

**MCDB 150 Global Problems of Population Growth
Lecture 19 Notes**

ECONOMICS OF CHILDBEARING

My children, I have bad news for you.

I have been talking with my economist friends and they tell me that you are inferior goods.

They even tell me that Yale students are among the MOST inferior.

Of course, I asked them what they were talking about.

Here is what I learned.

Compare a poor person and a rich person.

Which will spend more money on food?

Who will have more shirts hanging in his closet?

Who will take more vacations?

This is one of the basic ideas in economics:

Elasticity of demand wrt income Clothing SLIDE 1

Example 1: Suits: high elasticity.

Clothing w/ elasticity 2

Example 2 Food low elasticity

Clothing, then food Food w/ elasticity 3

One of the basic ideas of economics is that the more money you have,

the more you'll buy of whatever you want.

This is called elasticity of demand with respect to income.

Now, can you think of a counter example?

Something that people buy less of when they get richer.

McDonalds hamburgers!

Bad tasting but cheap food,

Cheap brown rice gives way to polished white rice

even though all the vitamins and minerals are in the germ which is polished away.

Public transportation. Poor people ride the subway,

rich people take taxis or get chauffeured in limousines.

Used clothing. When I was a graduate student, I used to buy all my clothes at Goodwill.

Now I have a decent income. I don't do that anymore (well. Not so often.)

Yes, I've graduated to Wal-Mart

Economists call items that people consume less of as they grow richer:

"INFERIOR GOODS"

But also, Children.

You are "inferior goods"

One of the most solid findings in all of population studies:

The inverse relationship between wealth and fertility.

SLIDE 20

Poorer countries have more children than richer countries

And, within a country, poorer people have more children than richer people.

You can follow one country over time: as it gets richer it's fertility falls.

For Example T. Paul Schultz: Fertility and Income. Yale Economic Growth Center Discussion Paper 925, Oct 2005

Across countries, a 10% increase in income correlates to a 13% decrease in fertility. Within countries a 10% increase in income correlates with a 1% decrease in fertility. ?A uniform culture in a country compresses the acceptable range of fertility?

Now here is a great term paper:

It is usually presumed that the families of Yale students generally have a very good income.

It is also probably true, that they generally have very few children.

So, if you take the ratio of family income to # of children

Yale students probably have an extremely high ratio.

That would make you EXTREMELY INFERIOR GOODS

I think admissions office has this data. If you could get access to the data, you could write a really interesting paper.

So, Children are inferior goods.

This is really quite amazing. Parents supposedly want children and even love them (except when they're teenagers).

More income should certainly enable them to support more children

But apparently it does not.

To discuss this you are going to have to get used to the economists way of thinking about things.

Here are some quotes from a recent article:

Children are a TIME INTENSIVE COMMODITY

The woman's value of time is a key component in the PRICE OF CHILDREN.

The time COST OF CHILDREN AND OTHER HOUSEHOLD PRODUCTION

The opportunity costs for households TO PRODUCE AND CONSUME A CHILD

I love this idea that Parents CONSUME A CHILD.

I will post this on the web a copy of Jonathan Swift's (of Gulliver's Travels fame) 1724 proposal that poor people should eat their own children. He says that this would solve their hunger and poverty and relieve the nation of overpopulation.

Whenever I read in economics that parents consume their children,

Swift's meaning of consumption jumps into my head.

Economists deal with children just as they do any other commodity. That fact is both the genius of economics – and the reason many people reject the approach.

Why should people want fewer children as they get richer?

The basis of almost all current economics is called RATIONAL ACTOR THEORY. People act to maximize their happiness

(or UTILITY, or PREFERENCES, in the jargon).

They do not act against their self interests.

Economists believe that people decide what to do based on a calculation (not necessarily very conscious) of what is in their economic self-interest.

Well, economists are smart guys and one of them got a Nobel Prize in Economics for figuring out how to bring fertility (and lots of other aspects of family behavior) into the mainstream of economics. Gary Becker.

One of the fundamental ideas is that it costs money to rear children and so they can be considered an item to be purchased.

They are a "good" like any other "good" that a family wants to buy.

Children are:

1) a production good

(like a machine bought for a factory children do various kinds of work)

2) a consumption good (parents get pleasure out of having children)

3) an investment good. You put money into a child while it is young,

but you can get returns when the child is grown up.

1) CONSIDER, FIRST, CHILDREN AS A PRODUCTION GOOD.

A child doesn't cost much to make. is pretty cheap

In a peasant farming society, children do a lot of work for the family.

They can run errands, they can collect firewood, they can fetch water,

they can take care of younger children, they can weed the fields.

In fact in agrarian societies, from a very young age, children actually do a lot of work.

Here's an example: "Little Baz can run all over, fetch up cows out of the stock fields, or oxen, carry in stove wood and climb in the corn crib and feed the hogs and go on errands down at his grandma's." from James McPherson From Reconstruction to the Final Days of the American Frontier. Atheneum 2006. Reviewed in NY Times Book Review 12./17/06.

Guess where that description comes from: A Kansas Settler in the late 1800s.

There is a saying in Indonesia, that by age 7, a child does more work for the family than the family has to do for it.

Sociologists, anthropologists and economists have actually gone out in the field and observed this in peasant societies. The Prof or grad student stays w/ a family and always carries around a clipboard. He/she writes down everything that parents do for the children and everything that children do for the parents.

Aha, mom's cooking.

Aha, sister is washing vegetables.

Aha, little brother is sent to the neighbors for a bit of cooking oil.

Oh, Oh, baby just defecated.

Yup, Mom stops cooking to clean up baby. Etc. etc etc.

That's when a child is young. As the child gets older, they need less and less care and they can do more and more work

Children become more and more valuable as they grow older.

At the end of the research the scholar can tell you a crossover point - at what age the child starts doing more work for the family, than the family does for it.

It's not any longer quite as young an age as the Indonesian saying says it is,

but they're not far off. It's about 13 now.

The TANAMANI reading, by Malaysia's Chief Minister, is an example of

child labor & lack of romantic or nurturing attitude towards children.

Tanamani, was 5 years old when she started working as a servant.

Jonathan Swift mentions 6 as the age when children can begin earning money

as pickpockets.

David Copperfield was sent to work at age 10.

Charles Dickens went to work at age 12.

Calculations from the UN labor agency (ILO) show that 250 million 5-14 yr olds are employed, half of them full time.

NYT 11/12/96

That estimate is up sharply from earlier ones of 73 million full-time child workers.

So, in agrarian societies, children are an economic benefit, and people want a lot of them. (If land is not too limiting)

In the early stages of industrialization children are often sent into wage earning work and even their small incomes may make the difference between survival of the family.

Then, as modernization takes hold, things change.

First the children go to school. They have fewer hours to work at home.

And their costs go up.

Money has to be provided for tuition, for books, for clothing or uniforms.

Then medicine becomes available. Now if a child gets sick, the parents have to spend money on a doctor and on medicines.

If the family is in the city, and previously some children have been working in a factory - child labor laws come in and prevent that.

All of these factors increase the cost of children and reduce the amount of work a child can do &/or the income the child can bring into the family.

So – MODERNIZATION REDUCES THE VALUE OF CHILDREN

AS PRODUCTION GOODS.

2) CONSIDER A CHILD AS A CONSUMPTION GOOD.

Children are a consumption good because parents expect pleasure or fulfillment from having children.

Children can be regarded as CONSUMER DURABLES Income in the Income and Fertility Relationship EWER AND EILEEN CRIMMINS-GARDNER Journal of Marriage and the Family, 40 #2 1978), 291-299

Children, like refrigerators, last a long time.

Purchases of durables usually go on a credit card, or easy payment plan, for later payment.

Children don't cost much to make – the costs come later.

A child is kind of like a house. If you're poor you can (could) buy a house with 'no money down', but then you'd have to pay the mortgage, taxes, maintenance, insurance, etc.

Even though it takes time, a lot of people enjoy shopping and then they get a big bang when they actually buy something

Making children is similar, people enjoy the foreplay,

And then they get a big bang.

You can't think of goods separately. People have a certain amount of income - and what they choose to buy will depend on the RELATIVE costs of their various choices.

WRT children: - when a country's economy modernizes, the cost of children is perceived to go up – while the cost of manufactured items and a lot of other things comes down.

So – MODERNIZATION INCREASES THE (RELATIVE) COST OF CHILDREN

AS CONSUMPTION GOODS.

So, as modernization goes on, children become less and less of a bargain - and eventually people start buying fewer of them.

3) THE TIME COSTS OF CHILDREN

An important idea is that people not only have a limited income.

But also a limited amount of time.

People spend their time in a rational manner.

Time can be used for leisure, time

can be used for parenting

or, if the person works, time can be money.

Most of the time required for child raising is spent by the mother.

In a peasant society the huge amount of labor that she does at home is not valued.

Traditionally, her time is considered to be worth very little.

She can't get a job. There are no jobs to be had.

But as the district modernizes - jobs become available in the cash economy. Maybe sewing in a factory. Now the mother's time becomes valuable.

If she's home pregnant or taking care of a baby, then she can't be out working.

This is called the OPPORTUNITY COST OF CHILDBEARING.

It's the money you DON'T make if you are childbearing.

This must be added into the COST – BENEFIT calculation for children.

MODERNIZATION INCREASES THE OPPORTUNITY COST OF CHILDREN

CONSIDER CHILDREN AS AN INVESTMENT GOOD:

The value of children does not stop once they grow up.

If the culture has strong families, eventually the children will take on the responsibility for supporting their parents in old age.

In fact since there are no banks or stock markets, there is nothing else to invest in. Children may be the only investment possible.

6/04 Anand, a graduate student in our department was from India. He was from an upper class family with only a few children.

As was usual for his class, he somewhat looked down upon poor, illiterate people who had large numbers of children.

But he had a good social conscience, so before he came here, he worked in an adult literacy program for the very poorest people.

They discussed everything, including family planning.

Anand had been speaking strongly in favor of family planning.

One day, one of the adults said to Anand:

“You know, you are wrong about family planning.

I have no money to save for retirement.

There is no social security, the government won't care for me in old age.

I need a son to care for me in old age.

I have 10 children. If even one of them becomes successful,

then I will be lucky and have a comfortable old age.”

Anand had never thought about that before and was very impressed.

When he told me this story – he said he was amazed at how compelling that argument was and he could think of nothing to say back to the father.

This is quite true of the very poorest people. Having children is about the only strategy that is available to them in old age.

Kids cost extremely little when they are brought up in poverty –

hand me down clothes –

no school or medical care.

Poor people's food is quite cheap.

Beyond the first one, the older kids take care of the younger ones.

How does modernization affect this investment?

If jobs start to be available in the cities,

or possibilities open up for migration to jobs abroad,

then the children may get these jobs and send remittances to their parents. These remittances may be very large compared to the parents' income as peasants.

Children can be a really good investment.

(assuming that the culture of deference to parents continues)

Modernization has another very strong effect on children as investments.

Before the transition, the chance of any child living long enough

to pay the parents back is small.

After the mortality transition, the probability that a child lives is greatly increased.

The child will live for many years in which they will provide income for their parents.

Also, the parents are living longer.

In old style fertility, married people keep reproducing until they die or go infertile at age 40 or 45.

If the parents happen to live a really long time,

the last child reaches maturity when parents are ~60.

Given early age of death - this was almost end of even long-lived parent's life span.

So there is no time for payback.

After transition, parents are younger when they stop reproducing. They are younger when the last child becomes mature. And they have a longer life span. So parents have a longer time in which they receive economic payoffs from their children.

This argument concludes that modernization, acting via increasing the lifespan of both parents and children, should increase fertility.

MODERNIZATION CAN MASSIVELY INCREASE THE VALUE OF CHILDREN AS INVESTMENT GOODS.

HOW DO YOU MAXIMIZE THE INVESTMENT VALUE OF CHILDREN

HUMAN CAPITAL

In agrarian societies, there are no opportunities outside farming.

If the agriculture is traditional - then education in school is not very beneficial.

If parents do invest in their children's education – there are no jobs to utilize the education – so they are going to become a dirt poor farmer like you anyway –

Also, if the kids are likely to die young,

It is not worth investing in their education.

If you are an agrarian society, the local medicine is likely to be ineffective, so it's not worth investing much in the traditional medicine.

The best strategy is to have a lot of children, make a minimal investment in each one, and hope that some of them don't die.

In fact, before the demographic transition, people invest very little in their children.

Subsistence life carries on as it always has.

But as population increases, land becomes scarce. Imagine that you have a small farm and several kids.

If those kids become farmers, they are going to split up your land and live a bare subsistence life of their own –

Given the reduction in land, they may have an even worse standard of living than you have.

How much are they going to be able to spare for you in your old age?

A crisis occurs in the old system.

But now the country modernizes, factory jobs come in, white collar jobs in the gov't bureaucracy come in.

Schools become available. Modern medicine comes in.

Parents quickly realize that if their children can get these good jobs – the children will make a lot more money than they could by staying on the farm and subdividing papa's farm among them.

But in order to get these jobs, the kids need education.

And if the kids are to stay around long enough to pay back the parents, they have to be healthy.

So the parents have to invest in medicine and education (human capital).

Investment in children becomes an increasingly good deal.

Economists used to think only of physical capital: factories, machines, buildings, etc.

A newer concept is HUMAN CAPITAL.

Human capital is basically the health and education of the population.

Now it's realized that the education and health of workers does as much, or more, to increase productivity than does physical capital.

Human capital works in a very strong way to promote investment in children.

Increased longevity of children and of parents improves investment return.

Education of children improves investment return.

These two factors don't simply add together.

They multiply each other.

Increased education increases the amount your children are going to earn each year. And increased longevity means that they are going to earn that much for more years.

The total return is income/year X # of years.

The two factors multiply.

Note that this effect is true not only at the level of individual families, but also at the level of the whole society.

Possibly the best investment that a government can make is in the health and education of its children.

INVESTMENT IN CHILDRENS HEALTH AND EDUCATION IS VERY REWARDING

Now here's the catch:

If you are poor, you can't make these investments in a whole lot of kids –

so the best strategy might be to have few children

and concentrate your investment in the few that you have.

Economists have coined a term, the “Quality” of a child. The quality is measured by the amount of investment that parents have put into the child – especially education and health.

The fertility transition is described as the switch from Quantity to Quality.

Parents change from wanting a high number of low quality children to wanting a small number of high quality of children.

People catch onto the quantity-quality switch very rapidly.

The demand for education skyrockets. And this demand is not too hard to satisfy.

Whether schooling should be free is a difficult issue of development policy.

If it is absolutely free – then there is no incentive to reduce the # of kids so that there is money for the few to go to school.

If the cost is too high – it will be out of reach for a larger percentage of people.

Education is labor intensive.

Developing countries are short of capital, but they have an excess of labor. Labor is cheap.

Even the poorest countries can usually set up systems with wide access to at least primary education.

Further along the development pathway, developing countries like India produce huge numbers of professionally educated people.

They produce doctors, lawyers, engineers, accountants, etc.

After the education, there may not be good jobs for these educated people.

It takes a lot more capital or income to provide jobs for educated people than it does to provide the education.

That is the reason why the brain drain from poor to rich countries is so common.

And the reason why information economy jobs
can flow so easily from rich to poor countries.

A big political problem arises if jobs are not available for people once they are finished with school. A large group of educated, but unemployed people, is a recipe for social unrest and possibly revolution.

The bloated bureaucracies in many developing countries are a response for this need for jobs for the basically educated. If the commercial sector doesn't provide enough jobs, the gov't has to step in as the job supplier of last resort.

In some places, peasants employ yet another strategy. The first two children are kept at home to do the traditional jobs, look after younger children and earn some money. This money is then used to send younger children to school. The parents get the best of both worlds. This may be an even cleverer strategy than the total switch to a few high quality children.

For the country however, the first two children maintain the vast pool of uneducated subsistence laborers. A middle class economy may evolve, but the number of poor does not shrink.

Some scholars believe that at least parts of India are following this model.

So, here is one of the sequences that can happen.

1) People change from thinking supernaturally about the world to thinking rationally.

Technological progress allows them to discover America and bring back new goods. Ways to prevent diseases are discovered. The industrial revolution increases productivity.

1) With more food and less death, Population increases

Since the 1700s this has happened most everywhere.

It doesn't matter whether mortality has its big drop before fertility or simultaneously. Before the transition, almost everywhere, fertility is above mortality and the population grows.

2) Land becomes scarce. Subdivision among many sons leads to unsustainably small plots.

Places, like England, which have primogeniture are delayed in their need to deal with population. This may partly explain why England's fertility fell so late.

3) Even though there may be growing prosperity in the modern industrial sector of the economy, without land, many people fall into abject poverty.

4) Two things happen next:

Individual families have to figure out a new strategy. They realize that education for the kids is the only way out.

Western governments become scared that all the poverty will lead to revolution and a move toward communism.

Local governments and foreign donors institute family planning programs

which inculcate social acceptability for contraception and

provide the means for people to reduce fertility and concentrate money for education.

5) fertility falls

6) economic development takes off.

EMPIRICAL TESTING

Well, I've just described to you a whole lot of very appealing hypotheses.

The empirical testing these hypotheses has not always led to obvious support for the theories.

DIRECT COSTS

People everywhere complain about how the cost of rearing children has risen. But in fact, the real cost of food and clothing has gone down, certainly as a fraction of income. The cost of providing children with the same goods as pre-transition families provided for their children has gone down.

Education and sometimes health care is often provided free by the government .

So, the basic ingredients for children to survive and get educated may not always cost more than before the transition.

What has changed is the list of goods that people now think that they must provide to their children.

It is perceived that children must have lessons or enrichment activities long after school is over as well as the fashionable clothing and electronic gadgets that will allow them to compete for status with their peers.

So the cost of children issue is not only an economic one, but a cultural change in what it means to be a parent.

Chinese families may be the most extreme in this with their one child.

Visitors, Presidents of their student associations

interested in stress of competition.

Also talked about being spoiled.

OPPORTUNITY COSTS

The cost of children is their direct cost in cash spent

+ the 'opportunity cost' of the time spent in child care. Robinson (1987) Pop Studies 41:313-323

The opportunity cost is the income that could have been earned by the caretaker if she/he spent the time in some other activity.

Espenshade has shown that the time input accounts for over 70% of the cost of a child. Robinson p314 So this is what we should focus on.

The theory depends on the idea that children are time intensive:

They take a lot of time.

LITTLE TIME SPENT

But studies have shown that parents actually spend rather little time taking care of their children.

One of the best studies is from 1300 households in up-state New York. (1967-1968)

---->Robinson, p317 SLIDE 23

Time is calculated as "Average time spent on family care for households w/ children MINUS family care for households w/o children.

So it's only the EXTRA time required if one has children.

Proper # if we are interested in the EXTRA cost children add to a family's time budget.

Compare childcare with working,

The workday is usually 8 to 8½ hours a day depending on whether lunch time is included. Commuting time adds ~ another ½ hour each way. So we are talking 9 to 10 hours a day when the worker is away from home.

The data shows that an unemployed mother puts in about 2 - 2.5 hrs/day. 23 LOWER

All the other members of the family together put in ONLY ½ TO 1 hrs a day. 23 UPPER

The time spent doesn't really increase whether one has 1 child up to 6 children.

Only when babies are in their first year does the time go up to 4 or 5 hrs a day.

More recent data shows the same thing.

This is time PER WEEK.

In the 60 and 70s mothers time was 9-10 hrs /week at little more than 1 hr a day..

Fathers spent 2 ½ hrs A WEEK.

What improved was time spent on house care. Fell a lot. And allowed women to spend more time with children.

By 2003, time spent had increased – but still to only 1 (men) or 2 (women) hours a day.

The amount of time spent depends critically on the meaning of 'time spent.'

Mothers are very good at multi-tasking – doing more than one thing at once,

Bianchi and Robinson considered 3 intensities of childcare time: Demography 37:405 Nov '00

Primary care: answer to question: what were you doing at this time.

Secondary care: answer to: Were you doing anything else?

Time spent w/ children: Answer to: Were any children present?

Time spent in childcare, whether or not the mother was also doing something else, was in the 2 to 3 hour/day range. Same ballpark as the previous study.

Even when all categories are summed, the time rose to 5.5 hrs/day.

A study of Americans in 1995 considered all housework, not just childcare: Working women do ~15.6 hrs of housework a week (2.2 hrs/day)

Working men do ~ 9 hrs of housework a week (1.3 hrs/day)

Pop Today 4/00; www.bsos.umd.edu/src/timeuse.html

SO ONE OF THE FOUNDATIONS OF THE THEORY, THAT CHILDREN ARE TIME INTENSIVE, DOESN'T SEEM TO HOLD.

LACK OF COMPETITION BETWEEN KIDS AND JOBS

Notice anything odd about the previous 2 graphs?

The number of women in the workforce went up enormously between 1965 and 1998 or 2003.

The opportunity cost theory would say that time in childcare had to have gone down.

But time spent in childcare actually went up between these years.

Mothers in 1965 spent 1.5 hrs during which child care was their primary activity. This went up a bit to 1.7 hrs/day by 1998.

SLIDE 24

Studies have shown that childbearing and working do not compete with each other. When women take a job, they do almost as much work at home as before.

With only one child, working mothers still do 7/8 as much childcare as stay-at-home moms.

SLIDE 26

When a mother works, she spends 0.3 to 0.7 hours a day less on childcare.

She saves only 18 to 42 minutes a day.

So the mother does the bulk of the child care whether she's working or not.

CHILD CARE DOES NOT ALWAYS COMPETE WITH WOMEN'S EMPLOYMENT.

Well, where does the mother get the time for work?

It doesn't come out of her child care time.

Well, any mother will tell you the answer - it comes out of her sleep and leisure.

This same result has been documented for developing countries.

When women work and also have kids their total work time goes up to 80 to 90 hours per week.

LATER KIDS ARE VERY CHEAP

Another striking thing about this data is that extra children beyond the first

ARE REALLY CHEAP.

If you look at the time spent BY THE MOTHER,

SLIDE 23

It takes her only ~0.1 hours more, that's 6 minutes a day more, for each succeeding child. That's total child care - not per child care.

In fact she does LESS total work if she has 5 or 6 kids.

That's probably the effect of older kids taking care of younger ones.

The story is the same when you consider Work by ALL MEMBERS of family. Table 1.

The first kid takes 2.7 hrs

Then, the second kid takes only 0.4hour extra = 24 minutes a day.

The 3d kid takes 0.1 hr = 6 minutes

You can get up to 6 kids with only an hour a day more than with one kid.

[Very few people in this sample had 7 or more kids, so last number is not reliable.]

A lot of this is because older children take care of the younger children.

So once you're beyond the 2nd child, there is almost no time cost in child care to further children.

Some direct costs stay the same. like food for the new child,

But many other direct costs go down:

After the first child, parents already have cribs, strollers, bassinets, etc.

And baby clothes can be hand-me downs if the parents are money short.

The economists say: there are tremendous economies of scale in child-rearing. Mass production is efficient.

So, in situations where it's worthwhile to have some children,

It would be a fabulous bargain to have even more.

The later kids entail little extra cost.

In economic jargon, the marginal cost of an extra child is very small.

So at the beginnings of a demographic transition, when a culture moves from a 7 children per family to 6 - - there are only miniscule savings. The savings would all come from eliminating the second child and even more savings by eliminating the first child.

But these are the children that are retained.

PEOPLE STOP BUYING CHEAP KIDS (the later ones)

BUT CONTINUE BUYING THE EXPENSIVE KIDS (the early ones)

Theories involving the cost of children have trouble explaining the early stages of a fertility transition.