

Teaching Business Demography Using Case Studies*

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Abstract

In their paper on using case studies in business statistics courses, Patten and Swanson (2003) note that many faculty members consider using case studies but not all end up using them. Following Patten and Swanson (2003), we provide a brief review of what cases are intended to do and identify three ways in which they can be used. We then use an example to illustrate how we have used the case study method in teaching business demography. Among other benefits, we note that the case studies method not only encourages the acquisition of skills by students, but can be used to promote “deep structure learning,” an approach naturally accommodates other features associated with the case studies method – the development of critical thinking skills, the use of real world problems, the emphasis of concepts over mechanics, writing and presentation skills, active cooperative learning and the “worthwhileness” of a course. As noted by others, we understand the limitations of the case study method. However, given its strengths, we believe it has a place in the instructional toolbox for courses in business demography. We conclude with the observation we use cases business demography courses, which is a testament to our perceived efficacy of this tool.

WHAT ARE CASES AND HOW ARE THEY USED?

A case tells a real story that, in turn, can be used in the classroom as a basis for learning (Broder et al., 2003; Patten and Swanson, 2003). Case study research, according to Soy (1997), “excels at bringing us to an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research.” A major strength of the case study method is that its focus encompasses richly detailed contexts. Sociologists have long used this approach under the heading “qualitative research” (Feagin, Orum, and Sjoberg, 1991). However, this very strength is viewed as the method’s major weakness: Critics of the case study method note the difficulty in demonstrating that case study findings are both generalizable and reliable because of the limited “sample size” (Soy, 1997). Despite this perceived weakness, the case study method has been used in many fields of study, including, demography and business (Kintner, Merrick, Morrison, and Voss, 1997). Although they may extend into fictional realms, cases typically build on real situations in the life of an individual, a profit-seeking company, or a non-profit organization. (Feagin, Orum, and Sjoberg, 1991; Yin, 1984). Examples of this approach on topics combining demography and business or demography and government are found in *Demographics: A Casebook for Business and Government* (Kintner, Merrick, Morrison, and Voss, 1997) and academic journals (see, for example, Abrahamse et al, 1996; Morrison, 1998; Morrison, 1999). These examples range from market research applications (Billings and Pol, 1997; Johnson, 1997) to retail site selection problems (Smith, 1997; Thomas, 1997).

How can cases be used in the classroom? We identify three distinct applications: (1) as an historical narration, (2) as a focal point for acquiring specific skills, or (3) to build decision making skills (Patten and Swanson, 2003). We start with historical narration.

Historical Narration

Because a case tells a story, it can be used to teach an historical narrative. By this we mean the student is expected to learn what has happened historically in the life of the entity. Consider a Swiss manufacturing company faced with shrinking demand for its products. The company responds by changing the product design, thereby returning to profitability. The student reading this case learns how the company discovered and described the problem, evaluates the various actions the company contemplated taking, and considers how and why the company finally responded as it did. In using this case study, the instructor has a choice of what to emphasize: (1) analyzing the entire sequence of events; (2) focusing students' attention on the alternatives and how they were formulated; or (3) exploring the actions that returned the company to profitability.

Appendix A presents an example of the historical narration approach. This case study examines the future market for a recently-conceived low-speed electric "neighborhood vehicle" (NV) suited to transportation needs within U.S. retirement communities and other settings sheltered from conventional automobile traffic. Although targeted initially to residents of gated communities, the NV has a potentially wider, far-reaching market when viewed in demographic perspective. This case identifies the salient demographic influences that will shape this market within the U.S., then advances a general strategic vision of the future NV market based on: (1) the distinctive types of communities evolving in American society, (2) the growing orientation toward

leisure and retirement lifestyles as consumers reach the “empty-nest” stage in life, and (3) forthcoming consumer population trends buttressing those lifestyles. It then considers how these insights could inform business decisions about the NV more generally. The narrative introduces the student to the business context and the decision that originally motivated the analysis, illustrates how issues for analysis were defined and addressed empirically, and interprets the decision that eventuated.

Acquiring Specific Skills

The second application of cases described in Patten and Swanson (2003) is to enable students to acquire specific skill. The typical format here is a question that the instructor constructs, which students must answer through some research exercise (e.g., a series of calculations, downloading and assembling data). In doing so, the student acquires specific skills by analyzing the question and manipulating relevant data. This approach has the advantage of using a real-life situation, which helps to enliven the learning experience for the student and simultaneously emphasizes the learning experience that the instructor wants to focus on.

To illustrate, assume the faculty member wishes to focus on learning about channels of distribution. A case could be selected that describes a company and the product it manufactures. Information about the cost of manufacturing and the desired profit margin could be provided. The student could then be asked to identify possible ways in which the manufacturer could distribute its product to the consumer. This can be as extensive an analysis as the faculty member decides is appropriate given the level and objectives of the course. Given a certain problem that the case has identified, the student then learns that, she or he must now discover various alternatives to solving

the problem. Since the alternatives all must concern distribution channels, the student ends up acquiring a specific skill – in this case, knowledge of how distribution works.

Appendix B presents a case that hones specific skills used in evaluating global consumer markets using data available from the U.S. Census Bureau and the World Bank. The prospects of rising incomes destined to transform massive populations into rapidly expanding consumer markets spurred a rush of U.S.-based corporations into china, India, and other markets during the 1990s. These expanding consumer markets continue to attract corporations whose present-day business derives largely from mature markets with limited prospects for further growth. In their efforts to globalize, corporations need to anticipate the future growth of these emerging consumer markets. Such markets pose distinctive problems amenable to applied demographic analysis. The case centers on a study to refine and expand a corporation's global view of the "middle class" consumer. In this case, the student is called upon to develop data on the preceding points and prepare an analysis to be presented to a client who is contemplating entry into one of several emerging markets and looking for guidance on the comparative demographic strengths and weaknesses of each market.

In this case, the student is called upon to develop data on the above points and prepare an analysis to be presented to a client who is a builder interested in foreseeing future homebuyer preferences. [Data on all of above issues are readily available on Internet.]

Decision Making

The third instructional application focuses on the art of decision-making. How does one identify problems? What needs to be solved? How does one formulate possible courses of action? What criteria can be used in evaluating solutions or courses of action? Notice that under this approach, the student must discover the problem – it is not identified as such in the case. Not all students will succeed in doing so, but the more discerning ones will lead the discovery process. A case with multiple problems enables the instructor to focus on problem clarification as a key learning outcome. Consequently, this approach is very popular when teaching courses such as strategic management, where it is desirable to encompass the problems involving a variety of subject matter fields. The process of identifying the problem, enumerating possible solutions, establishing criteria to be incorporated in the solution that is selected, and selecting the solution along with the supporting rationale makes for an important experience. Cases are distinctively able to deliver a valuable learning experience in this type of situation. We turn now to a specific example that incorporates the decision-making approach to using cases that illustrates not only the structure of this approach, but also one of many ways in which it can be implemented in the classroom.

An Example of Teaching with the Case Study Method

The following example was developed by Morrison and extended by Swanson for use in a market demographics course taught for the Helsinki School of Economics. It has the following Case Study structure:

1. The Decision-maker: The Decision-maker is the entity responsible for selecting a course of action - making the decision. The decision-maker could be a person, or a group of persons,

informally or formally constituted. It could also be something designed by people - computer algorithm, for example.

2. The alternative decisions (courses of action): The decision involves selecting one of two or more identified courses of action. The goal is to choose the course of action that is “best.”

3. Events: These are occurrences that are beyond the control of the decision-maker but yet can have an effect on the course of action selected. The events are subject to uncertainty but ideally they are mutually exclusive and exhaustive so that one and only one can occur.

4. Return or Payoff: is a measure of net benefit to the decision-maker.

5. Uncertainty: is measured by the probabilities assigned to the identified events. These may be subjective.

The central ideas of the example we use here (as well as exhibits 1 and 2)) are taken from the book, *Dealing with Darwin: How Great Companies Innovate at Every Phase of Their Evolution*, by Geoffrey A. Moore (2005), for which PowerPoint slides and other materials can be found at the website www.dealingwithdarwin.com.³ The central ideas are as follows.

(1) A Declining market represents a period in the maturity of a market when, setting aside cyclical fluctuations, growth rates are negative. Strategically, a time to either reinvigorate the category or harvest and exit.

(2) Growth market. A period in the development of a market when growth rates are significantly in excess of 10 percent. Strategically, a time when gains in market share create more shareholder value than maximizing profits.

(3) Mature market. A period in the development of a market when, setting aside cyclical fluctuations, growth rates are modest, typically less than 10 percent. Strategically, a time when profits take precedence over revenues and market share.

(4) Now as we enter the latter half of the decade, yet another set of new issues confront us. The great growth market opportunities have been transplanted to Asia and with them local economic advantage as well. Moreover, offers incubated in low-cost economies can be expected to disrupt business models in established markets. How can today's leading enterprises compete successfully for revenues and profits in a globalized, commoditized, deregulated marketplace?

(5) Market (or industry) life cycles describe the evolution of the market. These cycles have a similar shape to the product life cycle and similarly, have three distinct stages:

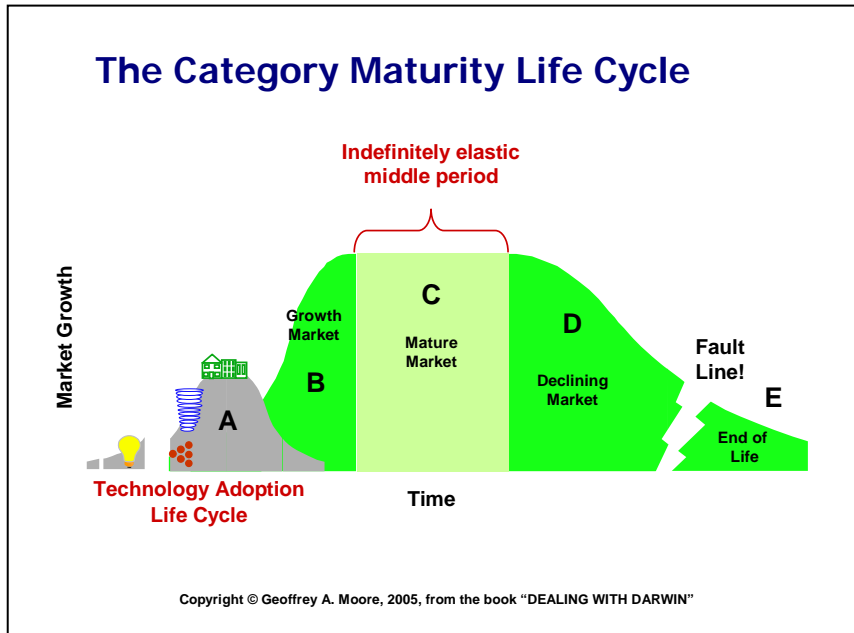
(a) embryonic-the product class and industry definitions are virtually synonymous, diffusion rates are gradual, and there is considerable uncertainty about the product;

(b) growth-the industry structure develops, the introduction of new product classes becomes easier as consumers become more knowledgeable, and the channels facilitate the marketing of new product classes established; and

(c) maturity and established infrastructure facilitates rapid introduction and diffusion of new product variants or product classes, competitors jockey for position, and older products have to make adjustments to protect their declining position.”

The preceding concepts are summarized in Moore's view of the Market Life Cycle, as shown in Exhibit 1.

EXHIBIT 1



To add more of the information you need to see how this works, we continue with the critical concepts Geoffrey Moore overlays on the market life cycle, “Context,” “Core,” and “Core/Context analysis.” It is the latter the case study is aimed at getting the students to process and understand.

Context. Any activity which does not differentiate the company from the customers’ viewpoint in the target market. Context management seeks to meet (but not exceed) appropriate accepted standards in as productive a manner as possible.

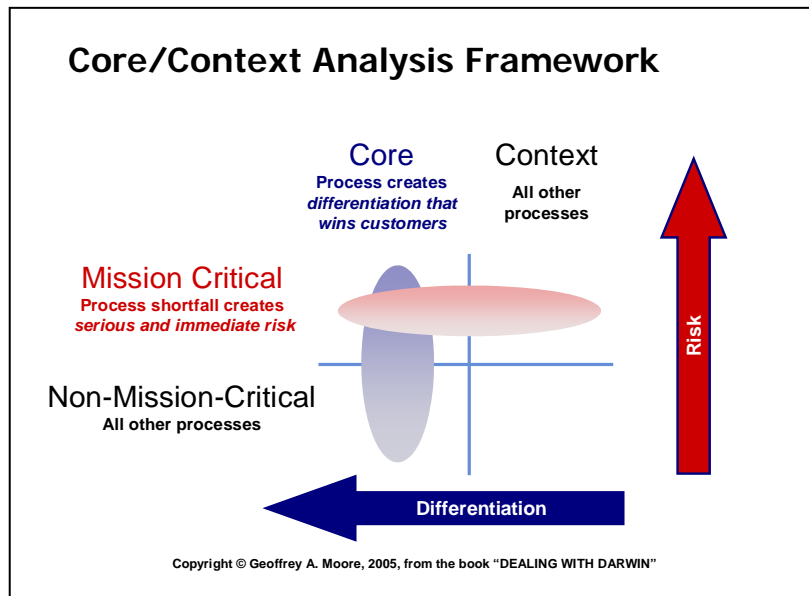
Core. Any activity which creates sustainable differentiation in the target market resulting in premium prices or increased volume. Core management seeks to dramatically outperform all competitors within the domain of core.

Core/context analysis. A resource prioritization framework that discriminated differentiating processes from all other work. Core/context management advocates funding

differentiating initiatives in growth markets by extracting resources (carefully) from mission-critical context initiatives in mature markets.

The preceding concepts are summarized in an analytic framework, as shown in Exhibit 2.

EXHIBIT 2



The implementation of Moore’s ideas in terms of an actual case study used in the class, used real data derived from Billings and Pol (1994), under the pseudonym, “Weasel Cellular, Inc.,” a company “providing cell phone service in the United States.” Students are told that the company has recently adopted the perspective of Geoffrey Moore to analyze its existing and potential market and that each of them is a finalist for a position as a market research analyst at Weasel Cellular. The students have been informed that they have made it through the initial screening and a series of interviews and are now being given a test to see how well they understand the market life cycle and related concepts developed by Geoffrey Moore that they claimed to have knowledge of in their resumes and interviews. The test consists of conducting a “Core/Context Analysis” using the data contained in tables 1 through 4, which provide information two points in time

(“now” and 10 years in the future) for two hypothetical counties in Florida (K and S) on cellular phone subscriptions by age, people by age, and “market attractiveness index” by age.

In the test, students are asked to examine the information for these two counties from the perspective of a high level executive in Weasel Cellular and determine which of the two should be considered as “core” and which one should be considered as “context.” The students are required to provide a justification for their determinations in the form of memos. Exhibits 3 and 4 provide responses from two students, “A,” and “B,” to the “test” comprising this case study. As you read through these two exhibits, keep in mind that the students are upper division undergraduates who are non-native English speakers. We believe that these two examples (selected randomly from the entire set) not only illustrate the points we have made earlier about the acquisition of skills, but also a point we turn to at the end of this paper – the development of critical thinking skills.

**Table 1. Current Population by Age (Number and Percent):
County K, Florida and County S, Florida**

AGE	COUNTY K		COUNTY S	
	Number	Percent	Number	Percent
Less than 25	229505	40%	57442	23%
25-34	97209	17%	27731	11%
35-44	70750	12%	24512	10%
45-54	58095	10%	22532	9%
55-64	57520	10%	40359	16%
65 and over	62121	11%	75024	31%
Total	575200	100%	247600	100%

Table 2. Current Cellular Phone Subscriptions (%)by Age, Population by Age (%), and Market Attractiveness Index (% Subscriptions x % Age) by Age¹ County K, Florida, and County S, Florida

AGE	COUNTY K			COUNTY S		
	Subscriptions	Population	Index	Subscriptions	Population	Index
Less than 25	3%	40%	120	3%	23%	69
25-34	29%	17%	493	29%	11%	319
35-44	39%	12%	468	39%	10%	390
45-54	20%	10%	200	20%	9%	180
55-64	7%	10%	70	7%	16%	112
65 and over	2%	11%	22	2%	31%	62
Total	100%		1373	100%		1132

1. The Market Attractiveness Index is found by multiplying the percent of total subscriptions at a given age group by the percent of the total population in this same age group

Table 3. Forecasted Population 10 Years from Now by Age (Number and Percent): County K, Florida and County S, Florida

AGE	COUNTY K		COUNTY S	
	Number	Percent	Number	Percent
Less than 25	217000	35%	76000	20%
25-34	99200	16%	34200	9%
35-44	68200	11%	38000	10%
45-54	68200	11%	38000	10%
55-64	68200	11%	64600	17%
65 and over	99200	16%	129200	34%
Total	620000	100%	380000	100%

Table 4. Forecasted Cellular Phone Subscriptions 10 Years from Now (%)by Age, Population by Age (%), and Market Attractiveness Index (% Subscriptions x % Age) by Age¹ County K, Florida, and County S, Florida

AGE	COUNTY K			COUNTY S		
	Subscriptions	Population	Index	Subscriptions	Population	Index
Less than 25	2%	35%	70	2%	20%	40
25-34	15%	16%	240	15%	9%	135
35-44	18%	11%	198	18%	10%	180
45-54	27%	11%	297	27%	10%	270
55-64	23%	11%	253	23%	17%	391
65 and over	15%	16%	240	15%	34%	510
Total	100%		1298	100%		1526

1. The Market Attractiveness Index is found by multiplying the percent of total subscriptions at a given age group by the percent of the total population in this same age group

Exhibit 3

“Student A”

The purpose of this memo is to demonstrate my analytical skills as a part of my job interview. To do this, I will conduct a core/context analysis on Weasel Inc’s current market situation as well as the projected values for the year 2017.

As Table 2 of the data given to me demonstrates, Weasel Inc is currently making more profit in K than in S, as the total Market Attractiveness Index in K is 1373 and in S 1132. This is understandable, seeing as the population of K (575,200) is more than twice the population of S (247,600). Currently the group of people aged between 25 and 34 in K has got the highest Market Attractiveness Index overall (493), which means that it brings in more profit than any other single group.

The most notable difference between K and S in terms of population is that people in K are fairly young, while people in S are much older than average. In all of the United States, the percentage of people over the age of 65 is 12.1 (source: US

EXHIBIT 4**“Student B”**

Geoffrey Moore’s Market life cycle describes the overall evolution of a market which goes through four different stages that are embryonic, growth, maturity and decline. In the first quadrant new ideas are developed, there for it is called the innovation stage. In second quadrant implementation of the idea is put into action. This stage is also the point in the life cycle where the market is growing and it has not yet reached its peak. These first two phases are considered as core in the core/context analysis. The core is any activity which creates sustainable differentiation in the target market resulting in premium prices or increased volume (G. Moore, Dealing with Darwin). Quadrant 3 is called manage and it is where the market is mature. It is indefinitely elastic middle period where the market is in its “cash cow” stage. Finally at the fourth and the final stage the market life cycle curve declines. From this quadrant resources are extracted to fund new innovations. Phases 3 and 4 are context part of the analysis. Context is any activity which does not differentiate the company from the customers’ viewpoint in the target market (G. Moore, Dealing with Darwin).

The cellular phone industry in the U.S. has developed quite slowly but it is growing steadily, hence I consider it to be in the stage two of the market life cycle. According to data provided in table 1, County K’s (K) population structure is considerably younger than in county S (S) since over half of the population is under 35 years old. Contrary in S more than half of the population is over 45 years old. Overall K has twice the population compared to S.

Table 2 shows the current cellular phone subscriptions and market attractiveness index (MAI) which demonstrates the relative measure of expected revenue production in comparison. In K the index is much higher (1373) than in S (1132) and therefore market in K is currently more valuable market area for Weasel Cellular, Inc. MAI shows that age groups 25-44 are the main consumers in both counties. Because of K’s bigger number of younger generation groups the index is higher than in S.

Based on the information data in these first two tables I would consider K as a core and S as a context. Therefore the current information would suggest Weasel Cellular, Inc. to concentrate more in area K.

When looking at forecasted population 10 years from now by age in table 3, it shows that S has grown much more than K (growth rates for S: 53.5% and for K: 7.8%). The population in general has grown older and the percentage value for groups under 35 have decreased in both counties. Due to the changes in the population age structures the table 4 shows that after ten years from now the MAI is higher in S than it is in K. Now it can be seen that the current situation will be reversed. Statically K’s index has decreased by 5.5% while S’s has increased by 34.8% based on my calculations.

The predicted trend of subscriptions has shifted in favor of people over the age of 45 vice versa to the current situation in which younger people are the main consumers. Reasons for this change could be that since the cellular phone is quite a new product now, it is used by fairly young consumers because this group is more keen on using new products. However, in the future I assume that there will be new innovations and products on the market that are adapted by new youngsters. Today’s main user groups will get older but most likely remain as cellular phone users and thus possible consumers for Weasel Cellular, Inc.

When the situation is applied to the Moore’s market lifecycle, K is currently placed in the second quadrant being a core function, while S is context. At the moment it seems to be that K is a more mission critical than S although S is also producing steady revenue. Right now one can invest money in deploying K for getting the maximized profits. However, knowing the future forecasted indexes, I would recommend that the company would start to concentrate on S more than on K. In the future S will turn to a core function because of S’s higher expected revenue production. This can be explained by S’s more rapidly increasing population and more favorable consumer population.

As a conclusion I recommend that Weasel Cellular, Inc. should place S as their core market and this way be able to answer future market demand. As K’s MAI will be decreasing, it will not be as profitable as it is now. Hence it should be considered as context market. S will become more mission critical in the future requiring more resources. The company should invest in county S in the future.

CONCLUDING REMARKS

As can be seen from the example and the appendices, there are particular features of the case study method that are appealing, both to students and to instructors. A major feature is that case studies support using “a real-world” scenario. That is, a scenario that uses real data in the context of grappling with an open ended problem. The fact that this can be nicely handled in group work also is appealing (Penn State, 2002). Besides acquiring skills, the fact that cases can be used to illustrate and understand decision-making, means that case studies can be used to promote “Deep Structure Learning,” a learning outcome we have advocated elsewhere (Swanson, 2005; Swanson and McKibben, 1999).⁴

There is, in addition, an important benefit that appears to accrue from using the case studies method in conjunction with the goal of Deep Structure Learning: Students view it more positively than courses not designed using it (Patten and Swanson, 2003; Swanson, 2005; Swanson and McKibben, 1998). Part of this reason may be that the deep structure learning approach naturally accommodates other features associated with the case studies method – the development of critical thinking skills, the use of real world problems, the emphasis of concepts over mechanics, writing and presentation skills, active cooperative learning and the “worthwhileness” of a course (Patten and Swanson, 2003; Swanson, 2005; Swanson and McKibben, 1998).

In conclusion, while we recognize the limitations of the case study method (Soy, 1997), we believe it as a place in the instructional toolbox for business demography courses demography. The fact that we use cases in business demography (and other) courses we teach is a testament to our perceived efficacy of this tool.⁵

Endnotes

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2. Peter A. Morrison is senior consulting demographer, RAND, Santa Monica, CA USA (Peterm3636@aol.com)
3. We thank Geoffrey Moore for giving us permission to use his materials in the classroom and in this paper.
4. “Deep structure learning” is a term developed by Keith Roberts (2002). Using a framework developed by Patricia King and Karen Kitchener (1994), Roberts views the development of critical thinking as a progression that starts with a stage labeled “pre-reflective thinking,” moves to “quasi-reflective thinking”, and culminates in the third and final stage, “reflective thinking.” King and Kitchener (1994) describe the final stage of the process - reflective thinking - as the ability to reason about unstructured questions that have no absolute answers.
5. Syllabi for courses that use case studies can be obtained from either of the two authors.

References

- Billings, G. and L. Pol. 1994. "Improving Cellular Market Area Valuation with Demographic Data. pp. 93-108 in H. Kintner, T. Merrick, P. Morrison, and P. Voss (eds.) *Demographics: A Casebook for Business and Government*. Santa Monica, CA: RAND.
- Broder, J., H. Klein, R. K. Martin, A. Rosenbloom, and P. Zufan (2003). An international survey of case use in higher education: report of the WACRA case standard setting committee pp. 3-12 in H. Klein (ed.) *Case Method Research and Application: Interactive, Innovative Teaching and Training, including Distance and Continuing Education, Case Method, and Other Techniques*. Madison, WI: The World Association for Case Method Research and Application.
- Feagin, J., A. Orum, and G. Sjoberg. 1991. (eds.). *A Case for the Case Study*. Chapel Hill, NC: The University of North Carolina Press.
- King, P., and K. Kitchener. (1994). *Developing Reflective Thinking: Understanding and Promoting Intellectual Growth and Critical Thinking in Adolescents and Adults*. San Francisco, CA: Jossey-Bass.
- Kintner, P., T. Merrick, P. Morrison, and P. Voss 1994. (eds.) *Demographics: A Casebook for Business and Government*. Santa Monica, CA: RAND.
- Moore, G. 2005. *Dealing with Darwin: How Great Companies Innovate at every Phase of Their Evolution*. New York, NY: Penguin.
- Morrison, Peter A. and Allan F. Abrahamse. 1996. "Applying Demographic Analysis to Store Site Selection," *Population Research and Policy Review*, vol. 15, pp. 479-89.
- Morrison, Peter A. 1998. "Applying Demographic Analysis in Affirmative Action Disputes: An Instructional Case," *Population Research and Policy Review*, vol. 17, pp. 457-478.
- Morrison, Peter A. 1999. "Unveiling the Demographic 'Action' in Class Actions," *Population Research and Policy Review*, vol. 18, pp. 491-50.
- Patten, R. and D. Swanson. 2003. "Using Cases in the Teaching of Statistics." pp. 21-30 in H. E. Klein (Ed.) *Interactive Innovative Teaching and Training: Case Method and Other Techniques*. Needham, MA: World Association for Case Method Research & Applications.
- Penn State. 2002. "Using Cases in Teaching." *Teaching and learning with Technology Website*. <http://tlt.its.psu.edu/suggestions/cases>. Last accessed December 2002)
- Roberts, K. (2002). "Ironies of Effective Teaching: Deep Structure Learning and Constructions of the Classroom." *Teaching Sociology* 30 (January): 1-25.

Smith, S. "Population Estimates, Projections, and Expert Testimony in Adversarial Legal Proceedings: A Case Study of Automobile Dealerships." pp. 180-202 in H. Kintner, T. Merrick, P. Morrison, and P. Voss (eds.) *Demographics: A Casebook for Business and Government*. Santa Monica, CA: RAND.

Swanson, D. 2005 "Deep Structure Learning and Statistical Literacy." *Delta Education Journal* 3(1): 41-52.

Swanson, D. and J. McKibben. 1999. "Teaching Statistics to Non-Specialists: A Course Aimed at Increasing Both Learning and Retention." pp. 159-166 in L. Pereira-Mondoza, L. Kea, T. Kee, and W. Wong (Eds.) *Statistical Education - Expanding the Network: Proceedings of the Fifth International Conference on Teaching Statistics*. International Association for Statistical Education, International Statistical Institute, Voorburg, Netherlands.

Thomas, R. 1994. "Using Demographic Analysis in Health Service Planning: A Case Study in Obstetrical Services." pp. 159-179 in H. Kintner, T. Merrick, P. Morrison, and P. Voss (eds.) *Demographics: A Casebook for Business and Government*. Santa Monica, CA: RAND.

APPENDIX A

GAUGING FUTURE PROSPECTS FOR A NEIGHBORHOOD VEHICLE: WHERE DEMOGRAPHIC ANALYSIS FITS IN

I. INTRODUCTION

This case study recounts an effort to foresee the future market for a newly-conceived neighborhood vehicle (NV). The NV is a hybrid between a car and golf cart - essentially a low-speed electric vehicle suited to transportation needs within U.S. retirement communities and other settings sheltered from conventional automobile traffic. Although targeted initially to residents of gated communities, the NV has a potentially wider, far-reaching market. This paper highlights long-range demographic influences likely to broaden that market and considers how such insights can inform business decisions about the NV.

Three ongoing developments will enhance consumer interest in the NV: (1) the distinctive types of communities evolving in American society, (2) the growing orientation toward leisure and retirement lifestyles as consumers reach the “empty-nest” stage in life, and (3) forthcoming consumer population trends buttressing those lifestyles. The paper’s case-study format introduces the reader to the business context and decision that originally motivated the analysis, illustrates how issues for analysis were defined and addressed empirically, and interprets the decision that eventuated.

BUSINESS CONTEXT

Neighborhood vehicles encompass a wide range of lightweight contraptions for transporting people within settings separated from conventional automobile traffic. Figure 1 shows one version of such a vehicle. Unlike golf carts commonly used in retirement communities, the NV travels faster and affords passenger-cargo configurations adapted to the varied needs of smaller households at different stages in the life cycle. For example, the same NV platform might suit the needs of four passengers (e.g., grandparents with visiting children or grandchildren) or two passengers (e.g., an older couple and six bags of groceries). NVs carry sticker prices ranging from about \$6,000-\$13,000 (compared with the \$3,500 cost of a typical golf cart).

The potential market for NVs is largely uncharted, but the varied uses of such vehicles imply a market composed of multiple distinct niches. An obvious niche would be empty-nest families in gated retirement communities, where the NV could serve as the second of two household vehicles (displacing golf carts in such settings). Other potential niches, though, are less apparent or undiscovered--for example, self-contained island communities, sprawling health or industrial park campuses, and controlled-access national parks. Each is a setting where routine, internally-oriented personal transportation needs arise, needs now met by the ubiquitous golf cart.

Fig. 1. “Bombardier’s “Neighborhood Vehicle”



Demographers are good at highlighting long-range shifts and offering a useful frame of reference for comprehending them. Characterizing market evolution with reference to cohort change (e.g., in household makeup or comparative health and vigor in old age introduces fresh new perspectives which can reveal hidden opportunities. With regard to the NV, a demographic perspective can nurture a strategic business vision, sparking new ideas and insights into potential niche markets.

CLIENT ORIENTATION

The client here (who must remain anonymous) had a near-term business orientation which fostered an overly narrow perspective on the NV’s future prospects. The immediate concern was: “Can we anticipate sufficient initial sales among gated

community residents to justify the expense of entering the NV market?” Framing the question this way inevitably narrowed the focus to ascertaining how many people now live in gated communities, their economic circumstances, and how deeply this market would need to be penetrated to cover initial start-up expenses for vehicle design and production. In short, what the client sought was an overall number (the household population of gated communities) as the basis for estimating likely potential sales just to that one segment of the market over an initial one- or two-year period. Little weight was given to other potential niche markets or entirely new ones the NVs might cultivate (as golf carts have done in non-golf settings).

Fortunately, those with whom I worked also regarded this perspective (mandated from a higher management level) as myopic. Indeed, they hoped to enlighten management by broadening the business case for the NV, addressing the immediate issues of market feasibility but also charting long-run prospects for the NV. Toward that end, I assembled a demographic case for the NV, drawing on data and projections I could quickly locate. That case, as we will see, rests on:

1. The proliferation of compact communities, both residential and commercial, within which new types of personal transportation needs arise. Such communities have a common denominator: A need to shuttle around conveniently in settings that are internally oriented.
2. The lifestyles and health limitations inducing older Americans to affiliate with such communities, either full-time or periodically. Lifestyles include retirement and leisure pursuits; the quest for prestige, privacy, or security; and the necessity to adapt to limitations of health and mobility imposed by old age.
3. Ongoing demographic and economic transformations in consumer populations which reinforce the above developments: the growing number of mature consumers and small (one- and two-person) households; and the concentration of income and wealth among upscale consumers. Such transformations will enhance the prospects for a neighborhood vehicle, both as an augmentation to a family fleet (e.g., a viable alternative to a second car) and as a discretionary indulgence (analogous to a snowmobile or power boat).

The following section addresses the immediate question about gated communities within the context of master-planned communities generally. Thereafter, I consider the salient demographic influences likely to shape the NV market and advance a general strategic vision of the future market. The final section recounts how these demographic insights played out in the business context and interprets the decision that eventuated.

II. DEFINING THE MASTER-PLANNED RESIDENTIAL COMMUNITY MARKET

LOCATING RELEVANT DATA

The NV fills certain transportation needs which arise within compact local settings. The most clearly defined such settings in the U.S. are master-planned residential communities (MPRCs), either gated or otherwise sheltered from automotive traffic. Drawing on a national database of MPRC projects under development by the Urban Land Institute, it was possible to identify 704 such projects in the U.S. and Canada. These are not necessarily all or even most of the entire universe of MPRCs, and the information on many projects was still incomplete. Despite these limitations, the data proved sufficient to characterize the MPRC market statistically in terms of approximate scale, concentration, and potential for expansion. Among numerous variables available were three important ones:

1. The number of residential units already built, useful for gauging the existing market structure in terms of potential customers clustered in communities of various sizes.
2. The eventual number of residential units projected at build out, useful for gauging the future market structure implied by the collective future expectations of developers.
3. The implied growth in number of residential units, derived from the above. That is, a project's number of units at build out (say, 10,000) minus the number already built (say, 4,000) defines the anticipated number to be added (6,000) over the future build-out period (say, 10 years). An implied annual growth rate (uncompounded) can be calculated here as $(6000/10)/4000$, or 15%. That is, next year's growth increment adds 15% to this year's market (under one set of assumptions).

Since the MPRC database at the time of use was a work in progress, information on many projects was incomplete. Accordingly, attention was confined to various subsets of all 704 projects.

Table 1. Distribution of MPRCs by Units Already Built
(data available on 214 of 704 projects)

No. of units already built	No. of MPRCs	% of units built	Cum. % of units built
10,000 - 24,800	15	45.0%	45.0%
4,000 - 9,999	10	17.5%	62.5%
2,000 - 3,999	33	18.1%	80.6%
500 - 1,999	67	15.8%	96.4%
Under 500	89	3.6%	100.0%
Units built, all levels	214	454,480	454,480
SOURCE: Tabulated from Urban Land Institute database on master-planned residential communities.			

Table 1 shows the distribution of MPRCs by number of units currently completed (among those 214 of all 704 MPRCs for which this variable exists). The distribution spans a broad range, from projects with only a few hundred units to those with several tens of thousands. From the cumulative relative distribution, it is apparent that existing units are highly concentrated in relatively few large MPRCs. For example, a mere 25 MPRCs accounts for over three-fifths of all units identified. If the full universe of 704 MPRCs is roughly this concentrated, the very large MPRCs could be especially attractive markets for the NV. For one thing, they would offer distinctive scale economies for local advertising and distribution. MPRCs with 10-20 thousand residents could be targeted as distinct sales and service territories, each with their own staff.¹

Table 2. Distribution of MPRCs by No. of Units at Eventual Build out
(data available on 303 of 704 projects)

No. of units at eventual build out	No. of MPRCs	% of units built	Cum. % of units built
20,000 - 106,000	15	33.7%	33.7%
15,000 - 19,999	10	10.9%	44.6%
7,000 - 14,999	35	21.2%	65.8%

¹ The leading states with existing MPRCs are California (90,000 units), Texas (85,000 units), Florida (70,000 units), Arizona (35,000 units), Virginia (34,000 units), and Maryland (30,000 units). A handful of other states, along with Ontario and Quebec, account for most of the remainder.

3,000 - 6,999	72	20.0%	85.8%
1,500 - 2,999	61	8.4%	94.2%
Under 1,500	110	5.8%	100.0%
Units built, all levels	303	1,530,100	1,530,100
SOURCE: Tabulated from Urban Land Institute database on master-planned residential communities.			

Gated communities in particular may have a built-in potential distribution channel for the NV. A potentially important feature of the gated community is its underlying governance system: the self-governing homeowners' association (HOA). The HOA is a private entity that can make its own rules--including restrictions on motor vehicles or rules governing internal transportation modes. Each property owner shares legal ownership of streets, sidewalks, and other common facilities with fellow homeowners.

Table 2 shows the distribution of MPRCs by intended future size (number of units at build out) for 303 of all 704 MPRCs for which this variable exists. Again, the distribution indicates noteworthy concentration in relatively few large MPRCs. For example, the 60 eventually largest MPRCs would account for nearly two-thirds of all units at build out.

Relating each MPRC's forthcoming build out to its present size yields an implied growth increment. Aggregating those increments over all MPRC projects for which data are available provides a rough estimate of the pace of future expansion as the build out pipeline materializes. Based on complete data for 188 projects, the build out pipeline implies a growth increment 1.75 times as large as the stock of units already built. That is, developers in aggregate foresee an additional 175 units at build out for every hundred units that now exist.

In most instances, build out time horizons are less than 20 years, which implies continuing growth in excess of 3% annually. The arguable assumption, of course, is whether projects in aggregate will advance steadily toward (or indeed eventually attain) build out as planned. Nevertheless, the build out pipeline (reflecting long-range expectations of project developers) implies a continuing expansion of residential units--and, by extension, an expansion of internal transportation needs--within MPRCs well into the next century.

GATED-COMMUNITY MARKETS

Gated communities are, for the most part, a subset of MPRCs. (Not all gated communities, however, are master planned.) A recent national study of gated

communities offers additional detail on such communities and their broadening evolution.² Briefly, gated communities began to appear in the late 1960s and 1970s as master-planned retirement developments (e.g., Leisure World). Thereafter, gates spread to resorts and country club developments and then to middle-class suburban subdivisions. The 1980s saw a proliferation of gated communities around golf courses (designed for exclusivity, prestige, leisure) and the emergence of gated communities responding to crime fears. During the 1990s, the trend toward gating expanded rapidly. Gates become ubiquitous in many areas, with entire incorporated cities now featuring guarded entrances. Industry sources claim that four of every five new urban projects are gated and 54% of Southern California home shoppers surveyed in 1990 want a home in a gated, walled development.

According to the latest statistics, approximately 1,900 gated communities exist nationwide in 1997, divided about equally among luxury, retirement-oriented, and middle/working-class types. Collectively, gated communities are populated by 3.1 million households and 8.4 million people. The median gated community had 166 housing units and was most commonly located in southeastern and southwestern Sunbelt states, particularly California and Florida.

Gated communities serve distinct markets and, by implication, would form distinctive niche markets for a NV. Catering to the “lifestyle market” are three distinct types of communities: the retirement community (e.g., Sun City or Leisure World), aimed at middle- and upper-middle-class retirees who want structure, recreation, and a built-in social life in their early retirement years; the golf and leisure community (e.g., Hilton Head), having golf courses and tennis facilities as their central features; and the suburban new town (e.g., Reston, VA, Columbia, MD, or Celebration FL), which typically are large communities incorporating both residential and commercial/retail activities. What is termed the “prestige market” caters to those seeking distinction, image, and privacy. Among the fastest-growing forms of gated community, they include small compounds of privacy for celebrities and enclaves of the very affluent (which are now being mimicked by middle-class “wanna be” prestige executive home developments). Lastly is the “security zone market” which caters to those seeking defensive fortification.

Within each market (and even type of community), distinctive transportation needs can be foreseen:

- For residents of the retirement and the golf and leisure communities, daily activities center internally on golf course and club house; a wide range of other recreational amenities; and structured programs of social activity. Here the NV might serve as the sole or primary vehicle in a family fleet for retirees or for working-age adults while they are in residence at what may be their second home.
- For residents of master-planned suburban new towns, daily transportation needs

² Edward J. Blakely and Mary Gail Snyder, Fortress America: Gated Communities in the United States (Washington: Brookings Institution Press, 1997).

cover the entire spectrum but many of the destinations would be within shared local public space that is privatized and controlled (school, shopping center, commercial offices). Here the NV might serve as part of a two- or three-vehicle family fleet.

- For the prestige market, the NV might have appeal as an optional addition to a family fleet (analogous to snowmobile, jet-ski, and other expensive toys).
- The security zone market implies a need for community patrol services and internal security escort services for residents and visitors.

III. ENVISIONING THE POTENTIAL FUTURE MARKET

Over the long term, the implied growth of the gated and MPRC markets eclipses the immediate prospects in just the initial years. A focus on the near term is myopic, since most large MPRCs are not yet fully built-out to their intended future size. Several further considerations involve the long-term demographic and economic trends pertaining to the potential consumer base and its purchasing power. Among those trends are:

- Robust future growth of mature consumer units, exemplified by the projected 2.2%-annual increase nationally in households headed by persons age 55 and older (twice the rate for all households) over the next decade. Such growth will enlarge the lifestyle market (and communities catering to it) and reinforce demand for continuing care of elderly persons.
- Growth in small (two- and one-person) household configurations. “Empty-nest” families are projected to increase sharply as the oversize baby boom cohorts mature into their 50s and 60s: from 37.5 million in 1998 to 44.2 million by 2008 (an 18% increase in 10 years). Increasing numbers of one-person households will be maintained by older adults (mostly women). Above age 55, these lone-individual households will increase from 12.8 million in 1998 to 15.4 million by 2008 (a 20% increase). Such growth aligns well with the capacity limits of the NV.
- Increased concentration of income among affluent households, tracked in annual CPS data. The share of aggregate income going to households ranked in the top quintile by income, for example, has risen from 46.5% (1991) to 49.2% (1998). Among those ranked in the top 5%, the corresponding share has risen from 18.1% to 21.4%. Concentration of wealth is even more extreme. These “have-more” consumers compose a market with expanding purchasing power, able to indulge discretionary tastes for convenience and luxury “toys” which enhance life at later ages.

Beyond these considerations of scale, impending growth, and prosperity, however, are further strategic insights which extend wholly beyond the near term. The varied uses to which golf carts are now put suggest a more extensive potential market beyond gated communities and even MPRCs. Recall that the underlying common denominator identified earlier is a need to shuttle around conveniently within internally-oriented settings which are (or could be) sheltered from automotive traffic. For example:

- Sprawling health, science, and industrial campuses, where the NV could offer internal self-shuttle (e.g., by permitted staff granted card-key access to a campuswide NV fleet); assisted mobility for patients being transported among buildings; internal service and delivery of mail, packages, food/light catering; and campus patrol service.
- Large resorts, using the NV for visitors' reception, baggage delivery, and other internal delivery service needs (e.g., room service).
- National parks with sheltered driving zones where the NV could be used for internal self-shuttle by card-keyed visitors.
- Island communities which limit automobile traffic and designate sheltered driving zones for a mix of NV and bicycle traffic on secondary roads.

IV. HOW THE DECISION WAS REACHED

Insights from data, along with a disciplined effort to envision the NV's varied possible uses, painted a bright future over the long run. The outlook was for an expanding population base for whom the NV was well suited, both personally as buyers and indirectly as users. The market itself might be composed of distinct niches which could be targeted with different variants of a vehicle built on a common platform. These long-term prospects, however, competed with the client's near-term orientation, which dictated that the numbers add up to a profitable venture within the first few years. Would enough sales materialize to cover the costs of entering this new, as-yet-uncharted market? As events transpired, the decision was driven by an unforeseen external development.

As the business case was being finalized, the client's own intelligence discovered that two other national competitors had already progressed beyond the "thinking" stage and were poised to enter the market with NVs of their own. The client reasoned that dividing the pie three ways (and being the late-starter) would doom the effort to break even in the near term. They decided against entering the market--an inevitable choice, perhaps, given the narrowly-conceived business decision they had posed.

Ironically, subsequent developments affirm the demographic rationale for the NV. Roughly a year later, the news media featured Bombardier's recently unveiled Neighborhood Vehicle, "a low-speed electric car developed for retirement communities, [which] hopes to meet the market of aging boomers head-on....introduced with the

intention of luring the aging consumer by creating stylish products that quicken the pulse while cossetting the creep of infirmity.” [New York Times, June 27, 1999]. A June, 1999 Wall Street Journal article (headlined “Promise of ‘Neighborhood Electric Vehicles’ is Alluring”) described the different strategies competitors were following to exploit various niches within the market.

What are the lessons here for applied demographers? First, a demographic perspective, buttressed by data and interpretation, can help elevate business thinking to a more strategic level. Second, large ideas will not necessarily register with small minds ill-equipped to look beyond near-term profit calculations.

APPENDIX B

DEMOGRAPHIC FACTORS BEHIND EMERGING GLOBAL CONSUMER MARKETS

OVERVIEW

The prospect of rising incomes destined to transform massive populations into rapidly expanding consumer markets spurred a rush of U.S.-based corporations into China, India, and other markets during the 1990s. These expanding consumer markets hold continuing attraction to corporations whose present-day business derives from mature markets with limited prospects for further growth.

In their efforts to globalize, corporations need to anticipate the future growth of these emerging consumer markets. Such markets pose distinctive problems amenable to applied demographic analysis. This case centers on a study to refine and expand Corporation X's global view of the "middle class" consumer. The Corporation has a major stake in the middle class, which demands a precise understanding of the factors that influence its behavior. The traditional view, which focuses primarily on income and lifestyle, overlooks important differences among today's consumers. This view also fails to recognize possible traits in common among consumers around the world.

CONCEPTUAL FRAMEWORK

Our framework retains the central features of the traditional view and expands it to include four key attributes with universal relevance: economic well-being, household situation, generational identity, and consumer IQ. Together these elements shape the two characteristics of the middle class most important to Corporation X: its size and the continuing upward movement of aspiring buyers into it. By focusing attention on these four attributes, the Corporation can move beyond the domestic market and extend its global reach. The long-term payoffs will come from directing resources more effectively toward two strategic goals: attracting and retaining profitable customers in existing markets and accurately valuing the promise of emerging markets.

In the traditional view of income and lifestyle, certain income levels should support certain levels of consumption. Income is equated with propensity to spend. Income measures alone may prove especially incomplete for emerging markets. For example, some consumers don't register high household income despite significant family assets. Pooling resources within extended families is a familiar practice in India and other emerging markets.

In addition, problems of measurement and interpretation arise. For example, demands on income vary according to household composition. The purchasing power of a household of three with an income of \$32,000 (the U.S. median) depends on whether it consists of a married couple with one child or a comparably aged single parent with two children.

Similar problems arise with the concepts “lifestyle” and “life stage,” which guide market segmentation. According to these concepts, a consumer’s age indicates his or her location on a predictable course common to many populations -- single, newly married, a couple with children, or older empty nesters. “Middle class” thus becomes shorthand for “similar class,” and fails to reveal new realities.

In reality, the “similar class” has become dissimilar and highly fragmented -- and not only in the U.S. A remarried 45-year-old parent with a three-year-old child may not behave the same way as a 25-year-old single parent, even though both consumers are part of a family unit with young children.

Our framework emphasizes universal functional needs -- stimulated by widespread social, demographic, technological, and economic changes -- that are becoming common to middle-class consumers everywhere. However, it also reflects the diversity of the broad “middle range” as the market becomes segmented along new lines based on wealth, family structure, generation, and education. The framework is designed to support all marketing and sales initiatives that draw on market information in both mature markets (such as North America) and emerging markets (such as India).

This new framework incorporates the four key attributes that are shaping consumer buying behavior in both mature and emerging markets:

1. Economic Well-being

First and foremost is the constellation of factors affecting consumers’ ability and inclination to purchase the products Company X sells. These include household and discretionary income, assets and wealth, transfer of assets, and governmental policies. Together these factors influence consumers as they make choices in the marketplace; they are critical for understanding and predicting consumers’ behavior.

Income has been a useful standard of measure, but by itself it provides an incomplete picture of economic well-being. Other factors also affect ability to spend: two breadwinners, wage and job stability, financial wealth, and consumer confidence. Furthermore, when “income” is applied uncritically to other countries, it may prove highly misleading. Indonesians, for example, routinely underreport income; prosperous Indians conceal it.

2. Household Situation

The second attribute, household situation, directs attention to the relevant consumer unit in a particular country. In the U.S., for example, the typical consumer unit may be a lone individual (the housing unit’s sole occupant) or a nuclear family (parents and possibly children). In India, by contrast, that unit could be a family whose true purchasing power extends beyond the Western notion of “household.”

In addition, household situation clarifies the buyer's actual needs (such as space use and capacity) or, in the case of transportation, the "family fleets" that particular family structures may foster. In emerging markets (especially in Asia), prospective buyers often consider the needs of an extended-family consumer unit on whose behalf they will make a purchase.

Although households vary widely across cultures and regions, common demographic trends are unifying markets in important ways. In virtually every emerging and new market of interest, young couples are opting for small families and two wage earners. By having fewer children and earning two incomes rather than one, such households are becoming less dependent on the traditional extended family. Furthermore, all household members have similar needs regarding personal transportation: dual-earner families, whether in Indiana or in Indonesia, are time-pressured consumers.

3. Generational Identity

Common perspectives, buying habits, and tastes are increasingly crossing national boundaries and unifying generations of consumers. Generational identity distinguishes the circumstances and experiences that produce these long-range effects.

Generational attitudes may vary according to country. In Poland, young people identify themselves as more materialistic than their communist elders. Because of their belief in rising living standards, they have adopted a "work-hard" ethic in order to reap the benefits of the new economy. Young Poles view cars more as a means of convenience and flexibility than as a status symbol. In India, by contrast, an older generation (which values domestic products as a means of fostering independence) is being replaced by a younger generation that takes independence for granted. This new generation has been influenced by wide exposure to Western media and lifestyles; its members are both comfortable with and attracted to Western-made goods. They view cars first and foremost as a status symbol.

On the other hand, generational self-identity may emerge transnationally. The swift spread of information technologies has given rise to a "connected" global generation among today's youth. The distinctive common experience of growing up with these technologies has formed a generation of consumers habituated to electronic connectivity via e-mail, cell phones, and text messaging. Members of this generation will seek the same kinds of products whether they live in Thailand or in Texas.

4. Consumer IQ

The final attribute, consumer IQ, refers to the increasingly knowledgeable consumers that Company X must satisfy around the world. Many factors combine to influence consumer IQ: better educated new generations of consumers, an abundance of on-line information, broad improvements in information technology, and knowledge about and access to credit alternatives. The average consumer IQ is rising steadily in markets around the world, as better-educated younger consumers replace older, less well-educated ones.

Among American consumers, the fraction of adults with a high school diploma was under 50% in 1963 but reached 80% in 1993. The college-educated fraction rose from 10% to 22% over the same period. Change is far quicker in certain developing markets: In Indonesia, the proportion of men finishing junior secondary school is 50% higher among today's 20-to-24-year-olds than among those age 25-29.

“Middle class” no longer can serve as shorthand for “similar class.” But at the same time, there remain large groups of consumers whose purchasing power falls within a relatively robust middle range. Their numbers will mushroom in emerging markets. Yet the conditions creating these large groups and their ripening memberships around the world pose new problems and increase the need for a far-reaching framework.

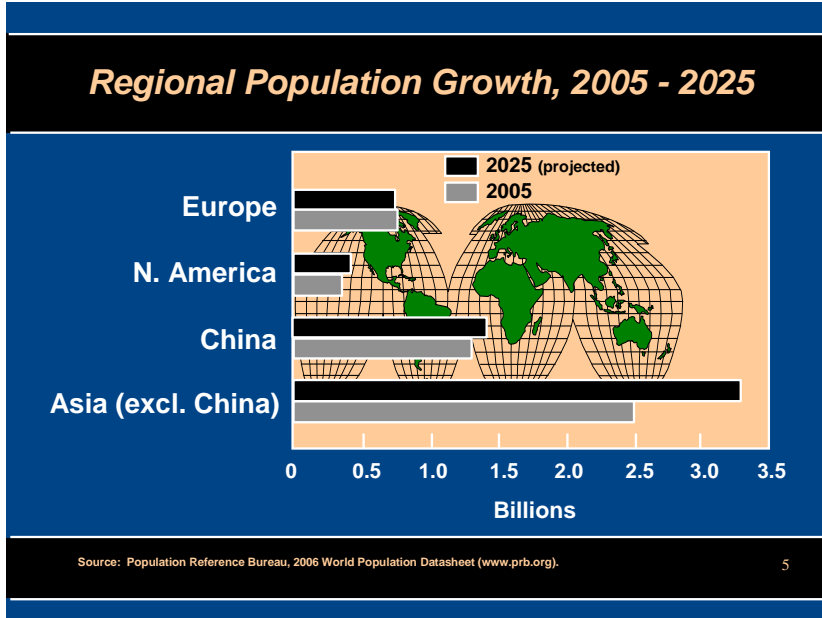
DEMOGRAPHIC PRECURSORS OF MARKET EXPANSION

The demographics of developing countries open an important window into their expanding consumer markets. In this case, we shall describe and interpret those demographics, to place them in strategic perspective and construct a framework for spotting the long-range opportunities they present over the next 10 to 15 years. Our focus is on examining the demographic precursors of expanding consumer markets; comparing and evaluating individual markets; and uncovering future business opportunities.

A country's future consumer promise depends on: (1) the sheer size and growth of its population, (2) family size, which determines how heavily consumption is burdened by what children need, (3) changing age distributions, and (4) generational shifts, which define global segments within consumer markets (e.g., urban professional couples, with common tastes and preferences that replicate Western-type consumer markets in, say, India or China).

Using population as the metric, future opportunities in the global arena center on Asia (see Graphic 1). Tiny consumer segments in these massive populations represent only the beginnings of vast expanding markets of aspiring customers.

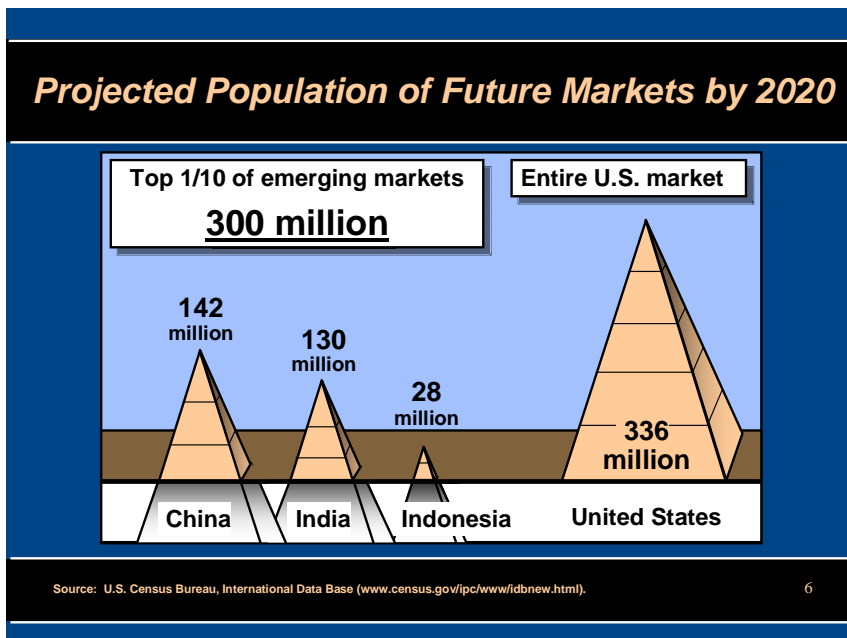
Graphic 1



Notice the contrast here: between regions with little or no population growth but high living standards (Europe and North America); and China and Asia--far more populous and also growing.

The magnitudes of these emerging markets are impressive. Consider the year 2020 as a meaningful future target. See Graphic 2.

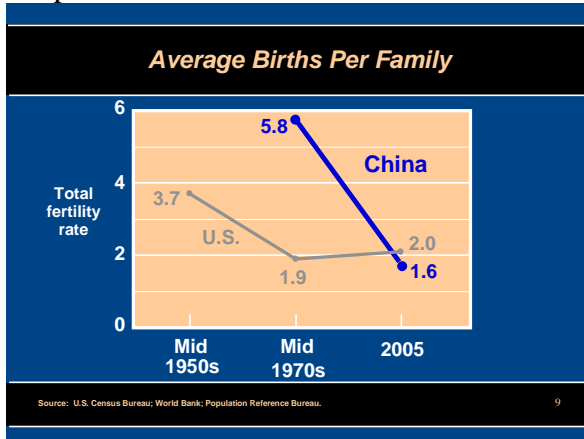
Graphic 2



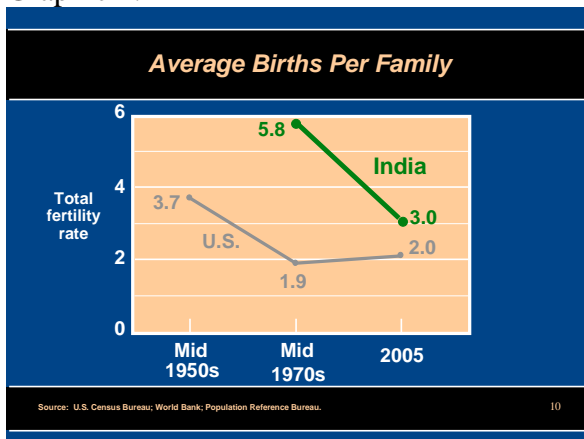
China is projected to have 142 million people in just the top decile of prosperity. Add to that another 130 million from the top tenth of India and 28 million more from Indonesia, and these three most populous countries will total 300 million. Just the top tenth of these three countries combined form a market comparable in size to the entire U. S. market-- 336 million Americans by 2020.

One of the driving demographic factors here is declining fertility rate. In any society, this decline marks the transition from a society preoccupied with feeding many small mouths to a society where adults can earn the incomes that cultivate consumer demands. The number of children the average woman bears in a country indexes that country's stage in this decline. The following graphics illustrate how this transition has been unfolding in several of the most populous developing countries:

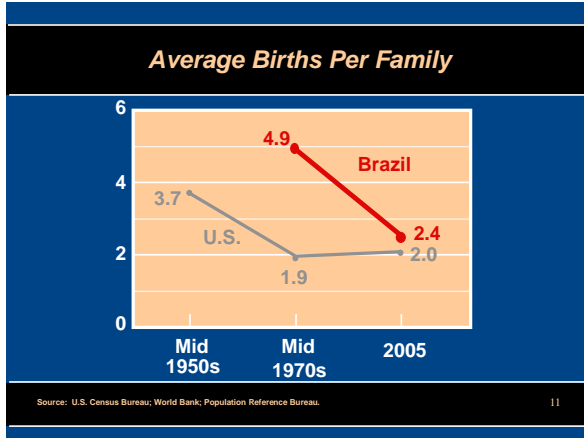
Graphic 3:



Graphic 4:

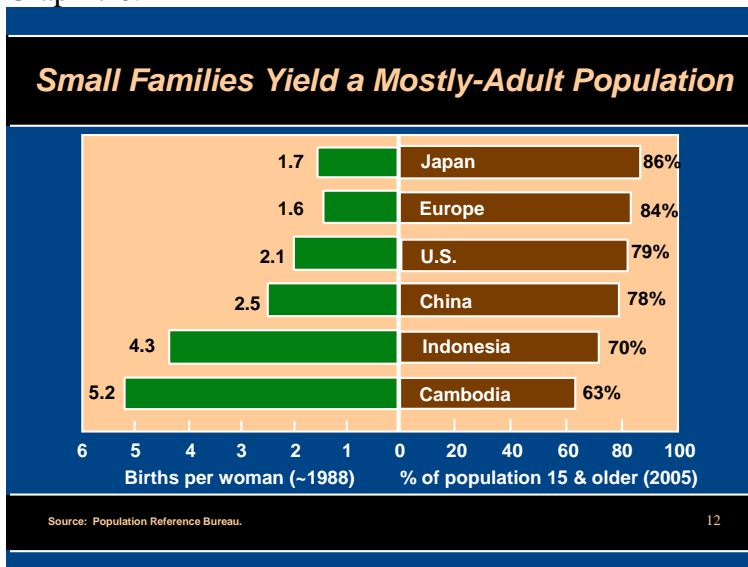


Graphic 5:



Where national birth rates decline, the population's age structure changes over time--refocusing aspirations on consumption rather than reproduction. (See Graphic 6).

Graphic 6:

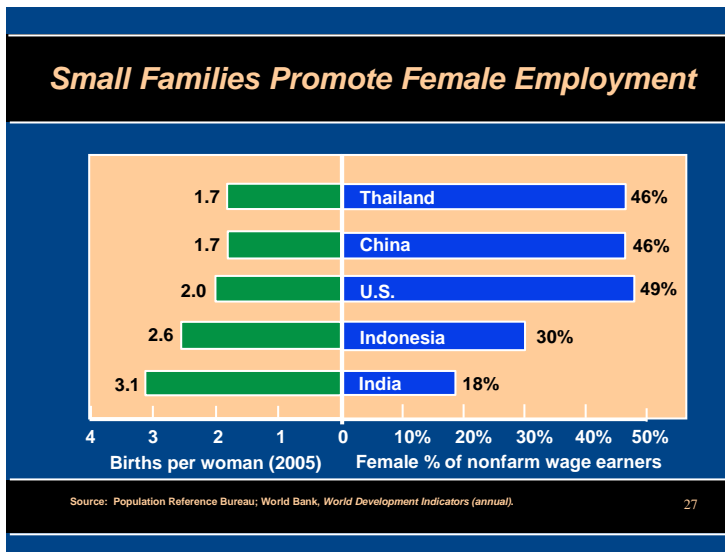


With fewer births per woman (as shown on the left), proportionally fewer people are children and proportionally more are adults (as shown on the right). This structural change materializes only gradually—but with substantial & long lasting effects. In Japan & Europe (top bars), small families have yielded national markets populated mostly by adults—people with aspirations focused on consumption. In Cambodia, by contrast, continuing high fertility -- 5.2 births/woman – yields a population only 57% of whom are adults. The other 43% are mouths that those 57% must feed.

Certain countries—notably China—are entering a consumption-oriented demographic future precisely because there will be more workers but fewer young mouths to feed.

Next, let us turn to certain generational shifts that shape consumer markets, globally and in the U.S. The drop in fertility and family size delivers a further dividend: with proportionally fewer mouths to feed, proportionally more women work for pay—strengthening consumerism. For the U.S., this is just an historical observation by now. But notice the parallel developments in China and Thailand, for example. (See Graphic 7)

Graphic 7:



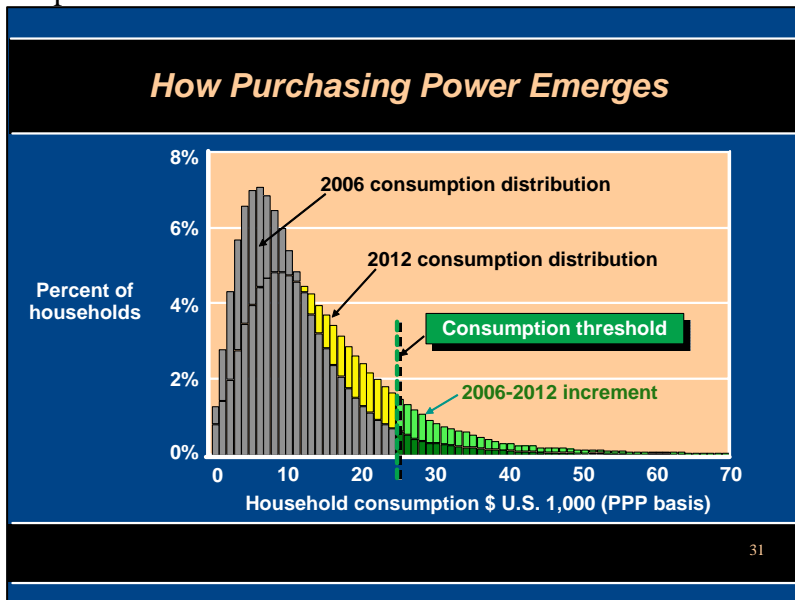
Graphic 8:

Focus on Consumer Purchasing Power

- **Rising level:** The future pace of aggregate growth
- **Expanding breadth:** The future proportion of consumers above a given consumption threshold
- **Metric for comparing countries:** World Bank's purchasing power parity (PPP) estimates of GNP per capita, expressed relative to the U.S.

30

Graphic 9:



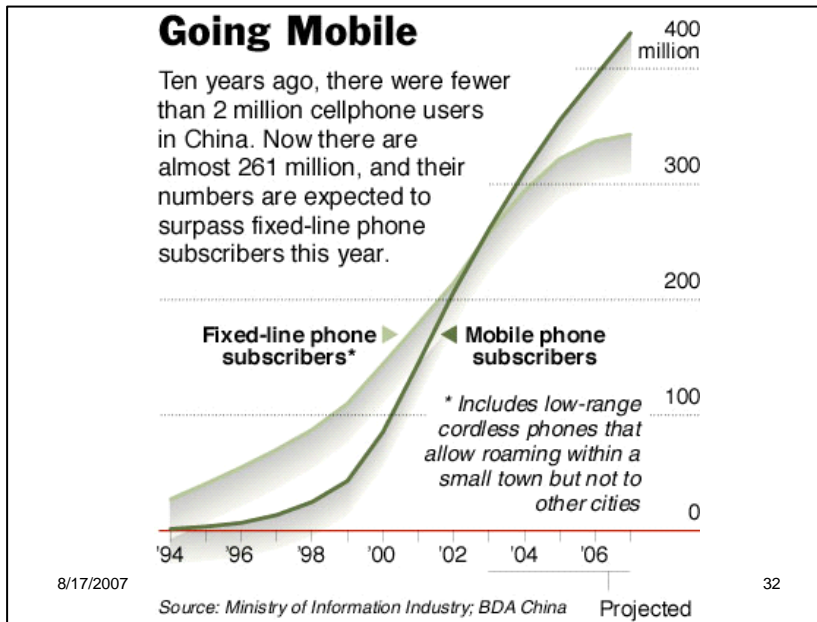
How do large populations ripen into consumer populations? Referring to Graphic 9, imagine a hypothetical country at about the stage where China or India is today. Consumers are broadly distributed (the gray distribution) around incomes whose U. S. equivalent would be quite low as of 2006. The horizontal axis here is "purchasing power parity," a measure devised by The World Bank (defined in the glossary). Purchasing power parity is an index that gauges per capita consumption levels across countries, relative to U. S. PPP is expressed as an index (US=100). It is useful for gauging the emergence of a consumer population in a country. Notice that most households are

concentrated in the \$3K to \$12K range. Suppose one recognizes an important target consumption threshold—say it's \$25,000. Above that level, consumers can afford to purchase, say, a laptop computer or a small family car.

Six years from now (in 2012), prosperity has risen. Families are smaller, more women are earning income, and the entire distribution has shifted to the right. The rising levels of purchase power parity means more consumers able to fulfill their aspirations. Focus on that [green] increment of change—2006-2012. On the left side of the consumption threshold, the increment is a small proportion of the entire population. But on the right side, it is a large proportion. In fact, the increment more than doubles the number of households who can afford your product. There's a "wave" effect here, and when the population is at this early stage of emergence, consumer growth can materialize dramatically.

The idealized picture shown in Graphic 9 underscores the concept of a threshold where the qualified consumers appear. It is possible to operationalize this model (cite Morrison ref). Graphic 10 illustrates how such emergence manifested itself in China, as millions of people rose above the mobile-phone subscriber consumption threshold.

Graphic 10:



How can we integrate these ideas into a framework for comparing and evaluating individual countries? Graphics 11, 12, and 13 illustrate the “summary scorecard” format that can be used to line up data for comparison.

Summary Scorecard: Fundamentals				
Country	Pop. size (millions)	Adult share (%)	Consumption Indicators	
			PPP Level (U.S. = 100)	Recent gain (GDP/capita)
China	1,304	78%	12.5	+ 7.2%
India	1,104	64	7.3	+ 2.8%
Indonesia	222	70	8.5	+ 2.3%
Brazil	184	71	20.7	+ 0.3%
Vietnam	83	71	6.4	+ 5.8%
Thailand	65	77	19.1	+ 4.5%
Malaysia	26	67	23.6	+ 2.1%
U.S.	300	79	100	+ 1.2%

Sources: Population Reference Bureau; World Bank. 34

Here's an illustration of how data that are readily available can be organized to distinguish more favorable aspects from less favorable ones.

Summary Scorecard: Fundamentals				
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Malaysia	26	67	23.6	+ 2.1%
U.S.	300	79	100	+ 1.2%

Key: Advantage Constraint 35

Summary Scorecard: Other Pluses & Minuses

Country	Workforce growth (annual, '01-'10)	Digital Access Index	Mobile phones/ 1,000	Info/Comm Tech Spending	
				% of GDP	Per cap.
China	0.8%	43	100	+ 7.2%	\$ 53
India	1.8%	32	6	+ 2.8%	\$ 19
Indonesia	2.0%	34	31	+ 2.3%	\$ 17
Brazil	1.2%	50	167	+ 0.3%	\$ 287
Vietnam	1.7%	31	15	+ 5.8%	\$ 26
Thailand	0.7%	48	123	+ 4.5%	\$ 76
Malaysia	2.8%	57	314	+ 2.1%	\$ 262
U.S.	0.9%	78	451	+ 1.2%	\$2,924

Sources: World Bank; International Telecommunication Union.

36

Other factors may enter in...

Summary Scorecard: Other Pluses & Minuses

Country	Workforce growth (annual, '01-'10)	Digital Access Index	Mobile phones/ 1,000	Info/Comm Tech Spending	
				% of GDP	Per cap.
China	0.8%	43	100	+ 7.2%	\$ 53
India	1.8%	32	6	+ 2.8%	\$ 19
Indonesia	2.0%	34	31	+ 2.3%	\$ 17
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Key: Advantage Constraint

37

Opportunities Deriving From

- **People’s universal functional needs**
 - **Consumer services: *Delivered in new ways***
 - **Virtual family groups: *Better connected***
- **National infrastructures which facilitate**
 - **Information access, display, & communication**
 - **Mass service delivery**

39

What will bundle those preferences across foreign countries are the common demographic developments under way: smaller-sized families, women in paid employment, generations united by common aspirations, reinforced through TV. These kinds of demographic commonalities extend across national boundaries. Increasingly, the needs that unite an urban two-earner family with two children are universal needs, whether that family happens to live in Indiana or Indonesia.

National infrastructures:

Example: Family “Peace-of-Mind” Services (POMS)

POMS: Cyber-services to address the universal concerns of far-flung families:

- **Automate telemonitoring of children and elderly**
- **Simplify access to confidential personal information (e.g., extensions of biometrics)**

40

Information service that exploit the ability of technology to reinforce universal functions families perform for dependent members—children & elderly.

Remote telemonitoring in assisted living facilities, nursing homes already exists. On further step: consumer version for the universal need of families with elderly.



National infrastructures:

-Info. Access, display, communication:

E.g., OptiSoft, Inc. “Intelligent Traffic-signal Platform”—to replace the ubiquitous traffic signal, a very old industrial device that can serve perform multiple purposes.

(Est'd 260,000 intersections in US alone).

Intelligent Platform Upgrade Opportunities

“Breakthrough technologies” for:

- Nuclear, Biological & Chemical (NBC) detection
- Audio detection (crashes, explosions, gun shots)
- License Plate Recognition (LPR)
- Facial recognition (Biometrics)



47

Upgradeable for:

-Vehicle detection

-Pedestrian detection

-Nuclear, Biological and Chemical (NBC) detection

- Audio detection (crashes, explosions, gun shots)
- License Plate Recognition (LPR)
- Facial recognition (Biometrics)

GLOSSARY AND SOURCES	
<u>FACTOR</u>	<u>DEFINITION AND INTERPRETATION</u>
"POPULATION SIZE"	Total population (circa 2005). A crude index of scale.
"ADULT SHARE"	Percentage of population above age 15. A higher percentage means consumption is less burdened by the needs of children.
"DIGITAL ACCESS INDEX"	A newly-devised index measuring the overall ability of individuals in a country to access and use Information and Communication Technology. DAI is a composite of variables covering availability of infrastructure, affordability of access, educational level, quality of ICT services, and Internet usage. Details at: www.itu.int/newsroom/press_releases/2003/30.html
"INFO & COMMUNICATION TECHNOLOGY SPENDING"	Includes "tangible" spending on IT products by businesses, households, governments, & education institutions; Antangible @ spending on internally customized software, etc.; and spending on telecommunications & other office equipment.
"PPP LEVEL"	The World Bank's purchasing power parity (PPP) estimates of GNP per capita. Refers to parity computed for a fixed basket of products, expressed relative to the U.S.
"GDP PER CAPITA GAIN"	Gross domestic product (GDP) per capita gain is a broad measure of an economy's growth. Recent gain @ refers to 2001-02 growth rate, calculated from constant price GDP data in local currency.
"MOBILE PHONES"	Refers to users of portable phones subscribing to an automatic public mobile telephone service using cellular technology that accesses the public switched telephone network.
"TOTAL FERTILITY RATE"	Average number of children born per woman assuming current age-specific fertility rates. Lower value portends a lessening future burden on consumption by the needs of children.
"WORKFORCE GROWTH"	Projected average annual growth rate, 2001-10, of the total economically active population (ILO definition of labor force). Useful as a barometer of expanding labor supply.
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SOURCES:	U.S. Census Bureau; World Bank; United Nations Population Division; Population Reference Bureau; International Telecommunication Union. Recommended websites: www.census.gov/ipc/www/idbnew.html ; http://www.worldbank.org/data/wdi2003/ ; http://esa.un.org/unpp/index.asp?panel=2 ; www.prb.org ; http://www.itu.int/ITU-D/ict/
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