The Political Economy of the Indonesian

Family Planning Program;

Institutional and Financial Obstacles to a Cost-effective Program

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1. INTRODUCTION

Indonesia has achieved one of the most impressive records in fertility reduction over the past two and more decades. The country's total fertility rate has declined from an estimated 5.5 in 1967 - 1970 to between 3.3 - 3.7 in 1985 (Hull and Dasvarma 1988; Suyono and Shutt 1988). Population growth has been estimated at 2.1 percent during the eighties (Prescott et al. 1986).

Many observers credit Indonesia's National Family Planning Coordinating Board (known by its acronym, BKKBN) as instrumental in this fertility reduction and slowdown of population growth (Hull et al. 1977; Sinquefield and Sungkono 1979; Chernichovsky and Meesook 1981). Key reasons for the success of BKKBN's program include its community-based distribution system, involvement of local community leaders in family planning promotion, administrative decentralization, and an effective reporting, recording, and monitoring system.

BKKBN faced several challenges at the end of the eighties. A World Bank study still valid today (Prescott et al. 1986) suggested that further declines in population growth to replacement level by the year 2010 can most feasibly be achieved through raising contraceptive use. However, because of past high fertility rates, in order to simply maintain current contraceptive prevalence levels, BKKBN must address itself to the problem of reaching growing numbers of young people entering reproductive age.

At the same time, budgetary austerities introduced by the Indonesian government during the late eighties were such that BKKBN has been subject to slower growth. Donor assistance has declined too. To remain successful, the Government of Indonesia and BKKBN had to both use better existing resources, and generate new ones. How can the program further increase its efficiency has thus become a major question.

Resource mobilization and productivity are complex issues in general. They are even more complex in Indonesia, because BKKBN is an agency which largely coordinates labor and capital resources for family planning rather than exercising direct administrative control over them. This paper examines the cost structure of Indonesian's family planning program, its finance and ???

The study is based on the premise that an examination of a program's own experience as to what works better and where could indicate ways to improve the program.

To this end, a comparative analysis using a combination of accounting and statistical methods, and different data sources is often needed as demonstrated in this paper.

The paper falls into the following parts...

2. FAMILY PLANNING IN INDONESIA

2.2. Political Economy

BKKBN is a coordinating agency. While it has its own resources, it mobilizes and uses resources of other government agencies and the community for family planning purposes. It operates under several constraints in light of which the efficiency of its operations must be assessed. These constraints include national administrative regulations, availability of medical and community resources or infrastructure, BKKBN's budget, and client preferences. As data about client knowledge, preferences, and behavior were not collected in this study, only the first three constraints are discussed.

The administrative constraint refers to BKKBN's operation within the boundaries of the Indonesian public administration system. Regardless of geographic size, population, or other features which might influence resource productivity, BKKBN has only one family planning supervisor per subdistrict, and its resources are managed within such boundaries.

Given the horizontal planning processes between various government agencies, BKKBN can provide advice about the supply, distribution, and administration of health facilities and personnel, but has little control over them. Many resources devoted to family planning actually belong to the

Ministries of Health, Interior, Religion, and Information. These ministries provide inputs to the family planning effort throughout the entire hierarchical civil administrative structure, from the hamlets (<u>dukuh</u>) and villages (<u>desa</u>) up through the subdistricts (<u>kecamatan</u>), the regencies/municipalities (<u>kabupaten</u>/<u>kotamadya</u>) and provinces (<u>propinsi</u>).

In the community, BKKBN field workers oversee village family planning volunteer activities, but the volunteers, unlike the field workers and their supervisors, are not members of the Indonesian civil service and do not receive salaries or other direct benefits. The volunteers are closely associated with the local village civil administrators and leaders and thus are not entirely answerable to BKKBN.

BKKBN's own budget provides mainly for the cost of labor - field workers, and supervisors - and supplies. In addition, BKKBN has marginal resources to compensate for deficient community infrastructure and resources, mainly health personnel. BKKBN can allocate its budget in view of administrative and community constraints. The delivery strategy - that is, to what degree it is clinically or community-based - is determined primarily by the availability of health and community resources over which BRRBN has no direct control.

In an environment where various institutions control different resources serving the same objective, individual institutions may find it hard to recognize an overall or social cost-effective strategy, because the different institutions respond to different aspects of cost and

productivity, and therefore overall social efficiency in delivery may be hard to attain. Consequently, three institutional frameworks are considered for efficiency of operations: BKKBN's, the Government's, and social.

2.3. Delivery System

The program operates through six main modes of delivery of contraception:

a) health centers (Puskesmas), including mother and child health (MCH) clinics;

b) health sub-centers;

c) integrated health and family planning posts (Posyandus);

d) village contraceptive distribution centers (VCDCs); and

e) private medical doctors, midwives and pharmacies.

The first three are part of the medical establishment under the MOH (Ministry of Health). Posyandus are community-based units that are largely under the umbrella of the MOH, but which also receive administrative and financial inputs from BKKBN, the Ministry of the Interior, the Department of Information, and other government agencies. VCDCs are operated by volunteers under the auspices of BKKBN. They provide family planning services using community resources, although contraceptives are supplied free of charge through BKKBN.

Health centers are established on an administrative basis, with usually one per sub-district, but sometimes two or even three. Sub-health centers, which primarily, though not exclusively, exist in Java-Bali, have been built to serve the health - not necessarily family planning - needs of large populations within given areas or populations which have poor access to health clinics. Density alone does not appear to be an overriding consideration in the location of these sub-health centers, since Tangerang, which has the largest population of all six study areas, does not have any. Mother and child health clinics are typical only of DI Yogyakarta.

Since available medical infrastructure primarily reflects historical and administrative considerations concerning health services, its allocation has generally not been influenced by family planning needs, yet it plays a crucial role in family planning delivery. The response by BKKBN to family planning needs is basically in terms of paying medical personnel to perform family planning services, as well as financial and administrative inputs into posyandus and other village institutions, including acceptor groups.

Figure 4.1: ELCOs Served by Facility (Logarithmic Scale)

Table 4.1: Facility Distribution

| | Tangerang | D I Yogya | | Kalim.Sel | | Tapin |
		Kulon Progo	Bantul	Banjar	Barito	Tapin
Total area (km^2)	1020	1609	2091	2443	2621	1750
Eligible couples	284,747	44,846	81,767	56,605	27,486	16,642

Ratio of ELCOs per

Health center	9492	3450	3717	3145	2291	1849
Health sub-center		1359	8177	3774	2291	2080
MCH		3737	1090	726	382	347
Physician	7493	3203	4543	4717	3436	2377
Other medical staff	1886	735	794	349	573	370
Posyandu	1028	52	118	560	275	252
VCDC	1070	435	330	218	292	135

To assess the relative significance of the different delivery modes in distribution of contraceptives,official data from the Clinical Reporting System data were broken down by:

a) clinics, including health centers, health sub centers, and mother and child health (MCH) facilities;

b) "outside-clinic" - activities performed by clinic medical personnel off clinic premises, including the posyandus, mobile medical teams and safaris (special campaigns promoting family planning);

c) VCDCs;

d) the practices of private physicians;

e) the practices of private midwives; and

f) pharmacies.

The practices of physicians and midwives and pharmacies are private sector delivery channels which are not components of the National Family Planning Program, but report to it on the volume of contraceptives they deliver.

No distribution data were available for IUDs other than total number of new acceptors and replacements. It is clear, however, that most IUDs are delivered through health centers and sub-centers (table 4.2).

Table 4.2: Contraceptives Distributed and Distribution Channel

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	W. Java		S.Kalim.
D I Yogya			
	Tangerang		Kulon
Progo	Bantul		Banjar
Barito	Tapin		

IUD		286	577
	748	30	10
	5		

Distribution channel in percentages

Clinic		100.0	
100.0	100.0	100.0	
100.0	100.0		

PILL		47,382	
5,112	24,489	31,035	
18,576	8,211		

Distribution channel in percentages

Clinic		6.0	
6.2	6.0	18.3	
12.8	8.1		
Outs. clinic		3.3	
0.4	1.9	6.0	
6.9	7.3		
MD		0.2	
0.0	0.0	0.0	
0.0	0.0		
Midwife		1.2	
0.0	0.0	0.7	
0.0	0.3		
Pharmacy		1.8	
0.0	0.0	0.0	
0.0	0.1		
VCDC		87.5	
93.4	92.1	75.1	
80.3	84.3		

CONDOM		903
4,359	8,291	501
103	59	

Distribution channel in percentages

Clinic		0.0
1.3	4.0	28.5
58.3	50.8	
Outs. clinic		0.0
0.1	2.5	5.4
6.8	10.2	
Midwife		1.3
0.0	0.7	0.0
0.0	0.0	
Pharmacy		98.7
0.0	1.6	0.4
0.0	0.0	
VCDC		0.0
98.6	91.2	65.7
35.0	39.0	

INJECTABLES		37,653
264	841	953
407	162	

Distribution channel in percentages

Clinic		38.0
82.6	63.0	78.3
87.5	83.3	
Outs. clinic	57.0
11.0	24.1	11.3
12.5	12.3	
MD priv. pr.		0.9
6.4	8.2	2.0
0.0	0.0	
Midwife		4.1
0.0	4.6	8.4
0.0	4.3	

Source: BKKBN Clinical Reporting and Recording System - November 1986

Notes: Distribution of vaginal tablets and implants was zero.

Outs. Clinic=Posyandu, "safari", mobile teams etc.

MD=MD private practice

Midwife=Midwife private practice

In all regencies surveyed, more than three-quarters of pills are delivered through the VCDCs, followed by clinics and outside-clinics. The amount of pills delivered through private sector channels is negligible, but is highest in Tangerang, where supply of program facilities per eligible couple is lowest. The two DI Yogyakarta regencies each deliver over 92 percent of all pills through the VCDC. It is noteworthy that in the three South Kalimantan regencies, where the pill is most common, a greater proportion of pills is delivered through the clinics (8.1 percent to 18.3 percent) and outside-clinic activities (6.0 percent to 7.3 percent) than in other regencies. The South Kalimantan data are consistent with the hypothesis that medical infrastructure is important for new programs even when no clinical intervention is required. In Indonesia, a medical check-up is required for new pill acceptors.

Condom delivery is quite varied among the six districts surveyed. In Tangerang, the only regency where private sector channels play more than a minor role, virtually all condoms are delivered through private pharmacies. The number delivered, however, is the smallest of all the surveyed regencies. Condoms in DI Yogyakarta are almost entirely delivered through the VCDCs (98.6 percent and 91.2 percent). In the Barito Kuala and Tapin regencies of South Kalimantan, clinics deliver over half the condoms, VCDCs one-third, and the remainder by outside-clinic staff.

Outside-clinic activities are responsible for 57 percent of

injectable distribution in Tangerang, being the regency with the heaviest injectable use. Clinics deliver most of the remainder. In all other regencies surveyed, injectables are delivered predominantly through the clinics, followed by outside-clinic activities and private sector channels.

The relationship between availability of medical facilities and extent of outreach activities is not clear a priori. On the one hand, outreach activities may substitute for a lack of medical facilities. On the other hand, as outreach activities may depend on medical infrastructure, they may be complementary. Complementarity between modes of delivery may be important in new areas where even for non-clinical methods, clients need and want medical attention. Table 4.1 and figure 4.1 show that where there is a relative scarcity of medical facilities per ELCO, there is also a relative scarcity of outreach activity per ELCO. The data suggest that all delivery mechanisms appear to complement rather than substitute for each other.

5. THE STUDY AREAS

The Indonesian Family Planning Program covers all 301 regencies and municipalities in the country's twenty-seven provinces. Six regencies were selected in three provinces as study sites:

a)   Tangerang in the Province of West Java;

b)   Kulon Progo and Bantul in the Special District of

Yogyakarta; and

c) Banjar, Barito Kuala, and Tapin in the Province of
        South Kalimantan.

The study covers family planning operations in 83 subdistricts and
1016 villages, where 406 field workers and 83 supervisors operate.
Villages in Java are divided into hamlets, with an average of three
hamlets per village.

The regency study sites differ widely by population size and
density. There are considerable geographic and demographic differences
among the study areas (table 5.1). Population density is highest in
Tangerang (neighboring Jakarta) and lowest in South Kalimantan. These
density differences are a common feature of the Indonesian environment,
and have an impact on family planning program operations.

Table 5.1: Land and Population Sizes

	Kulon Progo	Bantul	Tangerang	Banjar	Barito Kuala	Tapin
Population (a) (in thousands)	1,783.1	372.6	633.1	359.6	172.4	103.0
Land Area (b) (km2)	1,044.0	586.3	506.9	6228.3	3284.0	2315.0
Density (population per km2)	1,708	636	1248	57	52	44

1 Source: BKKBN Annual Report (1986);
2 Source: Hasil Registrasi Penduduk Akhir Tahun (1986).

Sex ratios appear to provide indirect evidence about migration patterns. Migration research in Indonesia indicates that those most likely to move are males and those in their late teens and early twenties (Suharso et al. 1976; Hugo 1979); this sex and age selection particularly appears to characterize urbanward migration. Tangerang, which has the most heavily male sex ratio (table 5.2), is contiguous to West Jakarta. This may reflect population movement towards the urban fringe.

Government-supplied contraception is legally furnished only to married couples. These married couples are the potential clients for BKKBN and are called "eligible couples" (ELCOs). There is a comparatively high number of ELCOs in Tangerang and South Kalimantan (table 5.2).

Table
5.2: Demographic Features

W. Java
D I Yogya
S.Kalim.
                        Tangerang
Kulon Progo   Bantul   Banjar
  Barito   Tapin

Population   1,783.1
372.6   633.1   359.6
172.4   103.0
(in thousands)

Sex ratio M/F   104.5
94.2   95.3   98.0
101.2   98.8

Eligible couples   16.0%
12.0%   12.9%   15.7%
15.9%   16.2%

Children under   14.5%
7.0%   9.0%   10.6%
11.2%   10.7%
  age five

_____
_____
_____

Source: BKKBN Annual Report
(1986).

The number of children under age five has negatively correlated with the acceptance of family planning in the recent past, and might indicate a need for family planning services in the near future. In Tangerang, children under five constitute over 14 percent of the population, more than double the proportion in Kulon Progo.

The study areas also differ widely in their proportions of urban-dwelling populations (table 5.3).

Table 5.3: Urban Residence

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_____
_____

                    W. Java
      D I Yogya
S.Kalim.

                 Tangerang
Kulon Progo Bantul   Banjar
  Barito   Tapin

_____

Urban		14.9
4.8	10.2	13.8
0.0	0.0	
Population		

Source: <u>Sensus   Penduduk</u>
(1980).

— Indonesia is largely a Moslem country. The average West Java regency is almost exclusively Moslem and Tangerang regency only slightly less so. There are relatively high Catholic and Protestant populations in West Jakarta and the Special District of Yogyakarta, especially in the city of Yogyakarta. South Kalimantan is overwhelmingly Islamic.

Education levels are relatively high in DI Yogyakarta regencies, where school attendance for children 7-12 is higher than in West Jakarta. There are also higher proportions with high school or higher education than in either West Java or South Kalimantan.

These areas do not constitute a representative sample. Indonesian provinces vary greatly in terrain, population size, ethnicity, and religion. Short of conducting a large-scale national survey, the country's heterogeneity precludes representativeness. The areas were selected, however, so that the populations and conditions are fairly homogeneous internally, yet with distinct variations between them. The study areas do reflect part of the wide spectrum of socioeconomic environments and programmatic conditions which shape family planning

operations through both the nature of the population and the availability

of infrastructure.

6. PROGRAM COST-EFFECTIVENESS

The cost or value of resources (C) to serve an average user (U) --
(C/U) -- is a measure of the program's (long term) effectiveness. This
cost is the ratio between the value of resources allocated per ELCO (E)--
(C/E) -- and the prevalence rate (U/E). That is, unit user cost reflects
both resource productivity as measured by prevalence rate, and resource
allocation in a target population as measured by cost per ELCO. These
two concepts are studied to understand the basic factors affecting the
cost effectiveness of alternative.

A. COST PER USER

It is costliest - about Rps. 900 per month - to serve the average
user in South Kalimantan (table 6.1).[12]

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[12] The reader is reminded that the user cost is the cost of serving
a user in the population. This definition is not as much of an issue in the
case of pill users as it might be in the case of IUD users. For the pill, the
entire group of users is serviced unremittingly, and there is almost an
identity between the group of users and the group serviced during any
particular period. For the IUD, just new acceptors and those who need
replacement are actually treated by the program during, say, the year. The
cost of an IUD insertion would clearly be higher than the cost of the average
IUD user. The discussion here concerns the long term recurrent cost of
protecting a group by two alternative methods. This comparison is
particularly valid here because the IUD-based program, in Yogyakarta, is the
oldest, about 25 years and has no new users (see Table 4.5). Consequently,
the program does not incur initiation cost. If we assume that on the average
every user replaces her IUD very 3 years, then a 1/3 of the women are treated
by the program every year, and treatment cost is three times as much as user
cost.

Table 6.1: Program Cost per User by Type of Cost, in Rupiah per month

	W. Java			D I Yogya			S.Kalim.	
	Tangerang	Mean (1000 Rp)	Distribution	Kulon Progo	Bantul	Banjar	Barito	Tapin
Labor	27%	314.0	44.58%	44%	39%	44%	44%	57%
Capital	7%	109.9	15.61%	31%	16%	13%	12%	16%
Supplies	66%	280.4	39.81%	25%	45%	43%	44%	27%
Total	100%	704.3	100.00%	100%	100%	100%	100%	100%
	(452)			(559)	(539)	(819)	(890)	(970)

This region has the youngest program, relatively low population density and ELCO's per resources, and a method mix almost wholly composed of the pill, which is delivered largely by medical facilities. It costs about half the above figure to maintain a user in Tangerang, where population density is highest and resources per ELCO is lowest, and where the most popular method delivered to the community is the injectable. The cost per user in Yogyakarta is in between these two extremes.

The breakdown of user cost by type of cost shows that the share of capital cost is lowest in Tangerang where the target population is largest in relation to medical infrastructure. Capital cost shares are highest in Yogyakarta, which has a heavier medical infrastructure per ELCO than the other areas (table 6.1).[13]

Labor cost follows a similar pattern. This appears to reflect the allocation of labor per ELCO and the quasi-fixed nature of labor cost.

Cost of supplies ranges from 37 percent of user cost in Yogyakarta to 66 percent in Tangerang (table 6.1). They are highest in absolute terms in South Kalimantan where the pill is most common, and lowest in Yogyakarta, where the IUD is most prevalent.

B. SCALE OF OPERATIONS

To examine the effect of scale of operations, user costs of different programs are compared for similar levels of output. It is suggested above that without adjustment for other factors larger operation per worker tend to be less expensive. The point estimates (table 6.2) indicate that to the extent that there are common levels of output or users, in the range of 2,000-5,000 users per subdistrict, South Kalimantan is still the costliest area and Yogyakarta the least costly.

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[13]   In the discussion which follows we combine Kulon Progo and Bantul to "Yogyakarta" and the three South Kalimantan areas to "S. Kalimantan".
        A host of factors can contribute to the observed difference in cost, method mix, modes of delivery and scale of operation.

Table 6.2: Unit User Cost by Region for Similar Output Levels
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Region cost	Output range	Mean no. of users	No. of subdistricts	Average user
Tangerang Rps.	3,703-5,125	4,457	4	647
Yogyakarta "	2,086-5,158	3,380	38	526
S. Kalim. "	2,252-5,156	2,898	11	837

These findings are corroborated by the data illustrated in figure 8.1; based on predicted values from linear regression estimates within the similar output ranges. Yogyakarta is still the least expensive within the entire range. In the output range above 4,000 users, South Kalimantan tends to become less costly than Tangerang. These data also support the hypothesis that larger operations of field workers in any program type are associated with lower user cost. Therefore, cost differences can be related to resources allocated per E/C, depending on method, and to their productivity.

C. MARGINAL AND AVERAGE VARIABLE USER COST

Both marginal cost -- the cost of servicing an additional user -- and related average variable cost, comprise cost of supplies (SUP) and those labor

costs which vary with output.[14] Consequently, this type of cost is less influenced by level of operations (across field workers) than average user cost discussed thus far. As cost of supplies is constant per user, marginal cost would rise (and influence average variable cost to rise as well), only if the marginal productivity of labor is falling when workers need to service a larger population.[15]

Data were available on cost of supplies, but not on the variable elements of labor cost.[16] To establish the marginal cost associated with labor, we estimated this relationship:

$$total\ labor\ cost = a + (b \times users)$$

where "a" is the fixed element of labor cost and "b" its variable element. Consequently, the marginal cost per user in each region are (SUP + b). Accordingly, marginal costs per user were obtained (table 6.3).[17]

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[14] "Cost of Supplies " is per the discussion in Chapter 7.

[15] The high initiation cost in S. Kalimantan would be measured here in labor cost, mainly MDs time required to subscribe pills to new users.

[16] These labor cost elements would include honoraria, travel, etc. that tend to vary with output. Although this information was available in principle, its association with number of users was not clear.

[17] Actual Estimates are (y = no. of users):

Tangerang Total Labor Cost = 649 + 0.044y; Adj. R^2 = .22
(in Rps. 1000)   (4.36) (2.58)   N = 21

Yogyakarta Total Labor Cost = 406 + 0.917y; Adj. R^2 = .23
                    (3.83) (3.04)   N = 29

South
Kalimantan Total Labor Cost = 431 + 1.66y;   Adj. R^2 = .41

Table 6.3: Marginal Costs per User (all cost included)

	Supplies per user	Estimated variable labor costs	Estimated Marginal costs
Tangerang	298	44	342
Yogyakarta	204	92	296
South Kalimantan	346	166	512

Here again, servicing an additional user is least costly in the Yogyakarta areas primarily because of their relative dependence on the IUD which has the lowest supply costs per average user. It is most costly in South Kalimantan because of high dependence on the pill supplied through medical infrastructure and personnel, in part because of the young age of the program.

(6.06) (4.80)   N = 33

A general comparison of marginal cost with average unit cost estimates suggests that marginal cost tends to be lower than average cost in South Kalimantan, and in Yogyakarta in particular. This is usually an indication of "too" small operations where economies of scale -- vis a vis labor inputs -- are not fully exploited with regard to the quasi-fixed labor costs. Namely, the same workers could do more, or the same work could be done, on the average, with fewer workers.

Figure 6.1: Predicted Average Costs per User

7. PROGRAM EFFICIENCY

It is important to establish how much it costs to deliver similar methods through alternative delivery modes in order to identify efficient delivery mechanisms. There is, however, the problem of allocating cost to different methods when delivered by the same mode, especially when detailed accounting data are not available. To overcome this problem to a certain degree, Hedonic Price Equations (Chernichovsky and Zmora, 1986) are estimated for each method in order to establish method cost by delivery (table 7.2). These estimates, which are combined with accounting data, are crude and should be used as general indicators, but are the best that could be obtained under the circumstances.

Table 7.2: Estimated Unit Cost of Method, by Type of Cost
(in Rps. per Month per User)

Method	Fixed cost	Labor cost	Supply cost	Total cost
	(Statistical Estimates)		(Accounting data)	
Tangerang				
IUD	121 (4.39)	179 (4.78)	6	306
Pill	22 (1.24)	103 (4.30)	341	466
Injectable	19 (2.04)	22 (1.87)	306	347
Adj. R^2	.44	.56		
F	15	23		
N	53	53		
Yogyakarta				
IUD	91 (3.97)	56 (0.84)	6	153
Pill	22 (0.40)	226 (1.36)	341	589
Injectable	460 (2.47)	924 (1.71)	306	1690
Adj. R^2	.31	.06		
F	15	3		
N	90	90		
S. Kalimantan				
IUD	294 (3.11)	82 (0.57)	6	382
Pill	10 (0.85)	90 (5.01)	341	441
Injectable	541 (5.76)	591 (4.18)	306	1438
Adj. R^2	.42	.36		
F	27	21		
N	108	108		

Note: t-statistics in parentheses.

The estimates shown in table 10.2 indicate that even when delivered in small quantities and initiation costs are comparatively substantial, the IUD in Tangerang and S. Kalimantan is the least costly method per user, largely due to low supply cost. It is least expensive in Yogyakarta, where it is delivered in large quantities.[18] Unlike the other methods, however, the IUD involves relatively high capital cost. The pill, by comparison, is more expensive than even the injectable in Tangerang, where the injectable is common, because of the labor and supply costs associated with pill delivery. The injectable is expensive, (as is any other method), if delivered in small quantities which is the case in Yogyakarta and S. Kalimantan.

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[18] The reader is reminded that the programs in Tangerang and especially in S. Kalimantan, are younger than in Yogyakarta and therefore would be more expensive because they grow faster. The reader is further reminded that the user cost for the IUD, is not the cost of an actual insertion which would be about three times as much.

There are substantial differences in worker costs per ELCO between Tangerang, which has the lowest monthly labor cost, and South Kalimantan, which has the highest (table 8.1, figure 8.1). The DI Yogyakarta regencies, Kulon Progo and Bantul, lie between these extremes.

BKKBN staff, field workers, and supervisors account for more than 48 percent of labor costs, while medical personnel account for about 32 percent. That is, BKKBN personnel account for only about one-half of the value of labor resources employed in family planning delivery. The imputed labor cost of community family planning volunteers constitutes roughly 12 percent of the total labor cost. This cost is lowest in Tangerang and highest in Kulon Progo. Administrative and support staff account for the remaining seven percent.

BKKBN funds about 4.5 percent of the physicians' government salaries and a somewhat higher percentage of other medical staff salaries (table 8.3). Notably, even BKKBN staff report incomes from other sources, including MOH, for travel and related expenses. In Tangerang, where the pay from BKKBN for its workers is low and alternative employment opportunities are possibly better, field personnel report greater earnings from other sources. BKKBN contributes a greater share of physicians' incomes in South Kalimantan where, because of the apparent dearth of private practice opportunities, MD salaries are lower and work in family planning is higher.

BKKBN is responsible for about 49 percent of labor costs, covering its own personnel and part of the cost of medical personnel (table 8.4). MOH handles some 38 percent of labor costs, and the community 13 percent.[19] From BKKBN's viewpoint, it is basically its own share that matters. From the viewpoint of the government, it is the cost of BKKBN and MOH. From the viewpoint of Indonesian society, it is all contributions, including those of the community. It is noteworthy that the share of cost to BKKBN is highest in Tangerang where the public sector medical infrastructure is lagging. In absolute terms, labor cost is still higher in the other areas than in Tangerang because of low population densities and contributions to medical staff in those areas in comparison with Tangerang.

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[19]   These percentages are based on the data presented in table 7.3.

Table 8.3: Distribution of Earnings by Type of Staff and Source of Funding

	Barito Kuala	Tapin	Mean[a] (in Rp.)	Distribution	Tang.	Kulon Progo	Ban-tul	Ban-jar
FIELD WORKERS (PLKB)								
MOH	1%	9%	2.5	3.30%	3%	1%	1%	4%
BKKBN	93%	79%	64.0	84.40%	79%	90%	80%	88%
Other Government	3%	8%	2.0	2.64%	1%	1%	1%	1%
Other	3%	5%	7.3	9.67%	16%	7%	18%	7%
Total	100%	100%	75.8	100.00%	100%	100%	100%	100%
	(71)	(81)			(73)[a]	(69)	(88)	(72)
SUPERVISORS (PPLKB)								
MOH	0%	5%	1.7	1.47%	4%	0%	0%	0%
BKKBN	89%	94%	105.3	92.94%	93%	95%	90%	98%
Other Government	3%	2%	1.3	1.18%	0%	2%	0%	1%
Other	8%	0%	5.0	4.41%	4%	3%	10%	1%
Total					100%	100%	100%	100%

```
100%       100%      113.3    100.00%
                              (111)     (120)     (114)     (90)
(118)      (127)
```


MEDICAL DOCTORS

```
    MOH                       45%       73%       47%       53%
55%        85%       180.8    57.90%
    BKKBN                      3%        2%        1%        7%
5%         9%        13.7     4.38%
    Other Government           2%        3%        4%        4%
6%         0%        9.8      3.15%
    Other                     51%       22%       48%       36%
34%        6%        108.0    34.58%


    Total                    100%      100%      100%      100%
100%       100%      312.3    100.00%
                              (364)     (205)     (402)     (289)
(303)      (311)
```


OTHER MEDICAL STAFF

```
    MOH                       72%       76%       66%       84%
76%        91%       96.3     77.17%
    BKKBN                      3%        8%        4%        6%
7%         8%        7.5      6.01%
    Other Government           0%        2%        0%        1%
2%         1%        1.0      0.80%
    Other                     25%       15%       30%        8%
16%        1%        20.0     16.02%


    Total                    100%      100%      100%      100%
100%       100%      124.8    100.00%
                              (123)     (123)     (136)     (107)
(129)      (131)
```


Table 8.4:
Labor Cost, by Source of Funding

in Rupiah per ELCO per month

	Banjar	Barito Kuala	Tapin	Tang.	Kulon Progo	Bantul	Mean (in Rp.)	Distribution
BKKBN	39%	58%	46%	64%	46%	52%	100.0	48.95%
MOH	49%	32%	44%	29%	33%	31%	78.0	38.18%
Community	12%	9%	11%	7%	21%	17%	26.3	12.89%
Total	100%	100%	100%	100%	100%	100%	204.3	100.00%
	(198)	(231)	(361)	(73)	(203)	(160)		
Total Labor Cost/ BKKBN Contribution	2.6	1.7	2.2	1.6	2.2	1.9		

B. CAPITAL COST

Total capital cost per ELCO varies dramatically, from only Rp. 18 per ELCO in Tangerang to over Rp. 140 in Kulon Progo (table 8.6, figure 8.2). This reflects the low public sector medical infrastructure per ELCO in Tangerang and the high infrastructure in Kulon Progo. Medical equipment is the largest item of capital, accounting for about half of the total capital cost allocated to family planning.

Equipment makes up for the lion's share, between 40 and 50 percent, of capital costs (table 8.6). Interestingly, in Tangerang building costs, belonging to the community and servicing VCDCs and Posyandu, contribute highly to cost of capital services in this region.

Health centers generally have the highest capital cost, ranging from 41 percent in Bantul to 91 percent in Barito Kuala, with an overall average of 67 percent (table 8.7, figure 8.3). Distribution of the remaining costs show great variability.

VCDCs, which account for 55 percent of capital cost in Tangerang and 43 percent of capital cost in South Kalimantan, are responsible only for 10 percent and 12 percent of capital cost in Kulon Progo and Bantul, respectively. While the remaining facilities constitute only 5 percent of Tangerang's total costs, they constitute 42 percent of Kulon Progo's costs. Health sub-centers consume between one-fifth to one-quarter of Kulon Progo's and Banjar's total costs, but elsewhere no more than 10

percent.   Mother and child health facilities, which appear only in DI

Yogyakarta, account for almost 40 percent of Bantul's costs and 15

percent of Kulon Progo's.   Finally, the <u>posyandu</u> are not a major

contributor to family planning capital cost; at their highest, <u>posyandus</u>

make up only 8 percent of Kulon Progo's total family planning capital

cost.   Notably, capital cost is high also in South Kalimantan, although

the pill is the most common method there.

Figure 8.2: Capital Costs per ELCO, by Capital Type

Table 8.6: Capital Costs by Capital Type

in Rupiah
per ELCO per month

Barito Kuala	Tang.	Kulon Progo	Ban-tul	Ban-jar	Kuala	Tapin	Mean (1000 Rp)	Distri-bution
Building	24%	12%	11%	10%	11%	26%	11.2	14.82%
FP equipment	18%	27%	28%	13%	20%	9%	15.0	19.91%
Medical equipment	29%	36%	34%	40%	33%	37%	26.8	35.62%
General equipment	12%	9%	9%	8%	9%	8%	6.7	8.85%
Transport	18%	16%	17%	30%	27%	21%	15.7	20.80%
Total	100%	100%	100%	100%	100%	100%	75.3	100.00%
(in Rps.)	(17)	(143)	(64)	(63)	(64)	(101)		

Table 8.7: Capital Costs by Facility Type

in Rupiah
per ELCO per month

Barito	:	Kulon Distri-		
	Tang.	Progo	Bantul	Banjar

Kuala   Tapin :   Mean   bution

Health center	82%	41%	66%	86%	95%68.2%
Sub HC	0%	14%	5%	9%	6%.2.3%
MCH	0%	7%	17%	0%	0%.4.4%
Posyandu	2%	36%	7%	2%	0%18.3%
VCDC	17%	3%	5%	4%	22%.1%
					:
Total	100%	100%	100%	100%	100%00.0%
	(18)	(144)	(64)	(72)	(104)

Note: As computations are not always based on identical
data sets because of some missing information, there
    may be minor discrepancies amongst different tables.

Capital cost is clearly associated with health facilities Consequently, the MOH shoulders most of this cost (67 percent) through the provision of facilities and equipment (table 8.8, figure 8.4). As in the case of labor, BKKBN's contribution to capital cost (largely in relation to IUD kits) is closely correlated with total capital cost.

Table 8.8: Capital Costs by
Source of Funding

                              in

Rupiah per ELCO per month

```
----------------------------------------------------
----------------------------------------------------
                          Kulon    Ban-    Ban-
      Barito              Distri-
                  Tang.    Progo    tul      jar
      Kuala   Tapin  Mean  bution
----------------------------------------------------
----------------------------------------------------
      MOH              67%     66%      68%     82%
      77%     69%   53.2    69.00%
      BKKBN           17%     27%      29%     13%
      20%      9%   15.0    19.47%
      Community       17%      7%       3%      5%
       3%     22%    7.0     9.09%


      Total          100%    100%     100%    100%
     100%    100%   75.2    97.56%
                    (18)     (144)    (63)    (62)
     (64)    (100)

----------------------------------------------------
----------------------------------------------------
```

C. SUPPLY COST

Contraceptive supplies and purchased services, such as utilities, etc., are most closely associated with levels and composition of contraceptive delivery.[20]   Hence, they are the most significant variable and marginal cost component.   They are also the direct responsibility of BKKBN.[21]

VCDCs, which distribute pills and condoms, account for the bulk of the overall mean supply costs (tables 8.9, 8.10), reflecting the relatively recurrent nature of the supply costs with these two methods. The clear exception is Tangerang, where injectables are the primary method.[22]   Injectables cannot be distributed through VCDCs, and consequently are distributed instead through the posyandus and health clinics. Costs of supplies in medical facilities are relatively low in Yogyakarta, where they deliver mostly IUDs, and relatively high in Tangerang and South Kalimantan, where they deliver pills and injectables.

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[20]   Utility expenses for health and family planning facilities (including electricity, water, and other expenses) are negligible compared with other costs in the analysis.   These expenses are not presented here.

[21]   Contraceptive supplies are a major form of foreign donor assistance to the Indonesian program.   This notwithstanding, supply costs are accounted for here. This is important for assessing strategies which may need to be considered, from an efficiency perspective, as future supplies may not be free.

[22]   In Tangerang 5% of the injectables are distributed by private MDs and midwives, and condoms are also sold by pharmacies.   These data are included in Table 8.9 but not in 8.10.

Table 8.9: Disposable Costs by Type of Contraceptive, Price

in Rupiah per ELCO per month

	Unit Price	Barito Kuala	Barito Tapin	Mean Tang.	Kulon Progo	Bantul	Banjar	Mean	Distribution
IUD	225	0%	0%	0%	2%	1%	0%	0.9	0.51%
Pill	315	89%	93%	30%	30%	52%	93%	120.6	67.65%
Condom	762	3%	1%	1%	63%	42%	2%	27.7	15.52%
Injectable	920	8%	6%	69%	5%	5%	5%	29.1	16.32%
Total disp		100%	100%	100%	100%	100%	100%	178.3	100.00%
		(195)	(229)	(177)	(118)	(183)	(167)		

Table 8.10: Cost of Disposables, by Mode of Delivery

in Rupiah per ELCO per month

	Barito Facility	Mean Tang.	Kulon Progo	Bantul	Banjar	Distribution

Kuala   Tapin   bution

HC	30%	6%	6%	23%
15%	12%	27.1	15.47%	
Sub HC	0%	3%	1%	1%
3%	1%	2.8	1.58%	
MCH	0%	1%	3%	0%
0%	0%	0.9	0.53%	
Posyandu	43%	1%	3%	6%
7%	8%	19.9	11.37%	
VCDC	28%	90%	87%	70%
75%	79%	124.7	71.05%	
Total	100%	100%	100%	100%
100%	100%	175.5	100.00%	
	(167)	(118)	(180)	(192)
(229)	(166)			

D. TOTAL RESOURCE COST

The data in table 8.12 and figure 8.6 separate costs by the providers of the different resources, and in part reflect the relatively even allocation BKKBN field workers, and the evidence that where supply costs are high, as in Tangerang, its labor and capital costs are low because of BKKBN lower reliance on medical staff and facilities.

The ratio between the total spending on family planning and each rupiah spent by BKKBN, can indicate the agency's relative effectiveness in mobilizing and coordinating resources (table 8.13). The ratio is lowest in Tangerang and highest in Kulon Progo and Tapin, where medical infrastructure is highest per ELCO and where there is less need for supplies.

Table 8.11: Monthly Total Program Costs in Rupiah per Elco per Month

	Tapin	Mean[a]	Distri-bution	Tang.	Kulon Progo	Ban-tul	Ban-jar	Barito Kuala
Labor	57%	204.3	44.67%	27%	44%	39%	44%	44%
Capital	16%	85.0	16.38%	7%	31%	16%	13%	12%
Disposables	27%	178.2	38.95%	66%	25%	45%	43%	44%
Total	100%	457.4	100.00%	100%	100%	100%	100%	100%
	(629)			(267)	(464)	(406)	(455)	(524)

Figure 8.5: Total Program Cost

Table 8.12: Monthly Total
Costs, by Source of Funding
in Rupiah per Elco per month

	Barito Kuala	Tapin	Tang. Mean	Kulon Progo Distribution	Bantul	Banjar
BKKBN	72%	54%	85% / 293.2	54% / 64.20%	70%	62%
MOH	24%	36%	12% / 130.7	35% / 28.61%	23%	33%
Community	4%	10%	3% / 32.8	11% / 7.19%	7%	6%
Total	100%	100%	100% / 456.7	100% / 100.00%	100%	100%
(Rp.)	(523)	(628)	(267)	(463)	(405)	(454)

Figure 8.6: Monthly Total Costs, by Source of
Funding

Table 8.13: Ratio of Total Cost to BKKBN's
Cost by Regency


```
------------------------------------------------
------------
Tang.       K.Progo    Bantul     Banjar
B.Kuala     Tapin
------------------------------------------------
------------
1.18        1.85       1.43       1.62       1.39
1.84
------------------------------------------------
--
```

9. SUMMARY AND CONCLUSIONS

The Indonesian health and family planning program was examined in terms of its resources, organization, distribution and management in order to explore potential means of improving cost-effectiveness strategies in light of the political economy within which the program functions.

Dramatic differences exist in availability of medical infrastructure per ELCO among the study regions. These differences correlate with modes of delivery and method mix. The IUD is common where medical facilities are relatively common and where programs are well-established (DI Yogyakarta). Outreach activity and related methods, pills and injectables, are more common where health facilities are relatively scarce. This strict observation does not imply causality between method prevalence and infrastructure, especially since perceptions about IUDs change in new programs. At the same time, such perceptions in favor of IUDs may be facilitated by the availability of infrastructure.

The value of resources allocated to family planned delivery in each of the study areas was examined. A range was seen from about 270 Rps. per month per ELCO in densely populated Tangerang to 630 Rps. in sparsely populated South Kalimantan. On the whole, BKKBN bears about 50% of these family planning costs, the Ministry of Health 40%, and the community the remaining 10%. BKKBN does especially better in areas where there is a medical infrastructure because it does not pay full labor value for medical personnel and can rely on longer lasting and less costly methods,

notably the IUD, especially relatively lower resupply costs.

The long term cost of servicing a user in each of the study areas was estimated. It is costliest (900 Rps. per month) to maintain a user in South Kalimantan, and half that cost in Tangerang, the least costly area. When scale of operation is controlled for and variable and marginal user costs are examined, Yogyakarta has the least costly type of program for a long term perspective.

There is a clear indication in the data of a negative association between cost of supplies per user and the permanence of the most common method is use. It is also clear that the IUD and to a lesser extent the injectable require medical attention, requiring government investment in appropriate medical infrastructure and staffing. Hence, user cost to BKKBN is almost entirely influenced by method mix that, in turn, is to a substantial degree set by availability of medical infrastructure and personnel. In addition, BKKBN has control over its own labor costs, about one-fifth of total recurrent cost of field operations, or one-third of its own cost in these operations. This means that the agency responsible for family planning activity appears to have rather limited latitude in terms of its own cost control, let alone the cost of the entire program.

A long-term cost effectiveness strategy must be considered within the context of the political economy of the Indonesian health and family planning system. The health infrastructure required to deliver efficient methods is not under the control of BKKBN, but under the Ministry of Health and other government agencies. While IUD delivery incurs low

recurrent cost in labor and supplies, this method demands relatively high investment in infrastructure, personnel and start-up costs. A cost-effective strategy would thus require that both BKKBN and Ministry of Health inputs be well coordinated. The relevant strategy and policy changes would necessitate that fundamental decisions by made outside BKKBN as part of a wider welfare decision-making process.

A. LABOR COSTS

Labor costs are allocated by the following personnel types:

      o   family planning field worker supervisors;

      o   family planning field workers;

      o   MDs, or clinic physicians;

      o   Other medical staff, or clinic nurse-midwives, auxiliary midwives, and paramedics;

      o   Other staff, or non-medical personnel such as clinic administrative staff; and

village family planning volunteers.

ANNEX 8B

Although usually not accounted for in the recurrent budgets of family planning, the relationship between capital cost and variable labor and supply costs is essential to the identification of efficient method mix and delivery modes. Disregard for this cost distorts the real cost of delivering different methods of family planning, as is often the case with clinically-based methods such as IUD. Capital cost comprises five categories:

a) buildings and land;

b) general equipment, including most furniture, and non-medical and non-family planning equipment;

c) family planning equipment, including all equipment used exclusively for family planning, such as IUD and sterilization kits;

d) medical equipment, including all equipment which has medical uses, regardless of whether it has family planning uses; and,

e) transportation equipment, including cars, vans, motorcycles, etc. operated by the different facilities.

Capital cost relates to the five different types of facilities previously outlined. The discussion here concerns only that portion of total capital cost that is allocated to family planning. The capital cost of medical facilities is allocated to this activity according to the proportion of time medical staff report in family planning activities. The equivalent of rental values was put on buildings, and a depreciation rate, straight line on the basis of assumed life of 10 years, plus a 5 percent real annual interest rate, was used to calculate the cost of