

Journal of
Economics, Banking and Finance

Volume 2, Issue 1, 2008

A taxonomy of product classes

John J. Dall, Jr. Ph.D., Professor & Chair Dept. of Economics, Stillman School of Business, Seton Hall University. dalljohn@shu.edu

Laurence M. McCarthy, Ph.D., Associate Professor of Management, Stillman School of Business, Seton Hall University. mccartla@shu.edu

Abstract

A scan of the process of globalization isolated a zone of exclusion. This zone provided a useful link to the Institute's on-going research on product development theory. While the taxonomy of product classes applies to both developed and aspiring nations, its focus was restricted to the zone of exclusion. We conclude with a potentially fruitful next phase of research – a tool for micro-finance efforts. Our closing fusion composition is offered as a time saving opening to micro-finance.

Introduction

Globalization Defined

Globalize: To make global; to make worldwide in cope or application

Source: *Merriam-Webster Online*

A complete reorganization of the world's economic and political activity resulting from free trade agreements and advancements in technology.

Source: International Forum on Globalization, <http://www.ifg.org/about.htm>

Process of increasing the connectivity & interdependence of the world's markets and businesses.

- Major recent driving forces:
- Advance in telecommunications infrastructure
- The rise of the Internet

Source: <http://www.investorwords.com/2128/globalization.html>

The rapidly increasing economic interdependence of countries; driven by:

- Macroeconomic policies
- Outward-oriented trade policies
- Enterprises seeking profits wherever they can earn them, ignoring borders and seeking to exploit all available sources of competitiveness

Source: United Nations Conference of Trade and Development: Globalization, Competition, Competitiveness and Development, 23 October 1997.

<http://www.unctad.org/en/docs/tb44d20.pdf>

The growth of two-way trade in manufactures between the industrialized countries and select group of developing countries constitutes the core of the process of globalization.

Ghose, A.K. *Jobs and incomes in a globalizing world*, International Labour Office, 2003

The Zone of Global Exclusion

Developing Countries (90)

Afghanistan, Bahamas, Barbados, Belize, Benin, Bermuda, Bhutan, Bolivia, British Indian Ocean Territory, Burkina Faso, Burundi, Cambodia, Cayman Islands, Central African Republic, Chad, Chile, Colombia, Comoros, Congo (Republic), Congo (Democratic Republic), Costa Rica, cote d'Ivoire, Cuba, Djibouti, Dominican Republic, El Salvador, Equatorial Guinea, Ethiopia, Falkland Islands, Fiji, French Guiana, Gambia, Ghana, Greenland, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Jamaica, Jordan, Kenya, Kiribati, Korea (Democratic People's Republic), Lao People's Democratic Republic, Lebanon, Liberia, Madagascar, Malawi, Maldives, Mali, Mauritania, Mongolia, Mozambique, Myanmar, Nepal, Netherlands Antilles, New Caledonia, Nicaragua, Niger, Panama, Papua New Guinea, Paraguay, Peru, Reunion, Rwanda, Senegal, Seychelles, Sierra Leone, Solomon Islands, Somalia, Saint Helena, Saint Kitts and Nevis, Saint Pierre and Miquelon, Sudan, Suriname, Syrian Arab Republic, Tanzania (United Republic), Togo, Trinidad and Tobago, Turks and Caicos Islands, Uganda, Uruguay, Viet Nam, Western Sahara, Yemen, Zambia, Zimbabwe

Petroleum-exporting Developing Countries (17)

Algeria, Angola, Bahrain, Brunei, Cameroon, Ecuador, Gabon, Iran (Islamic Republic), Iraq, Kuwait, Libyan Arab Jamahiriya, Nigeria, Oman, Qatar, Saudi Arabia, United Arab Emirates, Venezuela

Source: Adapted from Ghose, A. K.

Prologue

The fundamental shift which is taking place in the world economy sees an American driving to work in a car, designed in Germany, assembled in Mexico from components manufactured in the US and Japan, fabricated from Korean steel and Malaysian rubber. The car may have been filled at a gas station owned by a British multi-national, refined from oil pumped from a well on the west coast of Africa owned by a French oil company and transported to the US in a tanker owned by a Greek shipping line. Such is a micro example of the world we live in. (6)

The global dispersal of productive activities is not limited to giants such as automobile manufacturers or oil companies. Smaller companies such as cashmere manufacturers Pringle of Hawick, Scotland are similarly engaged in a global activity. Their upper market clothing line is designed in Paris and Milan, raw material is collected in Mongolia, and manufactured and exported from Scotland. In such a world, Robert Reich, former US Secretary of Labor, has suggested that it is becoming irrelevant to talk of national products rather we should be talking in the context global products.

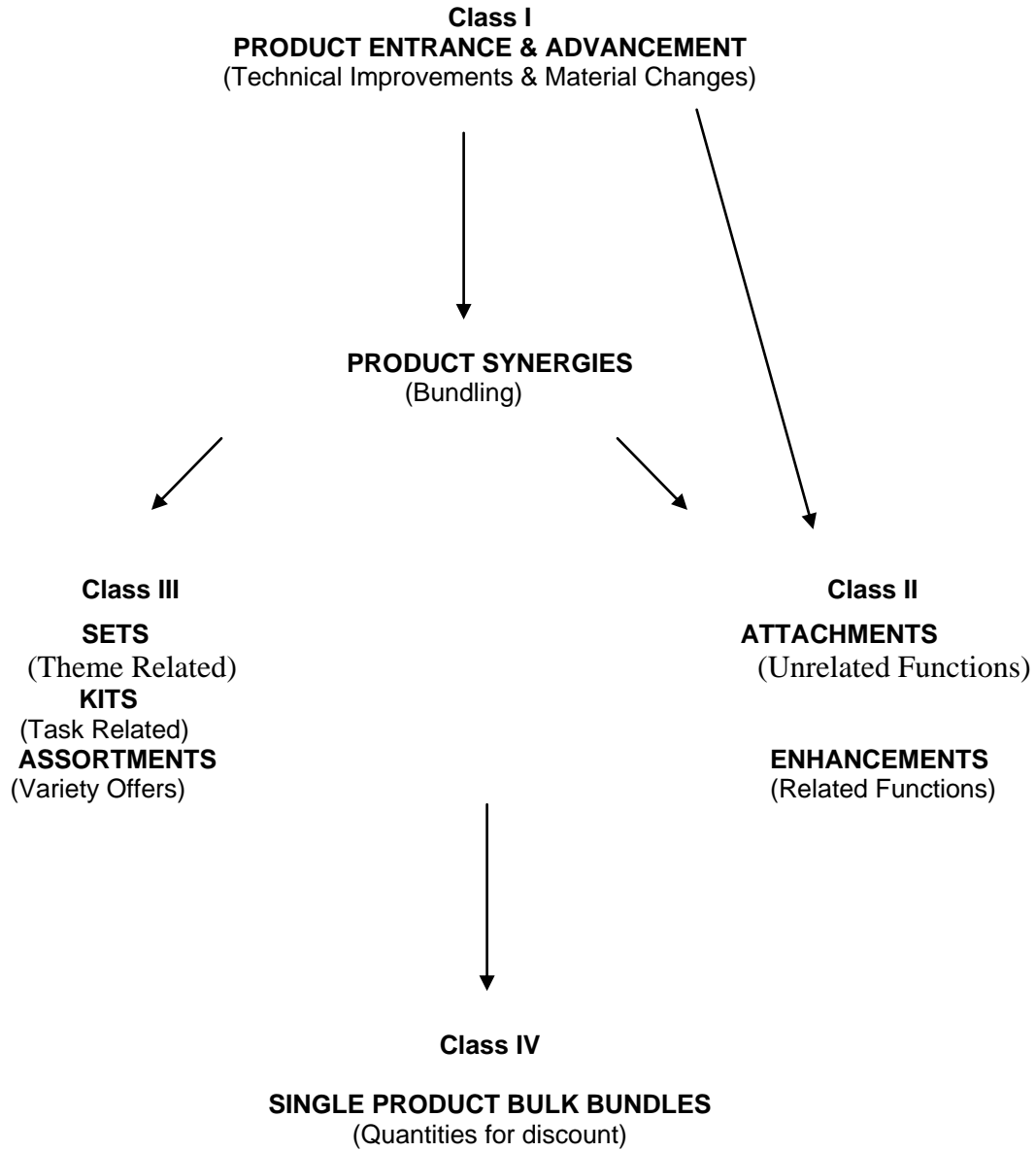
Two macro factors seem to be driving the trend towards greater global diversity in manufacturing. The first is the decline in barriers to trade, the second is the dramatic development in communication, information processing, and transportation technologies. Added to these forces are the evolution of the multi-national corporation and the emergence of growing markets which are symbiotically a result of the globalization forces. As the costs associated with transportation decline, the dispersal of production to geographic diverse locations becomes more economical. As the cost of communication has declined it has become not only possible, but in many cases very beneficial for companies to create and manage globally dispersed production systems, thus aiding in the creation of a globalized market. The resultant reduction in cultural differences is bringing about some convergence of consumer tastes and preferences; there is even an attempt in the literature to model a steady state of global consumer behavior. (12)

While globalization has benefited the developing and developed nations many nations are subject to global exclusion. Approximately 107 nations and regions are in this global exclusion zone. (5)

Because they lack the necessary pre-conditions or infrastructure they cannot take advantage of global market opportunities. In the following taxonomy there are products in Class 1 create that opportunities that only entrepreneurs in developed and some developing nations share but in the trove of products in other classes there are opportunities that the that the global exclusion group might exploit.

Figure 1

A Taxonomy of Product Classes



The Taxonomy

Figure 1 presents an attempt to establish definitional boundaries for several product classes. As a result of random innovative events or the yields of R & D efforts, products enter the arena of market forces for change in Class I, Product Entrance and Advancement. Product changes in this class come under the surveillance of Product Life Cycle (PLC) theory and New Product Development (NPD). While some overlapping of analytical scope occurs between PLC and NPD, PLC is driven by a search for dominant design which includes product production process performance as well. Engineering or technical problems are the principal concerns. NPD theory traces the “race to market”. (2, 9, 12). During this class products undergo significant technological change. It is not only a search for a better mousetrap but a search for the best mousetrap. Examples are steam locomotive, electric light bulb, radio, TV, telephone, can opener, carpet sweeper and even the nutcracker. Some original product designs endure but most experience advancement, either in technical or material improvements. Examples of material changes are iron to steel to aluminum to fiberglass; and, wood to metal to plastic. The former changes are evident in vehicles production while the later can be exemplified by a potato masher, Christmas tree ornaments, radio knobs and many utensils.

There is still another view of changes in Class I products given by Vernon's Product Cycle (PC) theory. (15). PC asserts that innovation occurs in the technologically advanced economies, and after the product production process is standardized it is licensed out to less developed countries to manufacture. This theory covers the scope of PLC and NPD but introduces changing manufacturing locations. Interesting, but off our mark since global exclusion is ignored.

The late price historian Dorothy S. Brady (7) observed that technically completed products were often lavished with adornment or embellishments. No doubt engineering turns the completed products over to marketing. Some examples of end stage Class I products are Franklin stoves, air-tight wood burners, knives, can openers, nutcrackers, trunks, tables and fireplaces. The Brady thesis (BT) can be extended to include products in Class II Attachments and Enhancements assembled in Figure 2. These additions represent elements of technological improvement but are mainly marketing driven. These bundles contain both manufacturing and consumer synergies.

The remaining classes in the taxonomy use bundling or consumer synergies as a core genus. Equating bundling with consumer synergies might be new but bundling is not. Who hasn't delighted in the hedonic bundle of Omar the Poet. (8) When economic historians hear the term bundling, our minds roam back to more romantic times – cold winters in North America or in Hokaido the large northern island in Japan and elsewhere – when rural folks huddled together or bundled to keep warm. (14) Additionally, the long winter bundling served to polish the rough edges off bundlers' personalities. Bundling produced warmth and agreeable temperament. Bundling was a bundle.

Bundling is a lot more than a romantic notion. It occurs in duopoly or monopoly models, anti-trust and tie-in issues, market entry strategies and market distribution concerns (1, 3, and 4). This literature is off the mark. Somewhat closer to the mark is the reference in micro economics literature under consumer behavior theory and intertemporal bundling (4).

Economists use composite good, multigood or amalgam bundles in a consumer choice problem of “buy now or buy later”. Unfortunately, this treatment is also off the mark for product synergies practiced by consumers. The “buy now and start paying later” sales offer can solve the normal intertemporal problem. Rather, synergy seeking consumers often face the issue of “buy now and use later. This paper does not attempt to address the problem of causes of bundles. Consumers' synergistic behavior is market observable and apparent. Less apparent is the motive or motives for consumer synergies in bundling behavior. The current task is to provide some definitional order in an array of product features, attachments, paraphernalia, peripherals, ensembles, accessories, accents, accoutrements and trappings. Figures 3 and 4 order bundles.

Figure 3 gives Sets, Kits and Assortments. The bundles are the expression of consumption synergies. Finally, Single Product Bundles are given in Figure 4. Some unusual or puzzling bundles are included with these discount quantity bundles.

To review the taxonomy Figure 5 and Figure 6 are offered. The details in the sources in Figure 5 spin an amazing tale of product adventure. Adventure or not, this little nutcracker offers a template or a path algorithm for product exploitation. Figure 6 demonstrates how the Nutcracker examples each class in the taxonomy.

Figure 2

Class II

Enhancements and Attachments

Attachments	
Item	Description
Pocket knife	Boy Scout, Campers, British Army
Multipurpose tool	Pliers, adjustable wrench, screwdriver
Cigarette lighter	Lighter, time piece, money clip
Can opener	Can opener, knife sharpener
Toaster	Toaster, defroster, warmer
Television	VCR, clock
Cable wire	Phone, TV, bell, alarm, computer
Kitchen sink	Hot and cold faucets, "on call" 190° water
Potato peeler	Peeler, core remover, fish scraper
Kitchen scissors	Scissors, can opener, screwdriver, scraper
Calendar	Calendar, thermometer, coupons
Wall gauges	Clock, thermometer, barometer
Clock	Clock, radio
Clock	Teapot, clock
Walking stick	Stick, compass
Pen	Pen, light, knife
Cell phone	Phone, email, camera
Nutcracker	Cracker, bottle opener

Enhancements	
Item	Description
Pipe lighter	Lighter, packer, cleaning tool
Measuring spoon	Spoon, bottle opener
Opener	Jar, can, bottle
Kitchen sink	Water faucets, garbage disposal
Refrigerator	Freezer, ice maker, meat keeper, crisper
Hammer	Hammer, claw
Pliers	Grip, cutters, strippers
Crow bar	Pry bar, claw, hammer
Personal computer	E-mail, internet, entertainment
Text books	Text supplements
Iron	Steam, sprinkle iron
Vacuum cleaner	Vacuum, duster, blower

Figure 3

Class III

Sets, Kits and Assortments

Common Sets	
Generic Name	Contents
Barbeque set	Apron, cooking utensils
Bathroom set	Glass, toothbrush holder, soap tray
Bedding Set	Comforter, sheets, dust ruffle, curtains
Box set	Movies (VCR)
Bungi cord set	Various sizes
Car mat set	Mats, front, back, trunk
Clothing sets	Twin color blouses, tops
Comb & brush set	Comb, brush, mirror
Cosmetic brush set	Various types and sizes
Exercise Sets	Shorts, pants, tops, jackets
Gift set	Watch, calculator, lighter, pocket knife
Golf Set	Clubs, towel, balls, bag
Jewelry set	Ring, pin, necklace, bracelet
Lawn care set	Garden hand tools, varied
Pen & pencil set	Pen, pencils
Plastic food storage containers	Various sizes
Scissor set	Various sizes
Table set	Salt & pepper shakers, napkin holder
Tea set	Teapot, cups, sugar bowl, creamer
Tool sets	Pliers, wrenches by size, screwdrivers
Train set	Tracks, transformer, cars
Wok set	Pan, brush, utensils
Writing Set	Pen, paper, envelopes
Pots & pans set	Soup pot, sauce pan, frying pan
Frying pan set	Various sizes
Caster set	Rolling casters
Organizer set	Binders, files
White board set	Markers, eraser, cleaner
Swing set	Swing, seesaw, slide, rope
Desk File set	Open and closed front drawers
Ping-Pong set	Balls, rackets
Dart set	Darts, case
Funnel set	Various sizes

Common Kits	
Generic Name	Contents
Eyeglass repair kit	Tiny screwdriver, screws, wire
Sewing kit	Needle, thread, buttons
First aid kit	Band-aids, bandages, ointment
Shoe shine kit	Shoe polish, brush, cloth
Auto emergency kit	Flares, flashlight, map
Manicure/Pedicure Kit	Emery board, pumice stone, polish
Lettering kit	Stencils, brushes paint
Easter egg kit	Food dye, holder, crayons, paste-ons
Detox therapy kit	Aromatherapy items
Massage kit	Vibrator and attachments
Massage kit	Loofah sponges, aromatherapy items
Travel kit	Maps, magnifying glass
"Lock out" tool kit	Bars and picks
Grommet kit	Tool grommets
Beauty kit	Cosmetics, brushes, comb
Hair styling kit	Curling iron, dryer, styling attachments
Cue repair kit	Glue, tips, trimmer
Power tool kit	Sander, jigsaw, drill
Sander-Polisher kit	Power source, attachments
Shaving kit	Brush, soap mug
Drill kit	Drill bits
Dust pan	Pan, brush
Sand kit	Bucket, rake, shovel

Common Assortments	
Generic Name	Contents
Hickory Farms Sampler	Smoked sausage, cheese, meats
Easter basket	Chocolate bunny, jelly beans, eggs, toys
Mixed nuts	Peanuts, almonds, cashews
Health and beauty aids	Shampoo, conditioner, lotion
Stuffed Christmas stockings	Candy canes, toys, chocolate
Whitman Sampler	Caramel, chocolate creams, nut clusters
Games	Checkers, Chess, Chinese Checkers
Auto fuse	Various sizes
Juices	Various flavors
Cereal	Type of brands
Assorted buttons	Color, size, style
Assorted fasteners	Purpose, size
Fish hooks	Purpose, size
Basket of joy	Gin, rye, whiskey, rum, vodka
Band-Aids	Purpose, size
Personal computer	Peripherals
Cotter pins	Various sizes
Sponges	Various sizes
Mix 'n Match	Various products

Figure 4

Class IV

Single Product Bulk Bundles

Usual Items	
Gloves	Playing cards
Socks	Shoe laces
Underwear	Pampers
Hair curlers	Handkerchiefs
Clothes pins	Pens
Beer	Light bulbs
Pencils	Static stoppers
Batteries	Holiday ornaments
Golf balls	Hacksaw blades
Disposable razors	Postage stamps
Corn cob holders	Dish cloths
Kitchen towels	Rubber bands
Hangers	Safety pins
Mason jars	Ashtrays
Rolls of tape	Sink strainers
Unusual Bundles	
Fly swatters (4)	Tooth brushes (12)
Super glue (4)	Potato peelers (3)
Spiderman dolls (3)	Rulers (6)

Figure 5

The Nutcracker

Steinbach Nutcrackers – Makers of the World’s Finest Nutcrackers

<http://www.magicofnutcrackers.com/>

Christmas Decorations and Gifts Store – History

http://www.christmas-decorations-gifts-store.com/history_of_nutcrackers.htm

Steinbach Nutcrackers – History and Making of the Nutcracker

<http://www.magicofnutcrackers.com/Nutcrackers/HistoryofNutcrackers.htm>

The Leavenworth Nutcracker Museum

<http://www.nutcrackermuseum.com/history.htm>

DVD Verdict Review – Barbie in the Nutcracker

<http://www.dvdverdict.com/reviews/barbienutcracker.php>

Looksmart On-Line – Summary of Mattel Barbie/Nutcracker Marketing Strategy

http://www.findarticles.com/cf_dls/m0BDW/28_42/76700437/p1/article.jhtml

Steinbach – List of 2003 Nutcracker Toys

<http://www.christmas-treasures.com/steinbach/Collection/2003/steinbach2003home.htm>

Source: Alexei Soma Tolstiaikov. Student research paper Economics 4496. 2004

Figure 6

The Nutcracker and the Taxonomy

Product Entrance & Advancement	
Technological change	Screw and lever types
Material changes	Wood, plastic, pewter, glass, brass, steel
Adornment (Brady Thesis)	Animal casts Hand carved

Product Bundling	
Set	Card holders
Kits	Nut crackers, pick, bowl
Assortments	Tree ornaments, Toy soldiers
Enhancements	Barbie
Attachments	Candy rack

Epilogue

The handmaiden of global production technology and information is global consumption or consumption aspirations. This means growing markets, real and potential – both are objects of entrepreneurial exploitation. The literature that addresses growing markets was often termed off the mark because the mark, or target is the excluded group of 107 nations and regions. Advice to this group is to look to bundles. Many are attainable with almost any level of technological sophistication. Unfortunately, there are no estimates of the capacity or employment in household or micro enterprises in any manufacturing employment reporting by the ILO and the UNIDO. (5). But, we do know that every nation, region, city, town and village has traditional capacity servicing most immediate markets. With growing global demand and the “going concern” status of local enterprise, opportunities for entrepreneurs are pursuable – with a little help. Oddly, this help could come from those developing nations that are evolving into more technologically complex production processes. This help need not be costly. A lot can be done with microfinance; Prof. Yunus demonstrated that. In the past, the concern of development specialists was “transforming traditional agriculture” now some nations face the challenge of transforming traditional manufacturing. The past success in agriculture might be transferable. These nations have some old wine in brand-new bottles.

Microfinance Defined and Exemplified* (Microcredit or Microlending)

I. Definitions & General Description

- A. Definition of Microfinance: Loans that are extended to very poor people for self-employment projects that allow those people to take care of themselves.

General Description of Microfinance: Microcredit is a very broad area that consists of several classifications. Microcredit can be characterized by several features and classifications. Some of those classifications include group-based microcredit and activity-based microcredit, both are offered through specialized banks. Issuing microcredit was started for the purpose of challenging traditional classifications of the poor as “not creditworthy” when considering loans. The loans are paid back in installments and a new loan is issued after an old one has been paid off. Finally, in order to be eligible for these loans a borrower must join a group of borrowers. Source: <http://www.grameen-info.org/mcredit/>

- B. Definition of Microfinance: The extension of small loans to business people who are too poor to afford traditional bank loans. These loans are taken to enable poor people to engage in self-employment practices.

General Description of Microfinance: The concept behind microfinance was first started by Muhammed Yunus. It was started to fight against poverty during a famine in Bangladesh. As a result, Yunus started the Grameen Bank to make loans to poor Bangladeshis. These loans are offered for several types of projects like irrigation projects, fisheries projects, and housing loans. Source: <http://encyclopedia.thefreedictionary.com/Microfinance>

- C. Definition of Microfinance: The supply of loans and other financial services to the poor.

General Description of Microfinance: Poor people living in poverty need a range of financial services to run their businesses. Microcredit provides this in a whole range of financial services like capital loans and money transfer services. These services have proven to be a powerful tool in the fight against poverty. Source: <http://www.cgap.org/about/faq01.html>

* Fusion Composition, Januj Juneja, Research Assistant Seton Hall University

- D. Definition of Microfinance: A system where poor people in poor countries can borrow money at low interest rates.

General Description of Microfinance: The concept behind microfinance can be described through an example. A person makes mats in a poor country. She sells those mats for \$2 each. She takes a micro-loan at a low rate of interest. The repayment of the loan is easy b/c it is made in small installments, and that money can be given to another person, which helps the community. Source: <http://www2.gol.com/users/bobkeim/money/microcred.html>

II. Selected Projects

- A. Grameen Bank Project, Bangladesh,
<http://www.grameen-info.org/bank/>
- B. Dress Making Cooperative, Indonesia
http://www.wjfb.org/projects/dress_making.htm
- C. Micro-credit and Civil Society Building, Bolivia
http://www.wjfb.org/projects/microcredit_bolivia.htm
- D. Post-Credit Training and Capacity Building for Female Entrepreneurs, Peru
http://www.wjfb.org/projects/microcredit_peru.htm

References

1. Baumol, W. Blinder (2004) 9th ed., *Microeconomics*, Thomson-South Western.
2. Burger, K. (October, 2003). "Making speed to market a reality." *Insurance and Technology*, 28 (10).
3. Carlton D., Perloff J. (2005) *Modern Industrial Organization* 4th ed., Pearson, Addison-Wesley
4. Frank, R.H. (2003). *Microeconomics and Behavior*, 5th ed. McGraw-Hill.
5. Ghore. A. K. (2003). *Jobs and Income in a Globalizing World*, International Labor Office. Geneva.
6. Hill, C.W.L., (2003). *International Business: competing in the global marketplace*, 4th Ed.
7. Iowa State University. College of Liberal Arts and Sciences, *Plaza Heroines*. Dorothy Brady. [Online] Available: <http://www.las.iastate.edu/kiosk/2415.shtml>
8. Khayyam, Omar (circa 1100) *Rubaiyat* Translation by E. Fitzgerald (1859) Edited by L. Untermeyer (1947). Random House
9. Klepper, S. (1996). "Entry, exit, growth and innovation over the Product Life Cycle." *The American Economic Review*. 86 (3), 562-583.
10. Littlefield and Rosenberg "Microfinance and the Poor" *Finance and Development*, IMF June 2004 Vol. 41 No. 2
11. Robertson, D. & Pope, N. "Product Bundling and causes of attendance and non-attendance in live professional sport: a case study of the Brisbane Broncos and the Brisbane Lions". *Cyber Journal of Sport Marketing*, 3 (1). [On-line] Available: <http://www.ausport.gov.au/fulltext/1999/cjism/v3n1/robertson&pope31.htm>
12. Segerstrom, P.S., Anant, T.C.A., & Dinopoulos, E. (1990). "A Schumpeterian Model of the Product Life Cycle". *The American Economic Review*, 80 (5), 1077-1091.
13. Simonin, B.L. & Ruth, J.A. (1995). "Bundling as a strategy for new product introduction: Effects on consumers' reservation prices for the bundle, the new product and its tie-in." *Journal of Business Research*, 33 (3), 219-230.
14. Stiles, H.M., *Bundling in America* Albany 1869. Cited by the controversial William Sumner in his *Folkways*. GINN 1940.
15. Yarborough, B. & Yarborough, R. (2003). *The World Economy* 6th ed. Thompson, South Western.
16. Yunus, Muhammad (1999). Banker to the Poor. *Public Affairs*