

**Factors Influencing the
Growth of the Commercial
Sector in Family Planning
Service Provision**

by

William Winfrey
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Executive Summary

The need to meet the family planning needs of men and women, coupled with dwindling donor resources, is forcing family planning programs worldwide to confront increasingly difficult financial challenges. One option for expanding the resource base for family planning and reproductive health services in developing countries is to promote the growth of the commercial family planning sector. Using DHS data for 45 countries, this paper demonstrates that (1) the commercial sector plays an important role in national family planning markets, even in countries where contraceptive prevalence is low; and (2) the commercial family planning sector does not always develop coincidentally as prevalence grows or as programs mature.

If the commercial sector does not necessarily gain market share as prevalence grows, what factors account for differences in commercial market shares across countries? This paper examines three sets of factors to explain variations in commercial market share across countries:

- *Microeconomic or household factors.* Characteristics of individuals, such as ability to pay or knowledge of contraception, may make them more likely to use the commercial sector.
- *Macroeconomic or business climate factors.* Characteristics of a country and its economy may lead to a larger commercial market share for contraceptive services and commodities.
- *Programmatic factors.* Characteristics of a family planning program, such as government support and method mix, may lead to a larger commercial market share.

The commercial market share for family planning is related to many factors, which can be grouped in two categories: *external factors*, over which there is no control, such as per capita income and the level of urbanization, but which can be exploited or understood as a program constraint; and *programmatic factors*, which are under the direct or indirect control of the program, such as public sector pricing or program effort. The cross-national analysis shows that broad-based purchasing power, improved knowledge of reproductive health, critical densities of population, and appropriate public policy are each associated with relatively strong commercial sectors.

This paper recommends that public health policymakers take steps to integrate the commercial sector into their programs by developing economic and policy environments supportive of its expansion. For many years, family planning has been provided as if it were a public good in many countries. Large public programs were designed to expand service delivery in public sector facilities, while limited attention was paid to growth of the commercial sector, likely assuming commercial sector share would grow as a consequence of growth in general public interest in family planning. This study identifies factors for which key policy support may be able to generate increased use of the commercial sector for family planning.

Factors Influencing the Growth of the Commercial Sector in Family Planning Service Provision

Introduction

The need to meet the family planning needs of men and women, coupled with dwindling donor resources, is forcing family planning programs worldwide to confront increasingly difficult financial challenges. Expanding the role of the private sector in the delivery of family planning services may provide a partial solution to financing problems. The private sector can improve overall access by increasing the number of service delivery points and reducing the burden on the public sector by attracting clients who can afford to pay for some services.

The family planning market structure is defined here as the sectors that combine to meet the needs of family planning consumers: public sector, commercial sector, nongovernmental organizations (NGOs), and government or private insurance schemes. Each sector is responsible for some “share” of the total family planning market. The market structure of service delivery in family planning programs is not static within countries; rather, it changes over time and, sometimes, by level of program development. Some countries, such as Indonesia, begin their programs with public sector dominance of the family planning market and, as contraceptive prevalence increases, shift market share to either the commercial sector or NGOs. Other countries, such as Thailand, start with intense public sector participation that continues to dominate the market even as contraceptive prevalence grows. In yet other countries, for example, many in Latin America, the private sector plays a critical role in the family planning market even at low levels of contraceptive prevalence.

Examining global data on market structures will help identify prevailing patterns of public/private service distribution. Assessing the factors associated with these patterns will provide information for countries interested in developing integrated strategic plans that fully mobilize the resources of both the public and private sectors. Demographic and Health Surveys (DHS) supply the data needed to analyze the market structure of family planning services across a wide range of countries.¹ Using DHS data, this paper demonstrates that

1. The private sector plays an important role in national family planning markets, even in countries where contraceptive prevalence is low; and
2. The commercial family planning sector does not always develop coincidentally as prevalence grows or as programs mature.

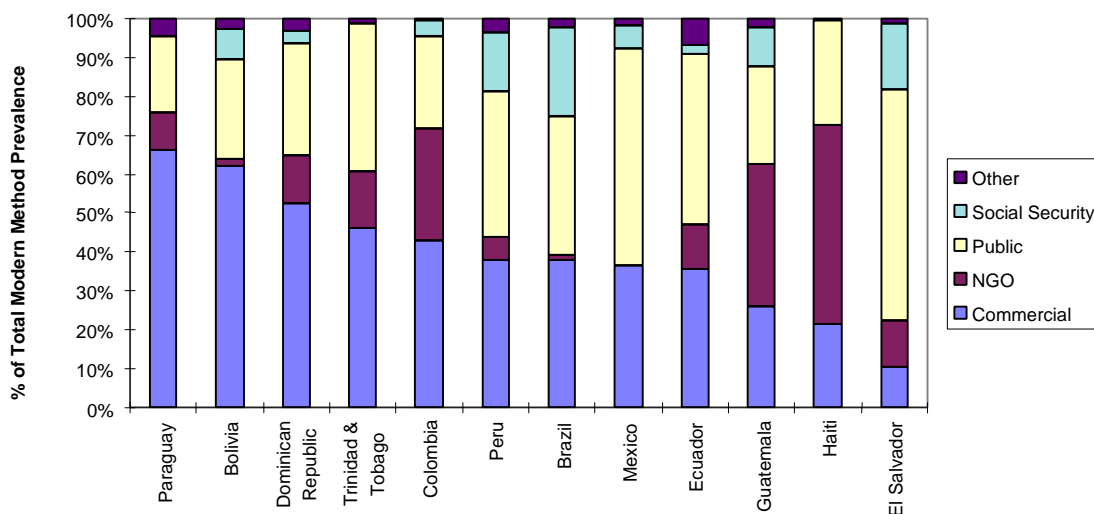
In addition, this paper explores some of the factors that might explain the speed or delay in worldwide growth of the commercial sector for family planning.

¹ The appendix contains the list of countries and description of data used in this analysis.

Commercial Sector Share of the Family Planning Market

The commercial sector is defined as the portion of the private sector that most nearly achieves economic self-sufficiency (i.e., is fully commercial). NGOs are excluded because they typically rely on grant funding and are heavily subsidized, and financial viability is often not their primary goal. In most countries, pharmacies, shops, private doctors and midwives, and private hospitals and clinics constitute the commercial sector. The share of the commercial sector in the modern method contraceptive market (hereafter referred to as the family planning market) varies widely across countries and across regions. Figures 1–3 present recently reported market shares in Latin America, North Africa/Asia, and sub-Saharan Africa, respectively. In each figure, countries are arrayed in descending order by the volume of commercial market share. Latin America has the largest commercial sector shares, followed by North Africa/Asia. Sub-Saharan Africa has the smallest commercial sector shares.

Figure 1
Family Planning Market Shares in Latin America

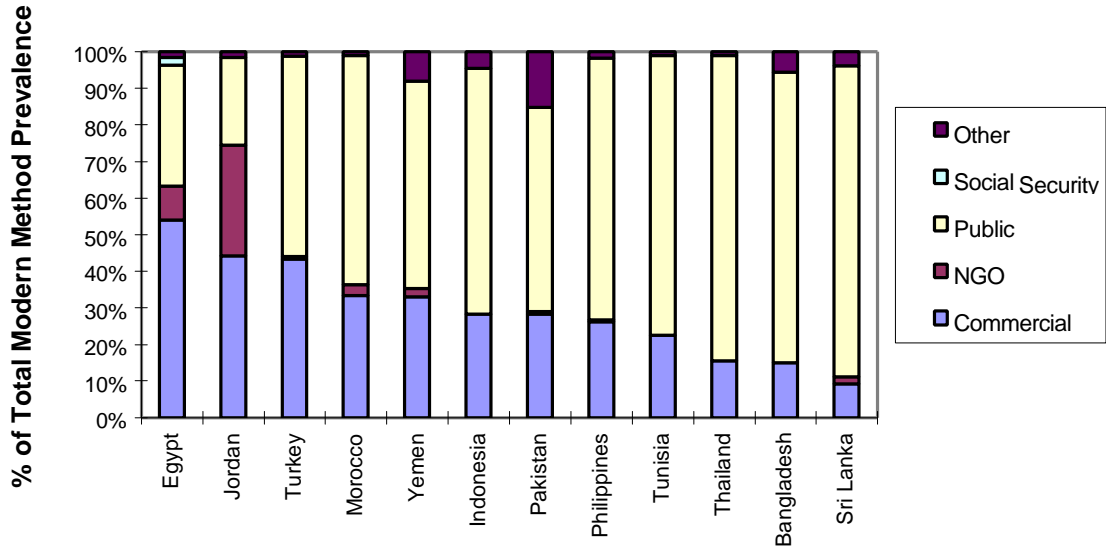


In Latin America, the commercial sector serves a much larger market share than in either Asia or Africa. Five of the 12 Latin American countries included in the sample have commercial market shares greater than 40 percent, and four others exceed 30 percent. Only El Salvador has a commercial market share of less than 20 percent. In several countries, notably Colombia, Guatemala, and Haiti, NGOs have a relatively large market share.² In Latin America, many NGOs have made significant gains toward full cost recovery and often operate with business principles barely distinguishable from commercial providers. The sum of commercial and NGO sectors exceeds 60 percent in more than one-half the Latin American countries represented. Government-

² The distinction among the commercial, NGO, and public sectors is often blurred. Survey respondents may sometimes identify one of the sectors as their family planning source when in fact they use another. Refinement of survey questionnaires has reduced this potential misreporting, but allocation of services to a particular sector may reflect this bias.

administered social security schemes often play a substantial role in the family planning market. In Brazil, El Salvador, and Peru, these schemes provide services to more than 10 percent of the family planning market, far more than is observed in other regions.

Figure 2
Family Planning Market Shares in North Africa and Asia



In North Africa/Asia, Egypt, Jordan, and Turkey have commercial sector shares that exceed 40 percent, while Bangladesh, Sri Lanka, and Thailand have less than 20 percent of the total market. With the exception of Egypt and Jordan, the NGO market share is extremely small.³ Government-organized insurance schemes (generically called social security) represent negligible shares, if they are present at all. Both NGO and social security shares of the market are difficult to measure, thus the data reported here may not accurately estimate the actual use of these sectors.

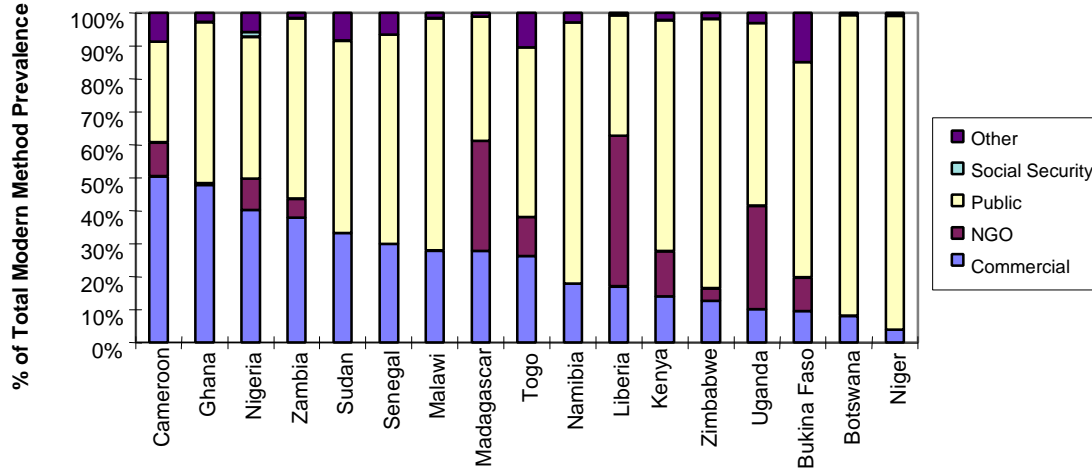
In sub-Saharan Africa, Cameroon, Ghana, and Nigeria, commercial sector shares have exceeded 40 percent. However, more than one-half of the 21 sub-Saharan countries have commercial sector shares of less than 20 percent.⁴ The NGO share of contraceptive services ranges from insignificant in approximately one-half of the countries to almost 50 percent in Liberia. Not surprisingly, given the scarcity of social security or other insurance programs, this sector accounts for virtually no share of the family planning market. In each region, but perhaps more so in Africa, the commercial sector is extremely varied; it may range from formal networks of medical practitioners and pharmacy chains to informal vendors selling in markets, bars, snack kiosks, and so forth.

Figure 3

³ Bangladesh has a large NGO program, deploying an estimated 23 percent of the country's family planning fieldworkers (Janowitz et al., 1997). However, NGOs were not identified as a response category in the Bangladesh DHS. In most cases, NGO field workers are identified as public sector providers.

⁴ Burundi, Mali, Rwanda, and Tanzania are included in later analyses but are omitted from the graph because their commercial market shares are negligible.

Family Planning Market Shares in Sub-Saharan Africa



Commercial Sector Market Size

Although the commercial market share for family planning may be relatively large in a given country, its absolute size can still be quite small. *Commercial market share* is the percentage of modern contraceptive users (among married women) who are served by the commercial sector, relative to other sources of supply. *Commercial market size* is defined as the percentage of all married women of reproductive age who are served by the commercial sector. For example, Figure 3 shows that in Cameroon the commercial market share is more than 50 percent; however, contraceptive prevalence is very low, with modern method use only 4.3 percent. Therefore, the number of women who use the commercial sector, the market size, is small: 2.2 percent of all married women (calculated by multiplying the commercial sector market share of the family planning market—50.4 percent—by the modern method prevalence rate—4.3 percent).

Definitions

Market Share

Percentage of married women of reproductive age using modern contraception served by the commercial sector

Market Size

Percentage of all married women of reproductive age served by the commercial sector

Table 1
Commercial Market Sizes in Latin America

	Market Share	×	Modern Prevalence	=	Market Size
Dominican Republic	52.7	×	51.7%	=	27.25
Colombia	42.9	×	59.3%	=	25.44
Paraguay	66.4	×	35.2%	=	23.37
Trinidad and Tobago	46.0	×	44.4%	=	20.42
Brazil	38.0	×	53.7%	=	20.41
Mexico	36.4	×	44.6%	=	16.23
Ecuador	35.7	×	35.8%	=	12.78
Peru	38.1	×	32.8%	=	12.50
Bolivia	62.0	×	17.8%	=	11.04
Guatemala	25.9	×	19.0%	=	4.92
El Salvador	10.4	×	44.3%	=	4.61
Haiti	21.5	×	13.2%	=	2.84

Latin America and the Caribbean

Latin America has the largest commercial markets (Table 1). In the Dominican Republic, Colombia, Paraguay, Trinidad and Tobago, and Brazil, more than 20 percent of married women use the commercial sector for contraceptives. Only three of the 12 countries have market sizes smaller than 10 percent. In contrast to the North African/Asian countries, Latin American countries historically have had relatively weak public programs. Commercial and NGO components of family planning programs have frequently made strong contributions through their willingness to confront opposition posed by the Catholic church and other conservative forces, resulting in commercial sector shares that are almost always large and differences in contraceptive prevalence that account for most of the differences in commercial market sizes.

North Africa/Asia

In North Africa/Asia, Egypt has the largest commercial market (Table 2). Almost one in four married women use the commercial market to obtain contraceptive services. More than 10 percent of married women in Turkey, Indonesia, Jordan, and Morocco obtain contraceptive services from the commercial sector. In North Africa/Asia, commercial market size more closely correlates with commercial market share than with contraceptive prevalence.

In general, countries in which the commercial sector is not at a disadvantage (or the public sector is not given special advantages) will have a larger market share. In this group of countries, public policies have supported diverse advantages for the public sector. For example, a powerful government ministry in Indonesia has the political clout to direct a strong public sector program, resulting in limited opportunities for the commercial sector. Conversely, variable political tides in Egypt have affected the Ministry of Health and Population, whose authority has alternately increased and diminished during the years. Its relative weakness has allowed the commercial sector to expand to meet the needs of contracepting couples.

	Market Share	×	Modern Method Prevalence	=	Market Size
Egypt	54.1	×	44.8%	=	24.24
Turkey	43.4	×	34.5%	=	14.97
Indonesia	28.3	×	52.1%	=	14.74
Jordan	44.2	×	26.9%	=	11.89
Morocco	33.4	×	35.5%	=	11.86
Thailand	15.5	×	63.6%	=	9.86
Tunisia	22.5	×	40.4%	=	9.09
Philippines	26.2	×	24.9%	=	6.52
Bangladesh	15.1	×	36.2%	=	5.47
Sri Lanka	9.2	×	40.6%	=	3.74
Pakistan	28.3	×	9.0%	=	2.55
Yemen	33.0	×	6.1%	=	2.01

Sub-Saharan Africa

Thirteen of the 21 sub-Saharan African countries have private sector market sizes of less than 2 percent (Table 3). No commercial market is larger than 5.5 percent, even in Cameroon, Ghana, Nigeria, Senegal, Sudan, and Zambia, where market shares are relatively large. Low contraceptive prevalence in almost all sub-Saharan African countries contributes to this market size outcome. In contrast with the countries of North Africa/Asia, market size is affected more by the rates of modern contraceptive prevalence. Four of the six largest commercial sector markets are in countries with prevalence rates in excess of 25 percent.

It is tempting to dismiss the commercial sector in Africa as so small in absolute size that it should not be counted on to help build contraceptive prevalence. A more dynamic and entrepreneurial perspective is that the commercial sector can be leveraged during the earliest stages of program development to foster program growth, both in terms of increasing contraceptive prevalence and developing sustainability. This view is supported by the often-observed relationship between socioeconomic status and contraceptive use. Early contraceptive users are typically those most motivated to control their fertility and are often relatively wealthy; therefore, they are likely candidates for using the commercial sector. Thus, the commercial sector should be seen as a partner in service expansion, even in the least advanced programs.

	Market Share	×	Modern Prevalence	=	Market Size
Zimbabwe	12.7	×	42.2	=	5.36
Ghana	47.8	×	10.1	=	4.83
Namibia	17.9	×	26.0	=	4.65
Kenya	14.0	×	27.3	=	3.82
Zambia	37.9	×	8.9	=	3.37
Botswana	8.0	×	31.7	=	2.54
Cameroon	50.4	×	4.3	=	2.17
Malawi	27.9	×	7.4	=	2.06
Sudan	33.2	×	5.5	=	1.83
Senegal	30.0	×	4.8	=	1.44
Madagascar	27.8	×	5.1	=	1.42
Nigeria	40.2	×	3.5	=	1.41
Liberia	17.1	×	5.5	=	0.94
Togo	26.3	×	3.1	=	0.82
Burkina Faso	9.6	×	4.2	=	0.40
Tanzania	3.9	×	6.6	=	0.26
Uganda	10.1	×	2.5	=	0.25
Niger	4.0	×	2.3	=	0.09
Rwanda	0.3	×	12.9	=	0.04
Burundi	2.2	×	1.2	=	0.03
Mali	1.5	×	1.3	=	0.02

Factors Influencing the Growth of the Commercial Sector

Level of Program Development

A number of analysts have suggested that family planning programs go through stages of development that influence the commercial sector share for family planning, linked to the level of modern method prevalence (Cochrane et al., 1990; Cross et al., 1991; Destler et al., 1990; Foreit, 1992). Briefly, this perspective identifies the following patterns:

1. *Low Prevalence.* In nascent programs, the commercial sector share may be large if the public sector has never actively supported family planning. Almost all provision of family planning comes from nongovernmental sources (including the commercial sector).
2. *Middle Prevalence.* At a more developed stage, government will sometimes take a strong interest in promoting family planning, believing that it will contribute to overall development goals. Public sector programs usually include the direct delivery of services, and the public sector share of family planning services increases.
3. *High Prevalence.* As the transition to lower fertility occurs, a large public program is no longer needed. Growth in demand for family planning diminishes as population momentum slows and prevalence plateaus at a relatively high level. Economic development and a large family planning market make the country's market attractive to competitive contraceptive providers.⁵

In contrast, data show no strong pattern of growth in the commercial sector market share as contraceptive prevalence rates increase. Table 4 presents correlations calculated between contraceptive prevalence and the commercial market share in the sample countries.⁶ No consistent relationship is apparent in a scatter plot of contraceptive prevalence and commercial sector market share (Figure 4). Nor do any strong relationships emerge when each of the three regions are examined individually and the sample of countries is limited to those with prevalence rates greater than 15, 30, or 40 percent (Table 4). For countries in which prevalence is less than 15 percent, there appears to be a relationship between contraceptive prevalence and the commercial market share. As a group, these low-prevalence countries have smaller commercial market shares than higher prevalence countries. However, even these slight relationships disappear when other influential factors in the analysis are included.

⁵ Hong Kong, Korea, Singapore, and Taiwan are usually cited as examples of countries that have passed through this third stage.

⁶ The correlations are calculated for single, point-in-time observations across a sample of countries. While the stages-of-program-development argument refers to a process that occurs in a single country over time, a more suitable test would use the longitudinal data for a single country or group of countries. Data do not directly address the question of whether the commercial sector share grows in a given country as contraceptive prevalence increases.

Countries	Correlation	Average Commercial Market Share (unweighted)	Number of Observations
All countries	0.321	26.8	45
Latin America	0.098	39.7	12
North Africa/Asia	0.153	26.7	12
Sub-Saharan Africa	-0.052	19.4	21
Prevalence < 15 percent	0.504	20.2	20
Prevalence ≥ 15 percent	-0.017	32.0	25
Prevalence ≥ 30 percent	0.037	32.0	19
Prevalence ≥ 40 percent	0.194	30.7	12

Commercial Market Share versus Contraceptive Prevalence

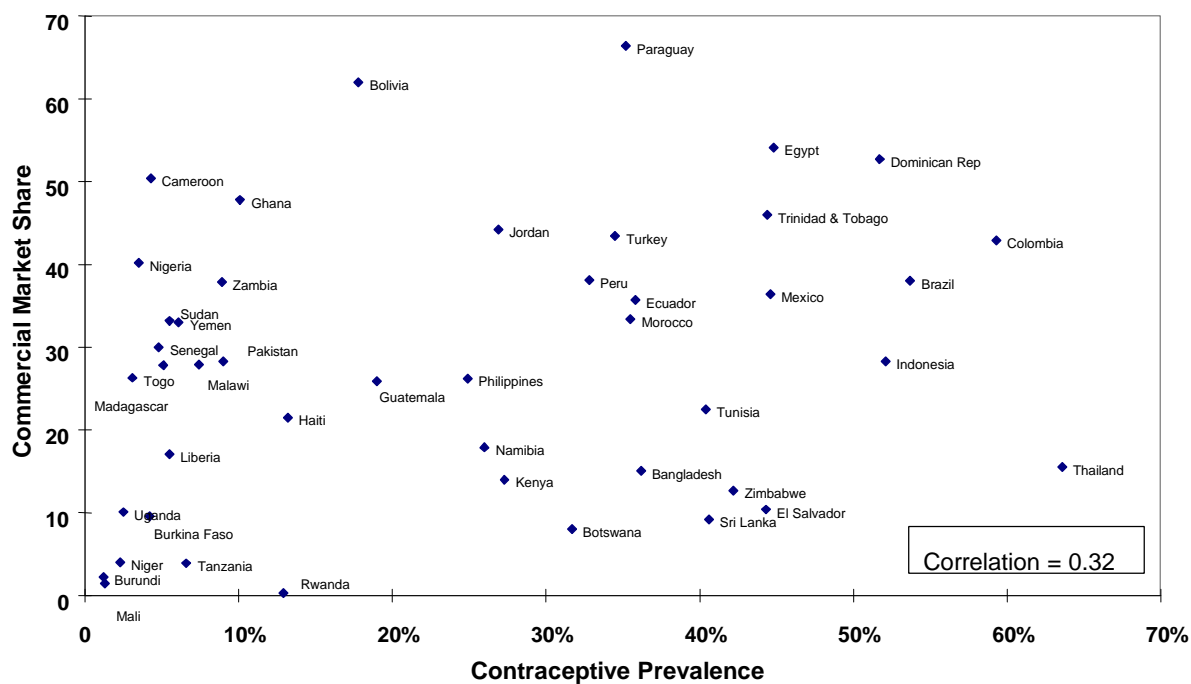


Figure 4

Clearly, data presented in Table 4 and Figure 4 show that growth in commercial sector share is not an inevitable consequence of increased adoption of family planning.⁷ Low prevalence rates in sub-Saharan Africa are associated with both strong and limited commercial sectors. In Asia, where family planning programs are more mature and contraceptive prevalence rates higher, there are still wide variations in the size of the commercial sector across countries. If the commercial sector does not necessarily gain market share as prevalence grows, what factors account for differences in commercial market shares across countries? Family planning literature suggests three sets of factors to project commercial market share across countries:

1. *Microeconomic or household factors.* Characteristics of individuals, such as ability to pay or knowledge of contraception, may make them more likely to use the commercial sector.
2. *Macroeconomic or business climate factors.* Characteristics of a country and its economy may lead to a larger commercial market share for contraceptive services and commodities.
3. *Programmatic factors.* Characteristics of a family planning program, such as government support and method mix, may lead to a larger commercial market share.

Microeconomic or Household Factors

The first set of hypotheses suggests that differences in average client characteristics explain the relative size of the commercial sector share across countries. These characteristics, by affecting the individual decisions of family planning clients, are reflected in the aggregate commercial market share for family planning.

Per Capita Income. One hypothesis contends that household prosperity leads to increased purchasing power, which in turn leads to greater ability and willingness to pay for preventive health care services in general and family planning services in particular (Cross, 1993; Cross et al., 1991; Musgrove, 1983). If the hypothesis holds, countries with higher average per capita income are expected to have larger commercial market shares (*variable used:* logarithm of the average per capita income).⁸

Income Distribution. A variation on the purchasing power hypothesis is that per capita income is not sufficient to create broad-based purchasing power, if the income distribution in the country is unevenly skewed with large concentrations of wealth controlled by a small proportion of the population. Rather, average per capita income needs to be distributed over a large proportion of the population. Large commercial sectors in high-prevalence countries require that all economic classes have some ability to pay. The proportion of national income earned by the poorest segment of the population is a good measure of broad-based purchasing power (*variable used:* percentage of national income accruing to the poorest 20 percent of the population).

⁷ The growth of the commercial sector for family planning is interpreted broadly here. It can mean more facilities offering commercial services or more commercial sector health providers offering family planning. Commercial sector family planning cannot be considered separate from the larger commercial health sector.

⁸ This effect will not hold equally at all levels of average per capita income. At higher levels of per capita income, incremental additions will have less impact (e.g., an increase in per capita income from \$500 to \$1,000 will have a larger impact on commercial sector use than an increase from \$5,000 to \$5,500). Taking the logarithm of per capita income is a common method of capturing diminishing marginal impact. The correlation between the logarithm of per capita income and commercial market share is likely to be greater than the correlation between per capita income and commercial market share.

Knowledge. In most countries, many people are willing to pay for health services (Smith, 1989). However, willingness to pay for preventive health care frequently lags behind willingness to pay for curative care, even though preventive health care is usually more cost effective in generating good health. When clients better understand the preventive benefits of family planning (in terms of better health and well-being for women, children, and the family as a whole), they are more willing to pay for these services through the commercial sector.⁹ A potential test of this hypothesis is the degree of correlation between the commercial market share and women's relative knowledge of reproductive health (*variable used*: percentage of married women of reproductive age who know when they are most fecund in their menstrual cycle).

Macroeconomic Business Climate

A second set of hypotheses suggests that the larger, macroeconomic environment influences the growth rate and size of the commercial sector family planning market. If the business climate is generally favorable, then the climate for commercial sector provision of family planning services will be similarly favorable.

Degree of Urbanization. One hypothesis holds that the commercial sector's market share will be higher in more urbanized countries (Cross, 1993; Cross et al., 1991; Lewis and Kenney, 1988). In this view, higher degrees of urbanization (i.e., greater population densities) provide the critical consumer density necessary for profitable business development.¹⁰ Because family planning is a relatively specialized market, if a large client base does not exist, it is less likely that a commercial clinic or private medical practice can survive (*variable used*: percentage of married women of reproductive age who live in urban areas).

Total Population. A related argument contends that large countries should have more developed commercial sector contraceptive markets than small ones. It appears that a critical mass of potential clients needs to exist before large commercial contraceptive distributors will find it profitable to enter national markets or before doctors or other medical providers will offer this service (*variable used*: total population).

Macroeconomic Health of Country. Another variation on the business climate theme is that a stable macroeconomic environment will support commercial sector family planning services as it supports other forms of commercial development (Cross et al., 1991). According to this view, countries with stable inflation and exchange rates will have larger commercial sector shares than countries where inflation is high and exchange rates volatile. Similarly, political stability might ensure that large swings in the legal and regulatory environments will not occur. In countries where there is a regular trend of economic growth, an entrepreneurial spirit is more likely to flourish, encouraging provider entrance into the family planning market. Potential providers of family planning services who are risk-averse are less willing to offer services or supplies when circumstances beyond their control can jeopardize their investment without warning or recourse. If this hypothesis holds, the commercial sector share should be correlated with any or all of the

⁹ An economist might say that contraception is no longer perceived as a risky medical intervention, but rather as an intervention that has a high probability of successfully achieving a desired end (smaller family size, better health) and is easily purchased on the open market.

¹⁰ Urbanization rather than population density is the measure because population density will vary considerably within a country, and the most important variations in population density correspond to the degree of urbanization.

indicators of a healthy business climate (*variables used*: per capita income growth rate and inflation rate).

Number of Trained Medical Personnel. A final variation on the macroeconomic business theme is that the number of potential commercial sector providers is a strong determinant of the commercial sector share for family planning. If there is a surplus of trained personnel (e.g., medical doctors or nurses) beyond what the public sector employs, there will be underemployment or unemployment of these professionals. One opportunity for underemployed, trained medical workers is to open private practices. Thus, a country with a large number of trained medical personnel per capita may have a larger commercial sector for family planning (*variable used*: number of trained medical personnel per 100,000 persons).

Programmatic Factors

A third set of hypotheses holds that features of a national family planning program can help explain differences in the commercial market share for family planning services. Program configuration in terms of method mix, pricing, or policies may influence the share of the family planning market that the commercial sector serves.

Method Mix. In poor or middle-income countries, limited cash flow may prevent many clients from purchasing more expensive (in terms of up-front costs) clinical methods (Bulatao, 1992; Cross et al., 1991; Foreit, 1992). A country with a large proportion of clients using nonclinical methods may have a larger commercial sector than one in which there is a large proportion of couples relying on clinical methods. Frequently couples can obtain nonclinical methods, such as condoms or spermicides, through commercial outlets easily supplied by a commodity distribution network. In many cases, the commercial infrastructure need not be highly developed to provide basic nonclinical commodities (*variable used*: percentage of contracepting women who use nonclinical methods).

Alternative arguments are often made that a method mix favoring clinical methods leads to a larger commercial market share. First, women who use clinical methods may be more comfortable with service delivery at commercial delivery points (e.g., private doctors, private hospitals, and private clinics). Second, in many countries, wealthier clients are more likely to use clinical methods. Thus, the commercial sector will be larger in share.

Public Sector Pricing. A detrimental program effect occurs when the public sector “poaches” likely clients from the commercial sector by luring them with free or low-cost services (Fort, 1994; Lande and Blackburn, 1989). Presumably, if the public sector restricts its services to a particular segment of the population, then the commercial sector will be left to serve its natural client base (i.e., those who can afford to pay for the services).¹¹ Imposing user fees is one way of shifting clients to the commercial sector. The impact of pricing can be estimated by looking at the correlation between the percentage of women who receive free public sector services and the commercial sector share (*variables used*: percentage of public sector pill users who receive free pills and percentage of pill users who frequent the commercial sector).

¹¹ The public sector may choose to serve only those clients who cannot afford to pay for family planning services and/or serve clients in areas where the commercial sector cannot operate profitably (e.g., undeveloped rural areas).

Public Sector Program Effort. Programs pursue specific policies that support or hamper the growth of the commercial sector (Cross et al., 1991). Donors, multilateral organizations, and governments finance commercial sector training efforts, subsidize social marketing programs, and provide seed money for commercial sector operators. The government may choose to impose or reduce legal, regulatory, and customs barriers to opening commercial sector operations. Donor agencies that aggressively assist the public sector may inadvertently crowd out a nascent commercial sector (*variable used:* Program Effort Index).¹²

¹² The Program Effort Index is a standardized measure used to compare the level of effort—strong, moderate, weak, and very weak—of national family planning programs. Thirty indices are grouped into four components: policy and stage setting activities; service and service-related activities; record keeping and evaluation; and availability and accessibility of fertility control supplies and services (Ross and Mauldin, 1996).

Results

What factors account for differences in commercial market share across countries? Table 5 shows the correlation between each independent variable and commercial market share (the percentage of pill users frequenting commercial sector and the percentage of public sector pill users receiving free pills are treated separately because of the smaller number of observations for these two variables).¹³ Per capita income, the number of medical personnel per 100,000, and the percentage of women living in urban areas are positively and strongly correlated with the commercial market share. It appears that both supply (medical personnel) and demand (urban women) factors, facilitated by income available for spending on contraceptive services and supplies, are linked with commercial market share.

Contraceptive prevalence is positively and moderately correlated with commercial market share, while the percentage of contraceptors using nonclinical methods is negatively and moderately correlated. The negative correlation observed for women using nonclinical methods is consistent with the hypothesis that women who use clinical methods are frequently more comfortable obtaining services at private, commercial outlets, often perceived as being more convenient, more discrete, and of better quality than free or low-cost public outlets.

Indicator	Correlation with Commercial Market Share	Number of Observations
Modern contraceptive prevalence	0.32	45
Micro Factors		
Natural log of per capita income	0.51	45
Percentage of national income earned by the poorest 20 percent of the population	-0.13	31
Percentage of women who know their reproductive cycle	0.27	42
Macro Factors		
Number of medical personnel per 100,000	0.60	41
Percentage of women 15–49 living in urban areas	0.67	43
Total population	0.13	45
Per capita income growth	-0.13	45
Inflation rate	0.18	40
Programmatic Factors		
Percentage of contraceptive use that is nonclinical	-0.37	45
Program Effort Index	-0.03	45

¹³ The Pearson Correlation (r_{xy}) is an indicator of the degree of interrelatedness between two sets of numbers.

Public Sector Pricing

Collecting user fees in the public sector has the potential to make the commercial sector more competitive on the basis of price. Fee collection in the public sector also serves to make family planning an economic good rather than an entitlement. Cost recovery through fee collection typically varies for different contraceptive methods. Unfortunately, DHS data rarely include information on prices paid for contraceptive products other than pills. In this analysis, only the influence of public sector pill prices on the commercial sector share for pills is considered.

Table 6 presents the correlation between public sector cost recovery and commercial sector share of the pill market for 34 countries. Considering all countries together, there is a positive correlation between the percentage of public sector clients who pay for their pills and the commercial sector share of the pill market. In other words, the collection of user fees in the public sector is associated with a larger commercial sector for pills. The correlation is particularly strong in low-income countries; however, when middle-income countries are considered, the correlation disappears.

Table 6 Correlation between the Percentage of Public Sector Pill Users Who Pay Public Sector User Fees for Supply and/or Services and Commercial Sector Share of the Pill Market		
	Correlation	Number of Observations
All countries	0.339	34
Low-income countries*	0.606	18
Middle-income countries*	0.173	16

*As defined by the World Bank

A possible explanation for the strong positive correlation in low-income countries is the presence of highly subsidized social marketing programs. In some low-income countries, social marketing programs import donated commodities and build entire marketing infrastructures to support sales, at prices that are only a fraction of true cost. In higher income countries, social marketing programs supply only strategic support such as advertising, marketing, or packaging to existing, self-sustaining product lines that may not be as competitively priced for a broad consumer market.

In low-income countries, the imposition of even a small user fee in the public sector appears to make social marketing programs immediately competitive. However, in higher income countries with lower levels of subsidization (as reflected in the price of socially marketed pills), the imposition of nominal user fees may not have the same effect.

Regression Results

Some variables correlated with commercial sector share are also likely to be correlated among themselves. That is, several variables may measure the same underlying concept, raising the possibility that the observed correlation between any one variable and commercial market share actually includes the influence of another variable. To determine the independent effects of each

variable while controlling for the influence of others, two regression analyses have been performed.

The regression results are shown in Table 7. The first regression contains all of the variables, except the inflation rate and income distribution.¹⁴ The second regression also eliminates the variables for the percentage of women living in urban areas and the number of medical personnel per 100,000. The values for the percentage of women living in urban areas is probably endogenous or “caused” by another variable, such as per capita income. Urban per capita incomes typically rise faster than rural incomes in developing countries, and the disparity between urban and rural per capita incomes often will draw people to cities. Therefore, the higher proportion of people living in urban areas is probably caused in part by relatively higher levels of per capita income. The number of medical personnel may also be an endogenous variable. Higher incomes are associated with more highly educated people, and in turn often associated with greater numbers of trained medical personnel.

Table 7				
Regression Results on Commercial Market Share				
	<i>Regression 1</i>		<i>Regression 2</i>	
	Regression Coefficient	T-Statistic	Regression Coefficient	T-Statistic
Intercept	-11.150	-0.357	-26.818	-0.873
Modern contraceptive prevalence	0.163	0.571	-0.073	-0.294
Natural log of per capita income	3.391	0.710	8.862	2.209**
Number of medical personnel per 100,000	-0.099	-0.760		
Percentage of women 15–49 living in urban areas	51.645	2.471**		
Percentage of contraceptive use that is nonclinical	0.135	0.720	-0.001	-0.004
Program Effort Index	-0.439	-1.666*	-0.302	-1.481*
Total population	0.059	0.943	0.054	0.821
Percentage of women who know their reproductive cycle	14.138	0.892	22.607	1.609*
Per capita income growth	0.141	0.255	-0.348	-0.668
Latin America	12.526	1.180	14.835	1.618*
North Africa/Asia	6.477	0.734	6.986	0.756
	N=37		N=41	
R squared	0.598		0.486	
Adjusted R squared	0.428		0.342	

* indicates significance at the 85% level

** indicates significance at the 95% level

In the first regression, only the percentage of women living in urban areas and program

¹⁴ The inflation rate was eliminated because reliable rates were not available for several countries. Since per capita income growth rates are intended to measure approximately the same thing, the information loss should not be large. The income share variable was deleted because few observations were available for this group of countries.

effort score were significantly correlated with the commercial market share. As the variable of women living in urban areas probably includes the effects of other variables, its significance is not surprising. However, it is likely that many women living in urban areas, with ready access to a variety of family planning service outlets, will seek services from commercial suppliers.

The negative partial correlation between program effort score and commercial market share is somewhat surprising; it appears that the correlation for the entire population obscures an important difference between the high- and low-income countries included in the sample. Program effort is often interpreted as the effort put forth to build strong public programs. The correlation between program effort score and commercial market share is high and negative for middle-income countries (-0.519), indicating that continued strong public programs in middle-income countries may be impeding the growth of the commercial sector. For low-income countries, the correlation is negligible (0.041).

When the urban and medical personnel variables are omitted from the model, per capita income, percentage of women who know their reproductive cycle, program effort score, and the Latin America dummy variable are all significant.¹⁵ Per capita income is strongly correlated with commercial market share, as anticipated. Available income will normally spur use of commercial outlets for a variety of goods and services, including family planning. The percent of women who know their reproductive cycle may be indicative of general knowledge about reproductive health and contraception, and knowledgeable women may demonstrate a greater willingness to seek services and supplies from a broad range of outlets not limited to public sector sources.

Program effort score remains negatively and moderately associated with market share. The Latin America dummy variable captures some of the special historical circumstances of the Latin America region as a whole.¹⁶ This regression shows that particular characteristics of Latin America contribute to the relatively large commercial sector even after controlling for the effect of per capita income.

¹⁵ The reference category for the Latin America and North Africa/Asia dummy variables is Africa.

¹⁶ Among other things, the strong role of the Catholic church and the relatively weak role of governments in family planning programs, thereby fostering relatively stronger NGO and commercial participation in service delivery, are characteristics of the Latin America region. However, considerable variation is evident among countries.

Conclusions and Programmatic Implications

The commercial market share for family planning services is moderately correlated with contraceptive prevalence, yet when the effects of other factors are controlled, the correlation completely disappears. The commercial sector share of the contraceptive market does not grow as a natural by-product of increased contraceptive prevalence. Two important implications of this are the following:

- Low-prevalence country programs can begin at the earliest stages of development to effectively involve the commercial sector and to keep them involved as public sector programs expand.
- High-prevalence country programs will need to make policy and programmatic efforts to increase the commercial sector share of family planning, perhaps by focusing on improving women's knowledge of contraception and reproductive health, and on improving economic equity.

The commercial market share for family planning is related to many factors, which can be grouped in two categories for consideration by family planning policymakers and program managers and interpreted as points of intervention or keys to understanding how to design commercial sector programs:

- *External factors*, over which there is no control, such as per capita income and the level of urbanization, but which can be exploited or understood as a program constraint; and
- *Programmatic factors*, which are under the direct or indirect control of the program, such as public sector pricing or program effort.

External Factors

Purchasing Power. Per capita income and perhaps its distribution are correlated with the commercial market share for family planning. While family planning programs have little control over per capita income in their countries, they are frequently able to influence the prices women pay in the commercial sector.

Urbanization. The findings of this study suggest that commercial sector promotion efforts would best start in urban areas. This is particularly the case for low-income countries where purchasing power and the commercial infrastructure are notably weak in rural areas.

Trained Medical Personnel. The number of trained medical personnel is correlated with the commercial market share. However, the number of medical personnel is also correlated with a whole constellation of factors that come with national development, including urbanization and greater available income. Family planning programs do not create medical professionals; however, in most countries, there is a large cadre of midwives, healers, and traditional birth attendants who can or do receive supplementary training to supply family planning methods. National programs should give careful consideration to optimizing the skills of these auxiliary providers by “demedicalizing” family planning services and expanding the network of providers authorized to provide these essential services and supplies.

Programmatic Factors

Knowledge. In well-developed programs, knowledge of family planning methods is nearly universal. The results presented here indicate that a higher level of sophistication (as measured by knowledge of the reproductive cycle) is associated with greater use of the commercial sector.

Cost Recovery in the Public Sector. In low-income countries where there are social marketing programs, high levels of cost recovery in the public sector will probably make the commercial sector immediately price competitive with the public sector. Cost recovery is particularly enticing as a policy lever because it raises revenue for the public sector (thus relieving fiscal pressures) and potentially reduces the service delivery burden at public facilities as public sector users shift to other sources of supply. Nevertheless, the public sector cannot eliminate its role in offering low-cost services altogether, as it provides an important safety net for those users too poor to pay or too distant from normal commercial markets.

Public Sector Program Effort. It is puzzling that family planning program effort is associated with small commercial market shares. A systematic examination of the content of most public sector family planning programs would probably show a near complete neglect of the commercial sector. To the extent that the public sector is differentially assisted by program effort, the commercial sector is likely to suffer. Greater emphasis on bringing commercial sector representatives into the process of family planning policy and program planning, however, may foster a more diverse and comprehensive array of supply and service delivery points. Examples of such efforts include more precise market segmentation and development and enhancement of public/private partnerships.

For many years, family planning has been provided as if it were a public good in many countries. Large public programs were designed to expand service delivery in public sector facilities, while limited attention was paid to growth of the commercial sector, likely assuming commercial sector share would grow as a consequence of growth in general public interest in family planning. This study identifies factors for which key policy support may be able to generate increased use of the commercial sector for family planning.

In an era of increasing resource needs, governments may need to increasingly focus their efforts on serving those most in need. Commercial sector expansion will be needed to divert those able to pay away from public sources. Public programs can become effective partners of the commercial sector by helping foster supportive policy environments, laws, regulations, and policies that enable a wide array of private, commercial sector providers to delivery high-quality family planning services and supplies.

Appendix

Description of Data and Definition of Market Sectors

The sample of countries in this study is neither random nor exhaustive. Only countries that have had a DHS are included. The DHS has made a greater attempt than previous surveys to identify sources of contraception (e.g., public or private), and the questionnaire designs across countries are basically comparable. Many countries have conducted more than one survey among the three rounds of the DHS program. Only the most recent survey was included in this analysis in order to not give extra weight to any single country and to avoid problems with changes in source definition between survey periods.¹⁷

Limiting the analysis to countries participating in the DHS program has at least two implications for interpreting results. First, every country in the sample is to a greater or lesser extent cooperative with bilateral and/or multilateral donors or lending institutions. All DHS data have been significantly or completely funded by institutions outside of the country surveyed. Therefore, several large countries, including China, South Africa, and the Democratic Republic of Congo (formerly Zaire), are not included here. Also, many of the countries that are notable successes in the family planning movement are not included. Taiwan, Singapore, and Korea do not receive large donor transfers and are therefore not included in the DHS sample. In addition, India is not included.¹⁸ Table A-1 lists the countries and years of the surveys included in this study. With the exception of Brazil and Sudan, all surveys were national in scope.

¹⁷ In general, the source definitions have become more precise over time allowing better attribution to different sectors.

¹⁸ The structure and timing of the DHS in India did not allow simple aggregation across states or simple comparison with other countries.

Table A-1					
Countries Included in Analysis					
North Africa/Asia		Sub-Saharan Africa		Latin America	
Bangladesh	1993	Botswana	1988	Bolivia	1994
Indonesia	1994	Burkina Faso	1992	Brazil	1991
Pakistan	1991	Burundi	1987	Colombia	1995
Philippines	1993	Cameroon	1991	Dominican Republic	1991
Sri Lanka	1987	Ghana	1993	Ecuador	1987
Thailand	1987	Kenya	1993	El Salvador	1985
Egypt	1992	Liberia	1986	Guatemala	1987
Jordan	1990	Madagascar	1992	Haiti	1994
Morocco	1992	Malawi	1992	Mexico	1987
Tunisia	1988	Mali	1987	Paraguay	1990
Turkey	1993	Namibia	1992	Peru	1991
Yemen	1992	Niger	1992	Trinidad and Tobago	1987
		Nigeria	1990		
		Rwanda	1992		
		Senegal	1992		
		Sudan	1989		
		Tanzania	1992		
		Togo	1988		
		Uganda	1988		
		Zambia	1992		
		Zimbabwe	1994		

Defining the sectors in a comparable manner across countries poses a challenge. First, the service delivery configuration of family planning is different in every country. In Latin America, for example, there is a large public insurance sector (most often called Social security) in most countries. Social security, however, is almost completely absent in Africa and Asia. Also, certain public service delivery units are designed to be partially or completely self-supporting. For example, in Indonesia rural family planning support groups keep family planning commodities and distribute them to members for partially cost recoverable fees.

Second, the distinctions among public, NGO, and commercial sectors are almost always blurred. The survey instruments used in the DHS program often do not have separate NGO and commercial response categories. In many countries, there is no reason why a family planning client would distinguish between an NGO clinic and a commercial clinic. The NGOs often collect user fees that are to a greater or lesser extent used for cost recovery. Often the only facilities clearly identifiable as NGO are the affiliates of the International Planned Parenthood Federation (IPPF) operating in a majority of countries.

Third, the commercial sector in almost every country receives implicit and explicit subsidies from donors, multilaterals, and governments. Social marketing programs almost always market contraceptives at less than full cost recovery. Free and highly subsidized medical and

business training programs are widespread. There are even programs where providers are actually reimbursed for providing services at less than a competitive market price.¹⁹

**Blurred Distinctions among Sectors:
Private Doctors in Egypt**

In Egypt, there is a category of providers called private doctors. These doctors, at the time of service delivery, act as commercial providers (i.e., providing a service for a fee they retain). However, private doctors in Egypt receive significant direct and indirect subsidies. First, most physicians acting as private doctors are actually employed in the mornings in the public sector, and are thus assured of a steady income with the tangible and intangible benefits derived from public sector employment. Second, the private physicians benefit from a subsidized contraceptive commodity market in Egypt. Oral contraceptives and IUDs are both domestically available at prices less than competitive world prices.

The process here for defining sectors in light of the difficulties described follows. If a service delivery unit is called government, public, or university, it was defined as *public*. If a service delivery unit is called social security or if it is an insurance scheme provided through a publicly owned industry or a parastatal organization, it was defined as *social security*. If a private service delivery unit is identified as an NGO or, if those types of private service delivery units are known to be predominantly NGO, they were defined as *NGO*. Religiously affiliated service delivery points are included within the NGO categorization. All other service delivery units identified as private in the survey instruments are categorized as *commercial*. There has been no attempt to assess the degree of public sector or donor subsidization of the commercial sector. Table A-2 illustrates the variety of service outlets, which provide family planning and how they are categorized for this analysis. Category *Other* contains all sources not included in the listed categories. Typically these include friends, family, undefined categories, do not know, and miscellaneous sources identified by only a few respondents in their survey responses.

Table A-2 Family Planning Service Outlets According to Sector			
Public	Commercial	NGO	Social Security
Government hospitals	Private hospitals	IPPF-affiliated clinics and field workers	National or state employee
Government clinics	Private clinics	Mission, church, mosque, hospitals, and clinics	Insurance schemes
University hospitals	Pharmacies	Other DHS-identified NGO facilities	Social Security
Field workers	Employer insurance	Private facilities known to be primarily NGO	
Government Dispensaries	Markets or shops		
	Private doctors		
	Private midwives		

¹⁹ This discussion only hints of the complexity of these issues. Foreit (1992) discusses, in detail, the various levels at which services can be defined as public, NGO, or commercial.

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