibrium in a two-good economy, where relative price adjusts to equate relative supply and relative demand.

■ **relative location**

a position in space (location) defined on the basis of distances and relationships to other locations.

■ relative price

1. the price of one thing (usually a good) in terms of another; i.e., the ratio of two prices. The relative price of good X in terms of good Y is pX / pY</SUB< i>.

2. the relationship between the prices of different goods and services. May be thought of in terms of the amount of one good which can be had for a certain expenditure compared to the amount of another good which can be had for the same expenditure.

■ relative supply

the ratio of the supply of one good to the supply of another, most useful in representing general equilibrium in a two-good economy, where relative price adjusts to equate relative supply and relative demand.

■ reliability

the ability of a statistical instrument to come up with similar/consistent measurements/results over time.

■ remedy

in a trade dispute in the WTO or other forum, the measure recommended by the dispute settlement panel to resolve the dispute, usually a measure which will bring the offending country into compliance with WTO (or other) rules.

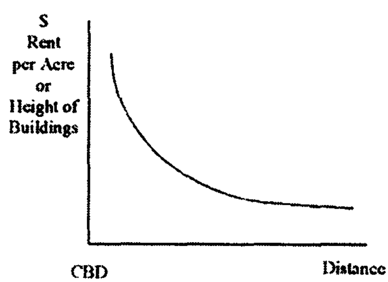
■ rent

1. economic rent, or the premium that the owner of a resource receives over and above its opportunity cost.

2. the payment to the owner of land or other property in return for its use.

■ rent gradient

a representation of the decline in rent with distance from a market or centre.



■ rent seeking

the using up of real resources in an effort to secure the rights to economic rents that arise from government policies. In international economics, the term usually refers to efforts to obtain quota rents.

■ **rental price**

the payment per unit time for the services of a unit of a factor of production, such as land or capital.

■ **rentier**

a person whose income comes mainly from rent on land or, more broadly, from assets rather than labour.

■ **rent-seeking**

the activities of individuals or firms to obtain special privileges, such as monopoly power, which will enable them to increase their incomes. Using up resources to win such privileges from governments or their agencies.

■ **reserve asset**

any asset which is used as international reserves, including a national currency, precious metal such as gold or SDRs.

■ **reserve currency**

a currency that is used as international reserves, often because it is an intervention currency.

■ **restrictive business practice**

action by a firm or group of firms to restrict entry by other firms, that is, to prevent other firms from selling their product in their market. This is a restraint of competition and would normally be illegal under competition policy.

■ **results-based trade policy**

the use of trade policies targeted to specific indicators of economic performance. For example, in the early 1990s, the U.S. insisted on achieving specified market shares in trade with Japan.

■ **return to capital**

same as the rental price of capital. Since capital can only be measured in monetary units, the rental price is, say, dollars per dollar's worth of capital per unit time, and it therefore has the form of a rate of return like an interest rate.

■ **returns to scale**

same as increasing returns to scale.

■ **revealed preference**

the use of the value of expenditure to 'reveal' the preference of a consumer or group of consumers for the bundle of goods they purchase compared to other bundles of equal or smaller value.

■ **revenue argument for a tariff**

the use of a tariff to raise revenue for the government. Many other kinds of tax cause smaller distortions and are hence preferable to tariffs for this purpose. However, a tariff is one of the easier taxes to collect, and it is therefore common in the early stages of a country's development.

■ **revenue seeking**

the use of real resources in an effort to secure a share of the disposition of tariff revenues.

■ **reverse engineering**

the process of learning how a product is made by taking it apart and examining it.

■ **Ricardian Model**

the classic model of international trade introduced by David Ricardo to explain the pattern and the gains from trade in terms of comparative advantage. It assumes perfect competition and a single factor of production, labour, with constant requirements of labour per unit of output that differ across countries.

■ **risk**

1. uncertainty that associates with a transaction or an asset.

2. the probability of loss. Differs from definition 1, because 'uncertainty' includes probability of gain as well.

■ **risk aversion**

desire to avoid uncertainty. Risk aversion is usually quantified by the mathematical expected value that one is willing to forego in order to get greater certainty.

■ **risk premium**

1. the higher expected return (in the sense of mathematical expected value) which an uncertain asset must pay in order for risk averse investors to be willing to hold it.

2. the difference between the interest rate on a risky asset and that on a safe one.

3. in exchange markets, the difference between the forward

rate and the expected future spot rate.

■ **rollback**

1. the phasing out of measures which are not consistent with an agreement.
2. in the Uruguay Round, the agreement to remove all GATT-inconsistent trade-restricting and trade-distorting measures by the time negotiations were completed.

■ **Rules of Origin (ROO)**

rules included in a FTA specifying when a good will be regarded as produced within the FTA, so as to cross between members without tariff. Typical ROOs are based on percentage of value added or on changes in tariff heading.

■ **rules-based trade policy**

institutional arrangements in which national trade policies are governed by internationally agreed-upon rules, as in the GATT and WTO.

■ **Rybczynski Theorem**

the property of the Heckscher-Ohlin Model that, at constant prices, an increase in the endowment of one factor increases the output of the industry that uses that factor intensively and reduces the output of the other (or some other) industry. Due to Rybczynski (1955).

■ **sanction**

1. to approve or give permission for an action, as when an international organisation sanctions the use of particular economic policies.
2. a forceful measure used by a nation or group of nations against another as a penalty for violating international law or international norms. Usually plural: sanctions.

■ **Sanitary and phytosanitary regulations(SPR)**

government standards to protect health of humans, plants and animals. SPS measures are subject to rules in the WTO to prevent them from acting as NTBs.

■ **SAP**

Structural adjustment program.

■ **satisficer, satisficing**

1. a references to behaviours that are constrained by limited information and 'bounded ra-

tionality'. Satisficers' behavioural objectives are associated with finding satisfactory solutions (instead of 'optimal' solutions) to problems which, in turn, are conditioned by the individual's 'aspiration levels'.

2. seeking or achieving a satisfactory outcome, rather than the best possible. Contrasts with the optimising behaviour usually assumed in economics and trade theory. Alternative models based on satisficing are spreading within economics, but not yet much in international.

■ **saving function**

the relationship between saving and national income.

■ **scale economies**

increasing returns to scale.

■ **scarce factor**

the factor in a country's endowment with which it is least well endowed, relative to other factors, compared to other countries. May be defined by quantity or by price.

■ **scarcity rent**

an economic rent that is due to something being scarce.

■ **Schengen Agreement**

an agreement (later, convention) signed in 1985 to eliminate all frontier controls and permit free movement of persons between the participating countries. In 1999, it was incorporated into the European Union. Currently (2001), the participants include all EU countries except Ireland and the U.K., plus Iceland and Norway.

■ **scientific tariff**

a made-to-measure tariff.

■ **SDR**

Special Drawing Right.

■ **secondary tariffs**

any charges imposed on imports in addition to the statutory tariff, such as an import surcharge.

■ **second-best argument for protection**

1. any argument for protection which can be countered by pointing to a different and less distortionary policy that would achieve the same desired result at lower economic cost.

2. an argument for protection to partially correct an existing distortion in the economy when

the first-best policy for that purpose is not available. For example, if domestic production generates a positive externality and a production subsidy to internalise it is not available, then a tariff may be second-best optimal.

■ secular change

change over a long period of time, such as a decade or more. Distinguished from cyclical change which occurs in shorter time periods such as a year.

■ segmentation

a segmented pattern of business organisations where every segment is 'conceived as a number of organisations, with similar characteristics which are both the cause and the effect of their membership of particular economic niches.'

■ seigniorage

the difference between what money can buy and its cost of production. Therefore, seigniorage is the benefit that a government or other monetary authority derives from the ability to create money. In international exchange, if one country's money is willingly held by another, the first country derives these seigniorage benefits. This is the case of a reserve currency.

■ selective

applied to a trade policy. This means one which affects only some countries, not all, in contrast to MFN policy. Selectivity is an important concern in the use of safeguards, which countries often would prefer to make selective but are required by GATT Article XIX to be nondiscriminatory.

■ selective closure

a form of plant closure where the decision-maker has options between different plants and where the ultimate decision is based on relative (internal and/or external) locational merits. This type of closure is 'the most spatially specific type of closure.'

■ self-sufficiency

provision by one's self to all of one's own needs. In international trade, this means either not trading at all (autarky), or importing only non-necessities.

■ self-sufficiency argument for protection

the view which states that a

country is better off providing for its own needs than depending on imports. It may be based on fear that war or foreign governments will interrupt imports. This is a second-best argument, since many policies could provide for that contingency without sacrificing all the gains from trade.

■ **sensitive**

in trade negotiations and agreements, countries often identify lists of particular sensitive products or sensitive sectors that they regard as especially vulnerable to import competition and that they wish to exempt from trade liberalisation.

■ **serious injury**

the injury requirement of the escape clause, understood to be more stringent than material injury but otherwise apparently not rigorously defined.

■ **service**

a product which is not embodied in a physical good and that typically effects some change in another product, person or institution. Contrasts with good. Trade in services is the subject of the GATS.

■ **shadow price**

the implicit value or cost associated with a constraint. That is, the increased value that will be achieved by relaxing the constraint by one unit. When foreign exchange is rationed, the shadow price of foreign exchange becomes for relevant exchange rate decisions.

■ **shallow integration**

reduction or elimination of tariffs, quotas and other barriers to trade in goods at the border, such as trade-limiting customs procedures. Contrasts with deep integration.

■ **shared vision**

one of Senge's five learning disciplines for the learning organisation: 'building a sense of commitment in a group, by developing shared images of the future we seek to create, and the principles and guiding practices by which we hope to get there.'

■ **Shimbel Index**

measure of the minimum number of links necessary to connect one node with all nodes in the network.

■ Shitauke gaisha

a Japanese term that refers to a subcontract(ed) company

■ short

1. used with 'sell' or 'sale,' this means that the seller does not currently have the thing being sold, but intends to acquire it on the market prior to making delivery.

2. used by itself as a verb, it means to sell short, as 'to short a currency,' meaning to sell it forward in anticipation that its value on the spot market will fall.

■ shuttle trade

the trade accomplished by individuals and groups travelling to other countries, buying goods and bringing them home, often in their luggage, to resell. An important source of imports for Russia in 1990s, some people travelling abroad several times a month for this purpose.

■ silver standard

a monetary system where the value of a currency is defined in terms of silver. If two currencies are both on a silver standard, then the exchange rate between them is approximately determined by their two prices in terms of silver.

■ simple money multiplier

the amount by which a change in the monetary base is multiplied to bring about the eventual change in the total money supply. It is called the simple money multiplier because it does not take into account possible offsets to the process, such as a rise in the amount of money that individuals or households may choose to hold as cash when the money supply increases.

■ single undertaking

a term, in trade negotiations, for requiring participants to accept or reject the outcome of multiple negotiations in a single package, rather than selecting among them.

■ situation

a reference to the 'relational' attributes of a location, i.e. to the location relative to (in relationships with) other key locations ('relative location').

■ size distribution of income

the distribution of income among groups of income recipients, defined on the basis of the size of their incomes.

■ SMAC function

an acronym for the CES function based on the names of the four authors who introduced it in Arrow et al. (1961).

■ small country assumption

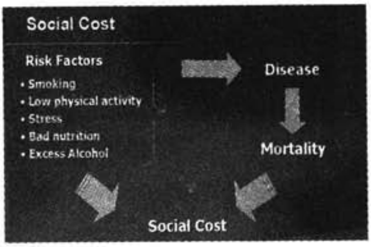
the assumption in an economic model that a country is too small to affect world prices, incomes or interest rates.

■ small open economy

an economy which is small enough compared to the world markets in which it participates that (as a good approximation) its policies do not alter world prices or incomes. The country is thus a price taker in world markets. The term is normally applied to a country as a whole, although it is sometimes used in the context of only a single product.

■ social cost

the real cost to society of having a good or service produced, that may be greater than the



private costs incorporated by the producer in its market price.

■ Social Darwinists

a disparate group of turn-of-the-century commentators on social issues who sought to utilise the Darwinian law of natural selection ('survival of the fittest') as a basis for social policy. The best-known of the social Darwinists was Herbert Spencer.

■ social indifference curve

a curve showing the combinations of goods that, when available to a country, yield the same level of social welfare.

■ social welfare function

a function mapping levels of utility of the individuals in an economy to a level of welfare for the economy as a whole.

■ SOE

Small open economy.

■ sole importing agency

an entity, either private or government, that has been granted by government the exclusive right to import certain goods.

■ Solow model

the neoclassical growth model. Also called the Solow-Swan Model.

■ Solow neutral

a particular specification of technological change or technological difference that is capital augmenting.

■ Solow residual

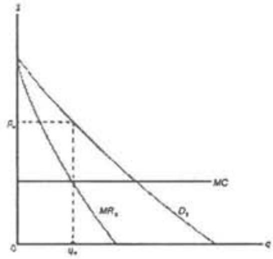
a measure of technological progress equal to the difference between the rate of growth of output and the weighted average of the rates of growth of capital and labour, with factor income shares as weights. Due to Solow (1957). Also called the growth of total factor productivity. Used to compare sources of growth across countries.

■ space-cost curve

expresses the spatial variability of total production costs of a firm with a given output level. Smith (1966) superimposed this spatial cost curve on the spatial revenue curve in order to determine the 'spatial margin of profitability'.

■ Spatial demand curve

refers to the aggregate demand curve containing the individual demand of consumers located at different distances from the focal point of supply. In other words, demand is aggregated across space, as seen from the perspective of the supplier (and her f.o.b.prices), as if the delivered price of the good is increasing for the consumer with distance by the corresponding transport cost.



Price Determination by a Spatial Monopolist

■ Spatial entrapment

a concept used to describe the situation of women restricted to distinctly female labour markets close to children and home in the urban periphery.

■ **Spatial iso-outlay line**

this is a theoretical construct used to introduce space into micro-economic production theory. The curve represents the results of an optimisation process. Every point on the curve represents different locations but equal total production costs (outlays) based on varying (optimal) input combinations (and resulting varying transport costs for these inputs).

■ **Spatial margin**

a line or boundary signifying the end of profitability or viability, thus separating profitable from loss-making spaces.

■ **Spatial margin of agricultural production**

the boundary of a region of profitability or positive rent. Beyond this boundary, transport costs outweigh net-returns leading to net losses.

■ **special and differential treatment**

the GATT principle where developing countries be accorded special privileges, exempting them from some requirements of developed countries. It also permits tariff preferences among developing countries and by developed countries, in favour of developing countries, as under the GSP.

■ **special drawing right**

originally intended within the IMF as a sort of international money for use among central banks pegging their exchange rates, the SDR is a transferable right to acquire another country's currency. Defined in terms of a basket of currencies, today it plays the role in that form of a unit of international account.

■ **specialisation**

1. producing more than is needed by you with regard to some things, and less of others, hence 'specialising' in the first. In international trade, this is just the opposite of self-sufficiency.

2. doing less than everything, as when a country produces fewer different goods than it consumes. In a 2x2 trade model, this means each country produces just one good. With many goods and countries, it means each country has some goods

that it does not (and cannot competitively) produce. Also may be called complete specialisation.

■ specie

coins, normally including only those made of precious metal.

■ specie flow mechanism

under the gold standard, the mechanism where international payments would adjust. A country with high inflation would export less, import more and thus lose specie, i.e., gold. With the money supply fixed to the quantity of gold, the resulting monetary contraction would reduce prices. Due to David Hume.

■ specific commitment

under the GATS, the identification of a category of services in which a country will apply national treatment and assure market access for foreign service providers.

■ specific factor

a factor of production which is unable to move into or out of an industry. The term is used to describe both factors that would not be of any use in other industries and — more loosely — factors that could be used elsewhere but do not, in the short run, have the time or resources needed to move.

■ specific factors model

a model where some or all factors are specific factors. Must commonly, the specific factors model has one specific factor (often capital or land) in each industry plus another factor (often labor) that is mobile between them. But an extreme form of the model can have all factors specific.

■ specific tariff

a tariff specified as an amount of currency per unit of the good.

■ specificity

the property where a policy measure applies to one or a group of enterprises or industries, as opposed to all industries.

■ specificity rule

the principle where the optimal policy for correcting a distortion is one that deals most directly, or specifically, with that distortion.

■ speculative attack

in any asset market, the surge in sales of the asset that occurs when investors expect its price to fall. A common phenomenon in the exchange market, especially under an adjustable pegged exchange rate.

substance of the site.

■ splashing ('industrial splashing')

a term used to refer to the establishment of multiple branch plants across the landscape (of Nigeria) by expatriate firms.

■ splintering

another term for fragmentation. Used by Bhagwati (1984).

■ spot market

1. a market for exchange (of currencies, in the case of the exchange market) in the present (as opposed to a forward or futures market in which the exchange takes place in the future).

2. market where goods, services, or financial assets are traded for immediate delivery. This differs from a futures market, where the delivery will be made at a future date.

■ spot rate

the exchange rate on the spot market. Also called the spot exchange rate.

■ spread

the difference between the price one must pay to buy something, such as a currency, and the price one receives for selling it.

■ stabilising speculation

speculation which decreases the movements of the price in the market where the speculation occurs. Freedman (1953) provided a classic argument that speculation on a floating exchange rate would be stabilising.

■ stabilisation policy

the use of monetary and fiscal policies to stabilise GDP, aggregate employment and prices.

■ stable

1. of an equilibrium, where the dynamic adjustment away from equilibrium converges to the equilibrium.

2. of an economic variable, not subject to large or erratic fluctuations.

standard of living

the concept has moved from a more or less strictly pecuniary interpretation of well-being to one which incorporates non-pecuniary components, thereby approaching the economist's concept of utility as expressed in a utility function. Dissatisfaction with using the simple measure of real per-capita GDP has lead to use of indicators which include length of life, level of education and access to jobs, infrastructure and amenities.

standstill

1. a commitment to refrain from introducing new measures that are not consistent with an agreement.

2. in the Uruguay Round, the agreement not to introduce new GATT-inconsistent trade-restricting and trade-distorting measures during the negotiations.

static gains from trade

the economic benefits from trade which arise in static models, including the efficiency gains from exploiting comparative advantage, the reduced costs from scale economies, reduction in distortion from imperfect competition and increased product variety. Contrasts with dynamic gains from trade.

static model

an economic model which has no explicit time dimension. A static model abstracts from the process by which an equilibrium or an optimum might be reached only over time, as well as from the dependence of the variables in the model itself on a changing past or future. Contrasts with dynamic model.

stationary state

the economic condition envisioned by the classical writers once the growth of population had reached the point where output per capita was reduced to the subsistence level and the accumulation of capital had reduced the return to investment to zero. The economy would remain in equilibrium with no possibility of future increases in population or per capita incomes.

steady state

a type of equilibrium, especially in a neoclassical growth model, in which those variables that are not constant grow over time at a constant and common rate.

■ sterilise

to use offsetting open market operations to prevent an act of exchange market intervention from changing the monetary base. With sterilisation, any purchase of foreign exchange is accompanied by an equal-value sale of domestic bonds and vice versa.

■ sticky place

a concept used in industrial geography to refer to the geographic consequences of inertial forces which prevent hypermobility (in an increasingly 'slippery production space') from completely obliterating production assembles in space.

■ Stolper-Samuelson Theorem

1. the proposition of the Heckscher-Ohlin Model where a rise in the relative price of a good raises the real wage of the factor used intensively in that industry and lowers the real wage of the other factor.

2. the further proposition (requiring addition assumptions) that protection lowers the real wage of a country's scarce factor and raises the real wage of its abundant factor. Due to Stolper and Samuelson (1941).

■ straight-line PPF

the PPF which arises in the Ricardian Model or in the HO Model if the two sectors have the same factor intensity. It is a downward sloping straight line with, therefore, a constant marginal rate of transformation.

■ strategic alliance

an agreement among companies for the purpose of achieving a common goal, usually in the form of sharing complementary strengths, achieving cost efficiencies or adjusting to rapid technological or market changes.

■ strategic decision-making

as different from programmed, routine decisions, strategic decisions tend to be relatively infrequent, not repetitive, involve the commitment of considerable resources (capital) and have long-time horizons with significant levels of uncertainty.

■ strategic trade policy

the use of trade policies, including tariffs, subsidies and even export subsidies, in a context of imperfect competition and/or increasing returns to scale to alter the outcome of international competition in a country's favour, usually by allowing its firms to capture a larger share of industry profits.

■ strategic variable

an economic variable that is chosen with regard to, and sometimes with a view to influencing, economic behaviour by someone else. Most frequently refers to the choice of firms in an oligopoly.

■ strategy

determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.

■ structural adjustment

the reallocation of resources (labour and capital) among sectors of the economy, in response to changing economic circumstances, including trading conditions or changes in policy.

■ structural adjustment program

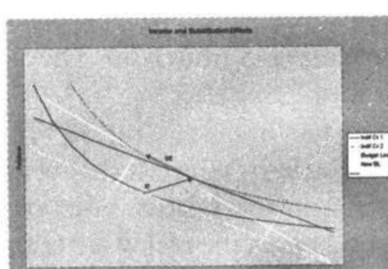
the list of budgetary and policy changes that are required by the IMF and World Bank in order for a developing country to qualify for a loan. This 'conditionality' typically includes reducing barriers to trade and capital flows, tax increases and cuts in government spending.

■ stumbling block

the term which Bhagwati (1991) used, together with building block, to address whether PTAs help move the world toward or away from multilateral free trade.

■ substitution effect

1. the change in the quantity of a good demanded resulting



from a change in its relative price, leaving aside any change in quantity demanded that can be attributable to the associated change in the consumer's real income. It may also be thought of as a change in the quantity demanded as a result of a movement along a single indifference curve.

2. that portion of the effect of price on quantity demanded that reflects the changed tradeoff between the good and other alternatives. Contrasts with income effect.

■ **sunk costs**

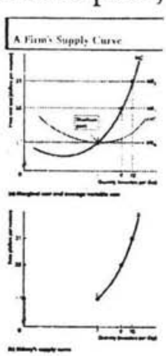
costs that are irrevocable and should not be used to influence current decisions.

■ **superior good**

a good the demand for which is elastic.

■ **supply curve**

the graph of quantity supplied as a function of price, normally



upward sloping, straight or curved and drawn with quantity on the horizontal axis and price on the vertical axis. Supply curves for exports and for foreign exchange usually have the same qualitative properties as supply curves for labour, being potentially backward bending.

■ **supply elasticity**

the elasticity of a supply function, usually with respect to price.

■ **surplus**

in the balance of payments, or in any category of international transactions within it, the surplus is the sum of credits minus the sum of debits. Also called simply the 'balance' for that category. Thus, the balance of trade is the same as the surplus on trade, or the trade surplus, and similarly for merchandise trade, current account and capital account.

■ **sustainable development**

a system of resource use that protects non-renewable resources and the environment.

■ **swap**

1. in the exchange markets, this

is a simultaneous sale of a currency on the spot market together with a purchase of the same amount on the forward market. By combining these two transactions into a single one, transactions costs may be reduced.

2. an arrangement between central banks whereby they each agrees to lend their currency to the other.

■ **swap rate**

the difference between the spot and forward exchange rates. Thus, the price of a swap.

■ **systems thinking**

the last of Senge's five learning disciplines of his learning organisation: 'A way of thinking about, and a language for describing and understanding, the forces and interrelationships that shape the behaviour of systems, helps us to see how to change systems more effectively, and to act more in tune with the larger processes of the natural and economic world.'

■ **tariff binding**

a commitment, under the GATT, by a country not to raise the tariff on an item above a specified level, called the bound rate.

■ **tariff equivalent**

the level of tariff which would be the same, in terms of its effect, usually on the quantity of imports, as a given NTB.

■ **tariff escalation**

in a country's tariff schedule, the tendency for tariffs to be higher on processed goods than on the raw materials from which they are produced. This causes the effective rate of protection on these goods to be higher than the nominal rate and puts LDC producers of primary products at a disadvantage.

■ **tariff factory**

a production facility established by a foreign firm through FDI in a country, in spite of its higher production costs, in order to serve its market without paying a tariff.

■ **tariff heading**

the descriptive name attached to a tariff line, indicating the product to which it applies.

■ **tariff jumping**

the establishment of a production facility within a foreign country, through FDI or licensing, in order to avoid a tariff.

■ **tariff line**

a single item in a country's tariff schedule.

■ **tariff peak**

in a tariff schedule, a single tariff or a small group of tariffs which are particularly high, often defined as greater than three times the average nominal tariff.

■ **tariff preference**

a lower (or zero) tariff on a product from one country than is applied to imports from most countries. This violation of the MFN principle is permitted in special cases, including some preferential trade arrangements and the GSP.

■ **Tariff Rate Quota (TRQ)**

a combination of an import tariff and an import quota in which imports below a specified quantity enter at a low (or zero) tariff and imports above that quantity enter at a higher tariff. Also called a tariff quota.

■ **tariff schedule**

the list of all of a country's tariffs, organised by product.

■ **Tariff Schedule of the United States (TSUS)**

the official product nomenclature for specifying tariffs in the United States, used until 1988, when it was replaced with the harmonised system.

■ **tariff wall**

a tariff, presumably a high one, perhaps in lots of industries. The term is used to highlight the difficulty foreign sellers have in getting their products past the tariff, often in the context of the incentive therefore provided for FDI.

■ **tariff-and-retaliation game**

the game of countries setting tariffs knowing that by doing so they alter the terms of trade to their own advantage. This is one very specific form of trade war.

■ **tariffication**

conversion of NTBs to ad valorem tariffs, at the level of their tariff equivalents. In the Uruguay Round, developed country agricultural NTBs were tariffied and bound, the purpose being to replace unwieldy NTBs with tariffs that can then become the subject of negotiation.

tariffs and retaliation

the process of one country raising its tariff to secure some advantage, to which another country responds by raising its tariff, the first raises its tariff still further, etc.

task environment

those elements or inputs in an organsation's environment that bear potentially on goal setting and on goal attainment within an organisation .

tax increment financing

is used to facilitate the financing of larger development projects by capturing the property tax revenue stream projected for the development and investing it into improvements associated with the project.

team learning

one of Senge's five learning disciplines for his 'learning organisation': transforming conversational and collective thinking skills, so that groups of people can reliably develop intelligence and ability greater than the sum of individual members' talents.

Technical Barrier to Trade (TBT)

a technical regulation or other requirement (for testing, labelling, packaging, marketing, certification, etc.) applied to imports in a way that restricts trade.

technical coefficient

in input-output analysis, identifies the percentage or portion of the total inputs of a sector required to be purchased from another sector irrespective of the geographic origin of this purchase. Technical (input) coefficients represent direct backward linkages of an industry to other industries and constitute the 'recipe' for production of that industry.

technical regulation

a requirement of characteristics (such as dimensions, quality, performance or safety) that a product must meet in order to be sold on a country's market.

technique of analysis

a method for displaying or manipulating economic models.

technological trajectory

the movement of multi- dimensional trade-offs among technological variables that the paradigm defines as relevant. Progress can be defined as an improvement of these trade-offs. One could imagine the trajectory as a 'cylinder' in a multidimensional space (Dosi); or: a pattern of 'normal' problem-solving activity within a technological paradigm.

■ temporary admission

permission to import a good duty free for use as input in producing for export.

■ temporary producer movement

a mode of supplying a traded service by the temporary movement of persons employed by the supplier into the buyer's country.

■ terminal costs

transshipment and loading costs that must be paid regardless of the distance involved.

■ Terms of Trade (TOT)

terms of trade that do not refer to contractual conditions of trade, but to price or exchange relationships between exports and imports. Thus, the terms of trade of a region or country improve when the prices for exports increase or those for imports decrease. Yes, the concepts of terms of trade can be meaningfully applied to many exchange type interactions.

■ terms of trade argument

same as the optimal tariff argument, that works by restricting the quantity of trade in order to improve the terms of trade.

■ terms of trade effect

the effect of a tariff on the terms of trade. By reducing the demand for imports, a tariff levied by a large country causes the prices of those imported goods to fall on the world market relative to the country's exports, improving its terms of trade.

■ tertiary sector

economic activities which are concerned with the organisation and coordination of production and other economic activities, and with the exchange (logistics, distribution, marketing etc.), maintenance (repair etc.) and consumption (retailing, wholesaling) of goods and services.

■ **the commons**

shared resources. Air and water are frequently used examples.

■ **the loss function**

also known as the 'criterion function'. A function that is minimised to achieve a desired outcome. Often econometricians minimise the sum of squared errors in making an estimate of a function or a slope. In this case, the loss function is the sum of squared errors. One might also think of agents in a model as minimising some loss function in their actions that are predicated on estimates of things such as future prices.

■ **theoretical proposition**

a property of an economic model which is derived (deduced) from its assumptions. It usually takes the form of a prediction about something that would be true in the world if the world conformed to the model's assumptions, and perhaps also to additional assumptions specified in the proposition.

■ **thread**

a hierarchical arrangement of linked notes where each successive contribution is written as a response to an earlier note in the discussion (to organise discourse). Usually used by online conferencing forums and called 'threading'.

■ **time-space convergence**

refers to the diminishing time needed to connect two places by transportation due to improving transport technologies.

■ **tort**

in law, a private or civil wrong.

■ **total factor productivity**

the growth of real output beyond what can be attributed to increases in the quantities of labour and capital employed.

■ **Total Factor Productivity (TFP)**

a measure of the output of an industry or economy relative to the size of all of its primary factor inputs. The term, and its acronym TFP, often refers to the growth of this measure, as measured by the Solow residual.

■ **trade creation**

trade which occurs between members of a preferential trading arrangement that replaces what would have been production in the importing country were it not for the PTA. It is associated with welfare improvement for the importing country since it reduces the cost of the imported good. Concept due to Viner (1950).

■ **trade flow**

the quantity or value of a country's bilateral trade with another country.

■ **trade indifference curve**

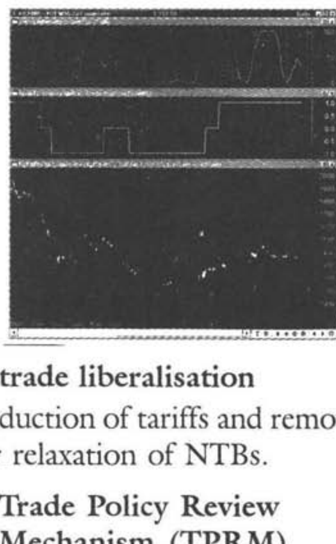
in a diagram measuring quantities of exports and imports, a curve representing amounts of trade among which a freely trading country is indifferent, based on its community indifference curves and its transformation curve. Due to Meade (1952).

■ **trade integration**

the process of increasing a country's participation in world markets through trade, accomplished by trade liberalisation.

■ **trade intensity index**

for a group or bloc of countries, usually in a PTA, the ratio of the bloc's share of intra-bloc trade to the bloc's share in world trade. If greater than one, this is said to suggest that the bloc displays trade diversion. Index seems to be due to Frankel (1997).



■ **trade liberalisation**

reduction of tariffs and removal or relaxation of NTBs.

■ **Trade Policy Review Mechanism (TPRM)**

the periodic review of the trade policies and practices of the member countries of the WTO, conducted and published by the WTO.

trade theory

the body of economic thought which seeks to explain why and how countries engage in international trade and the welfare implication of that trade, encompassing especially the Ricardian Model, the Heckscher-Ohlin Model, and the New Trade Theory.

trade triangle

in the trade-and-transformation-curve diagram, the right triangle formed by the world price line and the production and consumption points, the sides of which represent the quantities exported and imported.

trade-and- transformation- curve diagram

one of the most frequently used diagrams of trade theory, using a transformation curve together with one or more price lines and sometimes community indifference curves to illustrate production, consumption, and trade and the effects on them of tariffs and other exogenous changes.

traded good

a good that is exported or imported or sometimes a good that could be exported or imported if it weren't for those pesky tariffs.

trade-related investment measure

any policy applied to foreign direct investment which has an impact on international trade, such as an export requirement.

trade-weighted average tariff

the average of a country's tariffs, weighted by the value of imports. This is easily calculated as the ratio of total tariff revenue to total value of imports.

trade-weighted exchange rate

the weighted average of a country's bilateral exchange rates using bilateral trade, exports plus imports, as weights.

transaction value

the actual price of a product, paid or payable, used for customs valuation purposes.

transfer payment

payment made by the government or private sector of one country to another as a gift or aid, not as payment for any good or service nor as an obligation. Also called a unilateral transfer.

■ transfer payments

social benefits paid to individuals or households by government.

■ transfer pricing

the practice of pricing goods and services flowing within a corporation between corporate units located in different tax jurisdictions, so as to shift profits into the jurisdiction with the lowest corporate income tax rates.

■ transformation curve

same as production possibility frontier. The name comes from the idea that, by devoting resources to producing one good instead of another, it is as though one good is being transformed into another.

■ transition matrix

a matrix of transition probabilities (p) (probabilities of outcome a on any given experiment/ during a specific period of time, given that outcome a occurred on the preceding experiment / during the previous period of time).

■ treasury bills

short-term bonds issued by the government, used to pay to cover government spending.

■ tree

a fully connected network without circuits.

■ triad

Europe, North America and Japan.

■ two cone equilibrium

a free-trade equilibrium in the Heckscher-Ohlin Model where prices are such that all goods cannot be produced within a single country, and instead there are two diversification cones. This, or a multi-cone equilibrium, will arise if countries' factor endowments are sufficiently dissimilar compared to factor intensities of industries. Contrasts with one cone equilibrium.

■ ubiquitous materials or inputs

materials or production (or consumption) inputs that are available more or less everywhere in a similar quality and at approximately the same price. Still, ubiquitous inputs may have an effect on location: Inasmuch as such ubiquities affect the weight or bulk of the final product, the location of production (ceteris paribus) will tend to be relatively close to the market (in order to save transport costs).

■ uncovered interest parity

equality of expected returns on otherwise comparable financial assets denominated in two currencies, without any cover against exchange risk. Uncovered interest parity requires approximately that $i = i^* + a$ where i is the domestic interest rate, i^* the foreign interest rate and a the expected appreciation of foreign currency at an annualised percentage rate.

■ unequal exchange

trade where the labour used to produce a country's exports is more than the labour used to produce its imports, as in the exchange between low-wage developing countries and high-wage developed countries.

■ uniform delivered pricing

a common pricing scheme for consumer and other goods where prices charged at different locations are uniform and independent of transport costs. 'Romote buyers are subsidised by buyers near the production location.'

■ unilateral transfer

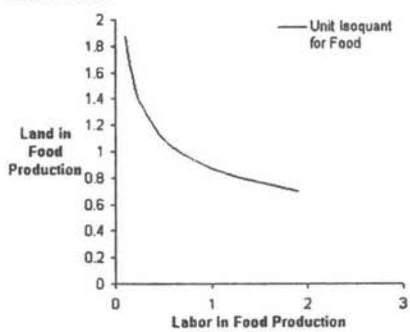
transfer payment.

■ unit isocost line

an isocost line along which the cost is equal to one unit of the numeraire, such as one dollar.

■ unit isoquant

the isoquant for a quantity equal to one unit of a good. The unit isoquant is useful for relating the price of a good to the prices of factors employed in its production.



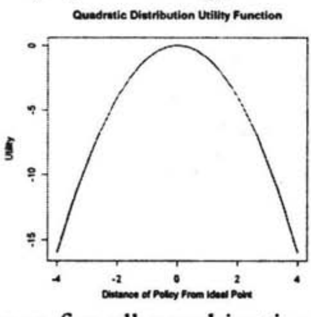
■ United Nations Conference on Trade and Development (UNCTAD)

an intergovernmental body established in 1964 within the United Nations, responsible for trade and development. Historically, it has often been the international voice of developing countries.

■ upstream subsidisation
export of a good, one of whose inputs has been subsidised.

■ urban-growth boundary
a politically specified line around cities, beyond which development is discouraged or prohibited. Sometimes also called urban-limit lines or rural-limit lines, urban growth boundaries exist in many cities, counties and regions across the U.S., particularly in California.

■ utility function
a function which specifies the utility (well being) of a con



sumer for all combinations of goods consumed (and sometimes other considerations). Represents both their welfare and their preferences.

■ value added
the value of output minus the value of all intermediate inputs, representing therefore the contribution of, and payments to, primary factors of production.

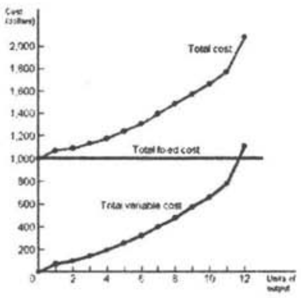
■ Value Added Tax (VAT)
a tax which is levied only on the value added by a firm. A VAT is usually subject to border tax adjustment.

■ value marginal product
marginal value product.

■ value network
the communications network of relations between all individuals and organisations who add value to a product.

■ value quota
a quota specifying value — price times quantity — of a good.

■ variable cost
the portion of a firm or industry's cost which changes with output, in contrast to fixed cost.



■ variable levy

a tax on imports that varies over time, so as to stabilise the domestic price of the imported good. Essentially, the tax is set equal to the difference between the target domestic price and the world price.

■ vehicle currency

the currency used to invoice an international trade transaction, especially when it is not the national currency of either the importer or the exporter.

■ vertical integration

production of different stages of processing of a product within the same firm.

■ vertical integration

corporate mergers involving firms that are involved in forwardly or backwardly related production stages, i.e. they buy each other's inputs or outputs. A merger accomplishing an internalisation of such linkages increases control of input or output markets and thereby over prices and other market facets.

■ vertical intraindustry trade

intraindustry trade in which the exports and imports are at the different stages of processing. Contrasts with horizontal IIT.

■ vertical mixing

ensures a variety of different ages, experience sets and skills on design teams.

■ vertical specialisation

another term for fragmentation.

■ visible

in referring to international trade, used as a synonym for 'good'. 'Visibles trade' is trade in goods. Contrasts with invisible.

■ Voluntary Export Restraint (VER)

a restriction on a country's imports that is achieved by negotiating with the foreign exporting country, for it to restrict its exports.

■ Voluntary Import Expansion (VIE)

the use of policies to encourage imports, in response to pressure from trading partners. Due to Bhagwati (1987).

■ Walrasian auctioneer

a hypothetical entity that facilitates market adjustment in disequilibrium by announcing prices and collecting information about supply and demand at those prices without any disequilibrium transactions actually taking place.

■ WARP

Weak Axiom of Revealed Preference.

■ water in the tariff

the extent to which a tariff that is higher than necessary to be prohibitive.

■ welfare proposition

in trade theory, this usually refers to any of several gains from trade theorems.

■ welfare triangle

in a partial equilibrium market diagram, a triangle representing the net welfare benefit or loss from a policy or other change. In trade theory, it often means the triangle or triangles representing the deadweight loss due to a tariff.

■ Western Hemisphere Free Trade Area (WHFTA)

name sometimes proposed for a preferential trading arrangement including most or all of the countries of the western hemisphere. Now called FTAA.

■ zero degree homogeneous

homogeneous of degree zero.

Notes