

MCDB 150 Global Problems of Population Growth Lecture 15 Notes

As you know females have 2 X chromosomes and males have an X and a Y.

Thus females always put an X-chromosome into their eggs.

Male sperms can carry either an X or a Y.

So the sex of the fetus is completely determined by the sperm.

Sperms that will make male fetuses carry a Y-chromosome

The Y is tiny and has very few genes on it.

Sperms that will make female fetuses carry an X-chromosome which has many genes on it and is of the usual size for human chromosomes.

Animals, including humans, carry a high number of deleterious or lethal mutations.

But for most genes, the body only needs one good copy. That single copy makes enough normal protein for the body to function normally.

We call a gene that only needs one good copy, recessive.

The vast majority of genes are recessive

Females have 2 copies of every gene on the X –

The odds of getting 2 bad copies from unrelated parents is tiny.

So females are generally healthy.

But males have only one copy. If that copy is bad, the male will be dead or disabled. This holds true for everything from color blindness, more prevalent in males, to lethality.

BECAUSE OF THE GENETIC WEAKNESS OF MALES,

THERE IS EXCESS MALE DEATH.

But the sex ratio at birth is not even, there are more boys.

Why? There are several theories.

The Y-chromosome is small and has only a few genes on it.

The X is large, the same size as other chromosomes.

So a sperm that carries an X is heavier than one which carries a Y.

One theory is that the lighter male sperm swims faster and so has an advantage in reaching the egg first.

There is not a lot of evidence to support this theory.

Another theory is that Y bearing sperm preferentially bind to the oocyte (egg before fertilization). There is not a lot of evidence to support this theory.

Some data suggests that the sex ratio is very high (but unknown) at conception.

http://www.msu.edu/course/epi/824/REPRO_EPI_7_SEX_RATIO.ppt

SLIDE 1

In the first two months the ratio comes DOWN to 150/100.

After that, but still in gestation, at least 1/3 of the male embryos die.

The ratio comes down to the 106/100 seen at birth.

There is not a lot of evidence to support this theory.

Then excess male post-natal death brings the ratio closer to 1:1.

=====

FEMALE DISADVANTAGE

NYT 5/25/07 from Agence France-Presse:

2007: The oldest tree in Seoul, S. Korea, is a Gingko said to be 840 years old.

It is venerated by residents who bring fruit and other offerings once a year and pray for their safety.

It also attracts pregnant women who believe it will help them have a boy.

But 2 apartment buildings are interfering with the tree's roots. So the district government will spend \$4.3 million to demolish the apartment buildings.

The "normal sex ratio" is about 105 or 106 boys for every hundred girls.

1969: US 105.3 males born / 100 females born

NHR 8/10/98

1995: US 104.9 males born / 100 females born. http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_20.pdf

So, what do you make of data like this:

OH OF CHINESE SEX RATIO AT BIRTH 1

When you see a ratio much higher than 1.06:1 at birth - you know that girls are being done away with.

Why has the Chinese ratio moved so much above 106?

Maybe it's the One-Child Policy

If a family is only allowed one child - they want a boy.

So they do away with the girls.

I've seen this argument in newspapers and magazines countless times.

Any further info in this graph that could help you substantiate or refute this hypothesis?

Date of take-off. Right about 1980

That is the date of inception of the One Child Policy.

Hypothesis is looking good.

What would you do next to check out your hypothesis?

International Comparisons.

INDIA

India sex ratio slide 3

Not strictly comparable. Previous slide was SR at birth.

This is sex-ratio in whole population.

I've put in the comparable number for China.

On this measure, India is more extreme than China.

India has no one child policy

So female disappearance is common in both India and China -

This is counter to the one-child policy theory.

WHAT HYPOTHESIS SHALL WE TRY NOW?

Both countries are very poor. It must be a result of their poverty.

Poor families can't bring up both children, and boys are more valuable, so they do away with the girls.

So POVERTY IS A BETTER HYPOTHESIS

But here is another set of data:

Which country in the world do you think has the most skewed sex ratio?

SLIDE 4

The greatest imbalance in sex ratio occurs in S. Korea. PCI International Dateline Nov. 1996.

Korea is not at all a poor country and does not have a 1 child policy:

By 2010 only 4 South Korean women will reach marrying age for every 5 men

(a disappearance of 20% of females).

Not only does income not work in international comparisons, it also doesn't work within a country.

Guangdong is a very prosperous province in China.

See for instance: "At the Beating Heart of an Export Machine" NYT 1/26/03 p 13

Includes Canton and a whole zone that makes exports for the US and the rest of the world.

It and Shanghai are the economic powerhouses of China.

The sex ratio in Guangdong is 130:100 (whole province).

Parts of the province have rates of 144:100

NYT 6/21/02 Erik Ekholm

That means 1/3 of girls are done away with.

It is the same story for India.

The richer states often have a higher sex ratio than the poor states.

SLIDE 5

The State of Haryana borders New Delhi and is one of the richest states in India.

<http://www.mapsofindia.com/maps/india/percapitaincome.htm>

But, it has a high sex ratio: in the range of 120 boys per 100 girls.

<http://www.hindu.com/2004/06/25/stories/2004062507680300.htm>

Much higher than the poorer states of Kerala and Tamil Nadu.

Over time, these countries are getting richer. But their sex ratios are getting more skewed.

CHINA DURING PERIOD OF GREAT EC GROWTH 8

In India, the sex ratio for children under 7 increased from 1,058 in 1991 to 1,078 in 2001.

CHINA By '89 the excess was 14% (NYT 4/25/93)

→ about 1 of every 12 newborn girls disappeared (~900,000 annually).

In China's 2000 census: the excess was 17% ratio at birth: 117 boys for 100 girls. About 1 in 8 girls are done away with. NYT 6/21/02 Erik Ekholm

SO POVERTY IS NOT A GOOD HYPOTHESIS EITHER.

Well, what exactly are we trying to explain.

Why did the rate zoom upwards in about 1980.

Notice, the graphs show sex ratio AT BIRTH

SLIDE 4 = 9a

So, it does NOT include any infanticide. Infanticide kicks in after birth.

Before 1980 the ratio is ~106 boys / 100 girls. That is the biological level.

What happened around 1980 that could have caused this upswing.'

The reason the graph is increasing at this time is the introduction of ultrasound machines at this time. Ultrasound can discern the sex of the fetus.

Prior to ultrasound, there was no way to determine the sex of a child.

So the parents had to wait until a child was born, then, if it was a female, they killed or abandoned it.

In a central county of China, couples that already had a daughter, and discovered that their 2nd baby would also be a girl, turned to abortion 92% of the time. *NYT 6/21/02 Erik Ekholm Also Chu Junhong PDR '01*

India In a clinic for the rich, where they do amniocentesis to determine sex of fetus:

7,999 female abortuses, 1 male.

India, NYT 12/13/91 Cheap ultrasound tests to determine the sex of a fetus are now readily available. There are sidewalk clinics in the cities and also ones in rural areas.

Sex selection testing is virtually a specialization in India. This is so popular that "The doctors who are doing this have stopped all other kinds of medicine. They are making a lot of money.

The sex of a fetus is difficult to determine before 16 weeks gestation, by which stage abortion can be risky.

Head of Women's Association there says, "No one wants girls.

If the test says girl, then the pregnant woman will have an abortion."

What we are seeing here is the substitution of sex-selective abortion for female infanticide.

Sex selective abortion in China PDR 6/01 lots of quotes.

Abortion has not totally supplanted infanticide. Infanticide still occurs and abandonment still happens frequently as evidenced by the large number of girl babies deposited with orphanages.

So, sex-selective abortion does not necessarily mean an increase in the number of females being done away with

It mostly represents a change of method.

Let me give you some more information about the sex ratio:

1st update in time:

India, you've seen. It is mostly stable, maybe mildly improving. SLIDE 5

China has continued on up from the 113 114 in 1992 to ~118 in 2005. SLIDE 8

It is not homogeneous within the countries.

India by State. SLIDE 5

CHINA BY PROVINCE SLIDE 10

It depends enormously on parity CHINA BY PARITY SLIDE 12

KOREA BY PARITY SLIDE 13

FEMALE DISADVANTAGE CONTINUES AFTER BIRTH

At Birth more boys die than girls that's biological factors. SLIDE 15

In every state, more boys die at birth than do girls For India as a whole, 57/1,000 boys die but only 48 girls. Boys are genetically weaker than girls

After Birth

In Kerala there is no sex discrimination, biological factors continue to predominate. From just after birth up to 5th birthday 6/1,000 boys and 4.5/1,000 girls die. SLIDE 17 green

But, in every state more girls die than boys SLIDE 17

Red dashes indicate some of the more extreme ratios.

We still have to explain why it is that it is female fetuses and girls that are done away with, rather than boys.

It is important to find an explanation because, THIS IS A LARGE PHENOMENON

In India alone there are 23 MILLION "missing women".

In the world there are estimated to be 100 MILLION missing women.

Of course, you can say it's an Asian tradition.

It is true that doing away with females is a tradition in South & East Asia.

It is true that low female status is deeply ingrained in the culture.

In India's 1st national census (1871) there were 98 million males, but only 91 1/2 million females. Already 6% of females were missing. PDR 25:323

From a Chinese book of travel in 19th century:

"England is so short of inhabitants that the English rear every child that is born. Even prostitutes who bear children do not destroy them." This passage was read to the Emperor - he did not believe that the English were so stupid.

Dennis Bloodworth "The Chinese Looking Glass" p119

In your reading packet, you read about reports was from India dating back to the 1830 of villages in India that have no girls at all. (Bumiller p 104)

All are killed.

In 1921 Somerset Maugham came upon a little tower on a Chinese hillside with a single small hole in its wall, from which came a nauseating odor. This was a baby tower, and it covered a deep charnal pit into which parents threw their unwanted children through the aperture ... As he stood there, a lively little boy came up to him and said that 4 babies had been brought to the tower that morning.

"On a Chinese Screen: The Sights of the Town." Oxford U Press, 1984

Of Human Bondage, 1934 version w/Bette Davis, 1964 w/ Kim Novak and Laurence Harvey; Razor's Edge 1946, 1984 w/ Bill Murray and Theresa Russell; the Moon and Sixpence, created the prostitute Sadie Thompson which has been made into a movie 3X - including Miss Sadie Thompson w/ Rita Hayworth in 1953)

"The female child is regarded as a liability here.

In rural areas women are not even considered people."

The elimination of females is not limited to the young.

Earlier I described to you (from Virginia Abernethy) an example of a tribe in New Guinea where widows were immediately strangled.

In India, there was a variant of that practice. SATI

From British Capt Kemp eyewitness to event on March 18, 1813.

Visvanatha, a male, had been sick a short time. An astrologer said that he was on the point of death and so he was taken down to the side of the Holy Ganges River to expire. He was immersed to his waist in the river for some time, but he didn't die. They brought him back to the bank and let him broil in the sun. Then he was placed again in the river. He didn't die. He was returned to the bank. This kept going for 36 hours. Finally he died.

His wife was a young healthy girl of about 16. Learning of her husband's death she decided to be buried alive with his corpse. The British Officer tried, in vain, to persuade the girl, then her mother, that a resolution of this kind was madness. He encountered not the slightest sign of either hesitation or regret.

The young widow, accompanied by her friends, proceeded to the beach where the body lay. He was placed in a grave about 6 feet deep. The wife circled the grave 7 times, calling out: Hail God, Hail God. The surrounding crowd echoed her chant. She climbed into the grave. The Captain moved up to within a foot of the grave to see if, at the last minute, she showed any sign of reluctance or whether her relatives showed any sign of sorrow.

She placed herself in a sitting posture, as her husband had been placed. Both faced North, so she was sitting behind his back. She embraced the corpse with her left arm, and reclined her head on his shoulder. The British Officer observed no sign of regret on her part.

The other hand she placed over her head with the forefinger erect, which she moved in a circular direction. The earth was then deliberately put around them, two men went into the grave to stamping down the earth. She continued circling her finger until her head was completely buried, and then for some time after that. The earth continued to be piled in and stamped down until it was 2 or 3 feet above the heads of the entombed. No tear was shed by any of the relations. Eventually the crowd dispersed and the ritual lamentations and howling commenced, but without sorrow.

SATI is very rare now and probably was not common in the past.

But it was held up as an ideal – how the ideal woman should act.

Joseph Campbell: The masks of God: Oriental Mythology. 1962. p 66-67.

In modern times we can see that excess female mortality continues after birth.

The sex ratio keeps increasing throughout childhood and young adulthood.

So, women and girls are not valued in many cultures.

This son preference is not at all limited to Asia:

US: Hispanic women in LA: they want 2.8 sons and 0.1 daughters. FPP [29284-287](#) 12/97

several years before the Gulf War. Barbara Walters did a story on gender roles in Kuwait.

She noted that women customarily walked about 10 feet behind their husbands.

A strong sign of female deference and dependence.

After the war, she returned to Kuwait to do another story.

She was very pleased to observe that the men now walked several yards behind their wives.

Walters approached one of the women and said, while the camera was rolling, "This is marvelous. Can you tell the free world just what enabled women here to achieve this reversal of roles?"

"Land mines" said the Kuwaiti woman.

India: http://www.unfpa.org.in/publications/16_Map%20brochure_English.pdf

Ranu hardly went to school. She was married at the age of 18 (not especially young). She Mukhtar, a serviceman earning about \$60 a month. That's \$1 a day for each of them – a usual per capita income among the poorer people.

She gave birth to her first child at age 20.

It was a girl.

Her second child was a girl.

She throttled it within a day of her birth. Missing, Mapping the Adverse Sex Ratio in India. 6/03 UNPA

She became pregnant 5 more times.

Two sons died due to illness.

The fetus was identified as female for 2 pregnancies.

So she aborted them.

One boy lived.

Ranu wants another son. She says clearly and firmly that she will kill any baby if it turns out to be a girl. She says she has hardly any money to give them at the time of their wedding.

Ranu's husband seems to be indifferent to the killing of their daughters.

Neither Ranu nor her family members express sorrow on the death of the baby girls as they consider a girl child a 'trouble maker'.

She says that in her village, girls are killed by putting a sandbag on her face or by throttling her. It is not a rare phenomenon, It happens without any hindrance.

Women are even willing to sacrifice themselves in order to have sons.

This story is from the high end of society.

Mr. Ravi is a senior executive in a multi-national company. His wife was a teacher in a public school.

http://www.unfpa.org.in/publications/16_Map%20brochure_English.pdf Missing, Mapping the Adverse Sex Ratio in

Their eldest daughter is 23 years old. A 2nd daughter is 21.

She wanted a son.

She had 8 sex determination tests showing female fetuses and had those 8 pregnancies medically terminated.

But she wanted a son.

Her doctor advised her NOT to get pregnant, as it could pose a threat to her life.

She ignored his advice, got pregnant, gave birth to a son.

She died 2 days later.

So one is correct in saying that this is "a traditional Asian cultural preference for male children."

But, saying that something is cultural is no explanation at all.

It just restates the observation.

Where do these "traditional Ideas" come from?

The idea that peoples have random and meaningless cultural preferences is wrong.

What is the explanation usually given by economists, anthropologists, sociologists.

Part of Rational Actor Theory?

It is almost universal in Asian traditional cultures that the daughters marry young and leave the home.

They move in with their in-laws and are considered part of that new family.

They have no obligations to their natal family.

The daughters often have almost no contact with their birth family once they are married into another village.

So the parents have to invest scarce resources into bringing up a daughter to an age where she could do work around the house and in the fields -

But, the girl leaves and the parents get no return on the investment.

In addition, the bio-parents may have to pay a dowry to get the girl married.

The son who stays at home is responsible for old age support of the parents.

The son inherits the family property.

The son has the religious responsibilities to light your funeral pyre, etc etc.

Sons contribute to the power of a family in conflicts or competitions with other families.

IS THIS A SATISFACTORY EXPLANATION?

It's OK as far as it goes.

This whole edifice of gender discrimination is dependent on the fact that the girls leave home.

But it just takes for granted that it is the girls that leave home.

Why isn't it the boys – or both equally?

Where else have we seen females leaving their birth group to reproduce?

Chimpanzee exogamy.

Not usual among mammals.

Usually the males fight and the losers get kicked out.

But in Chimps the males stay together and the females go out.

Why. Because of the wars.

In the wars, the number of adult males in a community is the deciding factor.

Inherited by humans.

Lots of genetic evidence, from thousands of years, that human males stay in the location where they are born while females move to new locales.

Culturally, males support the status of the father and all the males together go out and fight the wars.

So, it looks like the roots of female disadvantage lie in our great ape ancestry.

Humans just never changed from the pattern of exogamy.

BENGAL

Bengal sits in the NE of India and continues into the country now called Bangla-Desh.

MAP OF ASIA TO SHOW 37

The dominant ethnic group are Bengalis who are split between Bangla Desh and the neighboring province of West Bengal in India.

Dhaka is the capital of Bangla Desh and Calcutta (in India) is the capital of West Bengal.

See <http://www.geocities.com/CollegePark/4637/Bangladesh.htm> for basic data

BanglaDesh is the most homogeneous of the 3 countries that made up the old British Raj (Pakistan, India, Bangla Desh). 98% of Bangla Deshi's are Bengalis and 88% are Muslim. So one has some chance of talking about it as a whole.

Bengal is a very rich part of the world.

To see its wealth, we can compare BanglaDesh to Iowa.

Same Land area: Iowa 56,000 sq mi; Bangla Desh 56,000 sq mi

Both basically agricultural

But Bangla Desh has better Climate: can grow 3 crops / yr in Bangla Desh

But poor Iowa, It's only possible to grow 1 crop/yr plus winter wheat
B-D has plenty of water Ganges and Brahmaputra Rivers.
among the rainiest in the world
Iowa has the Mississippi River on one side of it and Nebraska R. on the other side.
But poor Iowa, inside the country all the rivers are very small.
Iowa sometimes has droughts, Bangla Desh never.
Both are fertile, B-D is a low alluvial plain

Can see fringe at bottom of Map

SLIDE 37

Delta in BD SLIDE 38

But B-D gets free fertilizer from the flooding of the rivers that come down from the Himalayas.
But poor Iowa, it doesn't get this free fertilizer. The farmers have to pay for fertilizer.

BANGLA DESH SHOULD BE MUCH RICHER THAN IOWA.

AND IT IS!

B-D GDP is on the order of \$200 Billion

PPP multiplying numbers below

While Iowa's is in the ballpark of \$100 Billion

The Moguls, who ruled from the 13th century onward,
called Bengal the "Paradise of Nations".

Conquered by Moghuls Muslims in 1199. The British slowly took over in the 17th and 18th
centuries until 1948. P6-7 & Britannica.

In the 16th century, the first European traders were ecstatic over Bengal's abundance and riches.

Paul R. Greenough: Prosperity & Misery in Modern Bengal Oxford U Press. SML: HC437 B43
G73 (LC)

The wealth lasted for several centuries,

but by 1880, population growth started to take off.

adding about 3 million people every decade. p 61-63.

These new people cleared the jungle for farmland,

but by the late 1930s, the jungle was gone p68.

p68 In 1938, Biren Ganguli, a Bengali, wrote "every inch of land that is fit for cultivation is already
used. Every pathway or cattle-track is pared down by farmers on either side until it barely leaves
room for two people to pass each other on foot.

Then people started draining the lowlands on the coast and even moving out onto temporary
mudflats in the Bay of Bengal. P67 You have a reading on that.

From this time dates the fantastic vulnerability of Bangla Desh to flooding the perennial cyclones and monsoons.

Each flood would bring a high death toll.

Turekian: Global Environmental Change '96 p. 179:

Almost 100,000 deaths a year due to storms, erosion and flooding in B-D.

Thus, in about 60 years the population explosion overran the resources and Bengal went from being a rich region to what was standardly described as "a basket case".

List of Disasters in B-D SLIDE 38b

b

B-D now has the highest population density in the world. (735/km² in 1994 and rising)

2,650 / sq mile

2.6 sq km/ sq mile 2008 World Pop Data Sheet

Graph of comparative Population Density SLIDE 39

US has 83/mi sq ~

32 people /km² 2.6 sq km/ sq mile 2008 World Pop Data Sheet

B-D is ~ 32X as dense.

The US is not particularly densely populated.

Compared to dense places:

B-D has twice the population density of S. Korea or the Netherlands,

3X that of India or Belgium

4X that of Britain ; 7X that of China

Caldwell p68

Arable land is only 0.1 hectare/person (~1/4 acre).

Bethany zoned for 3 acres.

By the mid 1970s, B-D had become one of world's poorest countries.

Even though B-D has about twice the GDP of Iowa's, its population is 50X greater.

So, its GDP/capita is about 25X lower.

pop = 3 Meg (2007 US Pop Data Sheet)

<http://quickfacts.census.gov/qfd/states/19000.html>

B-D 147 Meg 49X Iowa.

2008 World Pop Data Sheet

49 times more

Bangla Desh's per capita income is \$1,340

Purchasing Power Parity

2008 world pop data sheet.

While Iowa's is. \$35,023 26X more

2007: <http://www.iowaworkforce.org/trends/percapita.html>.

Bangladesh's population is expected to increase by 50% by 2050 and an unknown amount after that. 2008 World Pop Data Sheet

B-D got caught IN THE MALTHUSIAN TRAP.

Improvements in productivity are just eaten up, and more than eaten up, by population growth.

It's just what Malthus said: No matter how productive the agriculture,
people will multiply up to the misery level.

Malthus was the first professional economist by training to teach at the college founded at Haileybury in England by the East India Company to train its young administrators on the rudiments of economic theory.

Is India falling Into the Malthusian Trap? Chennai (Madras) The Hindu Business Line 4/9/08

Article from the "Hindu Business Line" of India – sort of a Wall Street Journal of India. It mentions that Malthus taught at the East India Company's college where he "trained its young administrators on the rudiments of economic theory." His students were the first administrators of the British Raj in India. The newspaper goes on to say: "Now, over 200 years after his doctrine was first published in 1798, the ubiquitous Malthusian theory has come back to haunt the Indian economy all over again."

Of course it's too simple to attribute the problem solely to population. British Colonialism had many good and bad effects. Many factors, including natural disasters and poor governmental policies contributed to the problem. But these factors had been present in Bengal for a long time - the thing which really changed dramatically was the population density.

In the 1970s Bangladesh was

Very traditional: predominantly conservative Muslim

Women had very low social status

most women observe "purdah" involving substantial restrictions on their movements outside the home,

Battery acid story used earlier.

Infant and child mortality was high

25% of the children died before the age of 5.

There had been no improvement in this rate for the preceding 20 years.

There was no Social Security system

So families depended on children for old age security:

No real improvement in living conditions

Lack of GNP Rise ---->40

Now these are all the factors that are well known to ensure that people living under these conditions will be very high fertility people.

BUT - WHAT HAPPENED? : Between 1970 and 1997 Birth Rates fell much faster than had happened in previously industrialized countries.

Contraceptive use rose from 3% to 45%

Fertility fell by over 50% (TFR from 7 to 3.3)

SFP B-D 1996-97 SLIDE

This was the result of an extensive and well run family planning program.

When this information came out, it causes a revolution in thought about the determinants of fertility. At that time, despite the results of the Princeton Project, the dogma was still that economic development was the key to reducing fertility.

In the 1974 World Population Conference in Bucharest.

Theory that Development is the best contraceptive

But here was a large, impoverished country, that had seen extremely little economic development – yet its birthrate had dropped dramatically.

Demographers looked around and found that next door, in India, the State of Kerala had dropped its birthrate even more than Bangla Desh had. And Kerala was one of the poorest states in India. Much richer states had not made so much progress. In fact now Kerala has reached replacement level fertility, and much of Southern India, although still poor, has had dramatic declines in fertility.

The importance of the examples of Bangla Desh and Kerala in the evolution of population policies can not be overestimated.

So it really behooves us to take a closer look and compare these to India and Pakistan.

Pakistan's program was based on local traditions and cultures : they used traditional birth attendants: the Dais:

A very rational attempt:

But, it didn't work. The Dais were generally older women who had never used birth control themselves..

In general, they didn't believe in contraception.

Because condoms and other supplies were cheap, there was little profit in it for the daiyis.

They could earn more from attending births than from distributing condoms.

They took their quotas worth of condoms from the government,

threw them away and then got paid well by the Gov't for meeting their quotas.

Then they made more money by providing birthing services

They were very ignorant: 50% of the Dais believed that the IUD was NOT inserted into the uterus, but into some part of the body like the stomach.

Hence they could not cogently answer the questions and concerns of their clients.

Etc. The program didn't work

India was also one of the first countries to initiate family planning programs.

The Indian program also relied on only one method, the cheapest and most secure method: Sterilization.

Not an obviously stupid choice.

Sterilization is the most chosen method of birth-control in the world -
including in the US.

It works basically 100% of the time.

It requires no daily compliance measures from the users.

So the users like it.

Since India had a somewhat better Medical infrastructure than Pakistan, they were able to offer sterilization rather widely – even if crudely as in the bus I showed you in the last lecture.

But the people weren't ready for it so not a lot of people got sterilized.

The Indian Gov't. tried to give people monetary incentives to be sterilized.

Not obviously stupid: these are very poor people who can't even take a day off from work to go to the clinic and be sterilized; they don't have the money for transport to clinics, and they have to work so they can't rest and recuperate.

I read a very interesting article on Nepal (very much in the culture zone of India) about the expenses that rural women incur when they go into the city for a tubal ligation. The bottom line was that there was no way they could afford it unless the government reimbursed them.

But some international commentators perceived incentives as bribes and coercion,

In India, The politicians greatly exaggerated the coercion as a way of attacking the governing Congress Party.

So it didn't work.

When B-D gained independence from Pakistan, the gov't and the AID organizations decided to take an experimental approach.

They tried a variety of different methods and they did really good academic research on them to see what worked.

Then, as they found out what experimental programs were liked by the people and were effective-

They could spread these programs to the rest of the country.

Best studied (and intervened) region is Matlab

Pritchett p12, 35ff:

Here is one of the early programs tried

SLIDE 41

There is an Immediate satisfaction of the "unmet need" that was present at the time, but no further effect.

They then improved the program.

The usual procedure is to set up family planning clinics.

First problem was that women couldn't get to clinics.

Matlab region, like all of B-D, is predominantly conservative Muslim and most women observe "purdah"

involving substantial restrictions on their movements outside the home.

So, if the mountain won't come to Muhammed, Muhammed will go to the mountain.

If the women couldn't come to the FP workers, the FP workers would go to the women.

As health workers in the program, well educated, female villagers were chosen.

These were generally

- 1) married
- 2) themselves contracepting, and
- 3) from an influential family.

The recruitment of educated, respected and contracepting village women to was a deliberate attempt to announce the social acceptability of contraception in order to overcome family disapproval

The health worker was trained to deal w/ husbands and mother's in law, who would usually be very powerful sources of opposition.

The program was substantial - even could be called saturating.

1. At the peak of the program, there were 28,000 of these "family welfare assistants. Phillips & Hossain Int Fam Plan Persp. 29#3:138.
 2. The health workers were hired full time to avoid any conflicts of interest.
 3. Each currently married, fecund woman was visited every two weeks.
- These visits every two weeks provided continuous contact and support. Very necessary when family members may be in a battle over whether to use contraception - and again necessary to immediately intervene if any real or perceived side effects occurred.

The Matlab region of Bangla Desh was provided with very intensive family planning services and the treatment area was saturated with contraceptive knowledge and availability.

The Family Planning and Health Services Project in the Matlab region of Bangla Desh

MOST IMPORTANTLY: The program was what's called client centered.

The health worker's job was NOT to meet quotas, but to discussed family planning needs and present information.

The FP worker explicitly tried to reduce fear of side effects

And after use, to help the woman deal with any real side effects.

The family planning worker offered a broad variety of contraceptive methods

(the pill, IUDs, condoms, injectables).

Contraception was delivered to the home (except when requiring a clinic), avoiding travel and time costs.

The project began in October 1977 and achieved almost immediately a large increase in the contraceptive prevalence rate and a decrease in the fertility rate. Within 18 months contraceptive prevalence in the treatment area rose from 7% to 33% and 1990 estimates placed contraceptive prevalence in the treatment area at 57% versus 27% in the comparison area.

New Program - sustained effect--->SLIDE 42

The program has continued to be effective up to the current time.

SLIDE 43