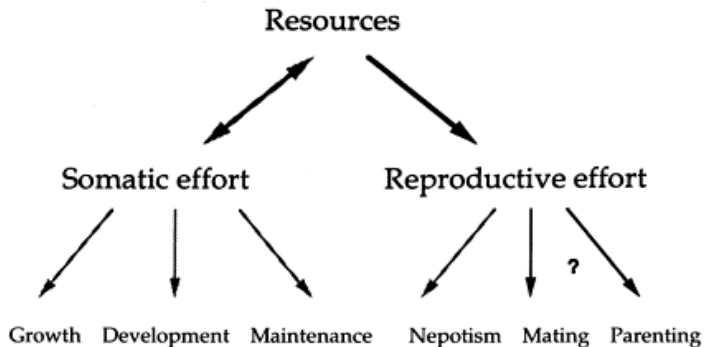


Parental investment: Outline

- ▶ Parental tradeoffs
- ▶ Parental disinvestment in historical Europe
- ▶ How much to invest?
 - ▶ genetic relatedness: is the child mine?
 - ▶ infant condition: will childcare pay fitness dividends?
 - ▶ difficult circumstances: should I put resources elsewhere?

Parental trade-offs

Parents face tradeoffs, so parental care is not unconditional



Parental investment and disinvestment: Covert infanticide



Late 17th and 18th century: Institutions in Paris and London developed which acted (in effect) as agencies for the disposal of unwanted children.

Parental disinvestment in Europe, mid to late 18th century

- ▶ Babies, especially of poor women, were sent to country wet nurses, or foundling homes, or suffered “accidents” (smothering) and neglect.
- ▶ About a third of all babies born in Paris found their way to the St. Vincent de Paul foundling home.
- ▶ In the healthiest of these types of institutions, a third or more of those admitted died within a year
- ▶ In the worst, nine-tenths died within a year
- ▶ infant death rate in workhouses in London estimated at 88% (by a contemporary)

Parental disinvestment: Infanticide cross-culturally

What causes infanticide? Data from a cross-cultural sample:

Issue	Number of societies
1. Is the infant the putative parent's own?	20
2. Infant quality (deformed or very ill)	21
3. Unfavorable circumstances	86
4. Other	15

Unfavorable circumstances: twins (14), mother unwed (14), birth too soon or too many children (11), no male support (6), mother died (6)

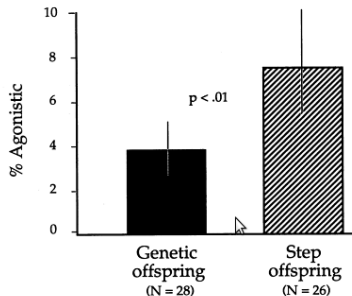
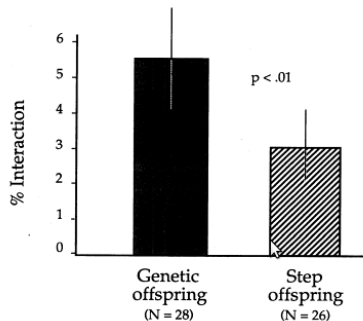
(From Daly and Wilson)

Parental investment: Genetic relatedness

genetic relatedness: is the child mine?

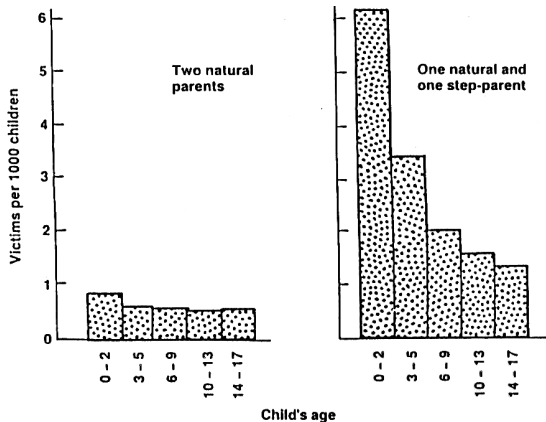
Cindarella: Parental investment and genetic relatedness

Trinidad: fathers spend twice as much time interacting with genetic than stepchildren (similar results in other populations)



And more of their interactions are agonistic
from Mark Flinn, 1988

Parental disinvestment and genetic relatedness: U.S.A



- ▶ step-children targeted when step and genetic children in household
- ▶ pattern exists controlling for socioeconomic status
- ▶ similar pattern for child homicide

from Daly and Wilson

Parental feelings are sensitive to genetic relatedness

Are we arguing that child abuse is adaptive for the stepparents?
(No.)

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“Child-specific parental love is the emotional mechanism that permits people to tolerate—even to rejoice in—those long years of expensive, unreciprocated parental investment.”

(Daly and Wilson, *Homicide*)

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- ▶ Argument is that parental love is sensitive to genetic relatedness
- ▶ Stepparents less likely to report having “parental feelings” than genetic parents (53% of stepfathers and 25% of stepmothers in one study).
- ▶ The feelings are natural, but not inevitable

Parental disinvestment: Infanticide cross-culturally

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Parental investment: Infant quality

Infant condition: will childcare pay fitness dividends?

Parental disinvestment: Infanticide cross-culturally

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Poor infant quality: more or less investment?

Withdraw investment (“cut your losses”) or invest more (“compensation”)?

Compensation?

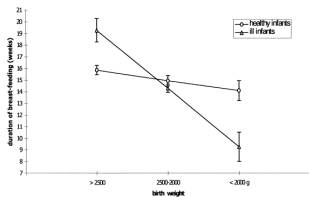
- ▶ Housefinch mothers put more nutrients into eggs from “ugly” fathers to compensate for dad’s poor condition (Navara et al. 2006).

Cut your losses?

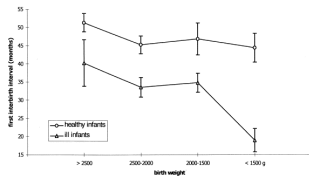
- ▶ Child abuse more likely with severely disabled infants
- ▶ Normal, caring mothers showed less affection to very low birthweight twin compared to healthy twin (Mann 1992).

Poor infant quality: more or less investment?

Severe and easily detectable diseases are likely to reduce investment, less obvious and more correctable problems may encourage compensation (Berezckei):



top: breastfeeding ended sooner with sick infants, but only if also very low birthweight



bottom: shorter birth interval after birth of sick infant, especially very low birth weight

The maternal psychology of covert infanticide

a “political economy of the emotions” (Scheper-Hughes):



- ▶ Scheper Hughes studied very poor women in northeast Brazil
- ▶ Very high infant mortality (diarrhea)
- ▶ Mothers detached and indifferent to infants judged too weak to survive.
- ▶ Mothers say weak child “doesn’t want to live” so respond by not feeding it.

A high expectation of child death shapes maternal emotions;
“bonding” is facultative

Parental disinvestment: Infanticide cross-culturally

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Parental investment: Difficult circumstances

Difficult circumstances: should I put resources elsewhere?

Parental investment: Unfavorable circumstances

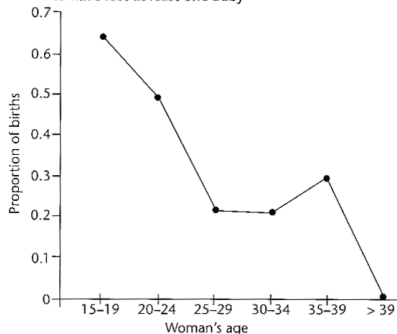
Trade-offs between subsistence and reproduction



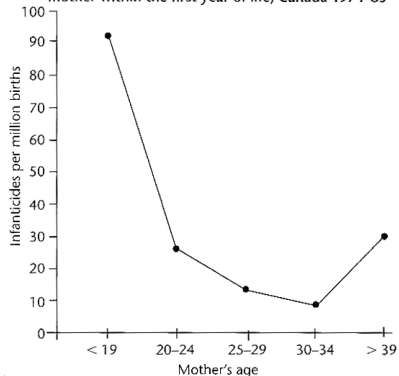
Maternal investment and age: infanticide

Younger women can afford to wait for better times

(a) The proportion of births that led to infanticide among a sample of Ayoreo women who were known to have lost at least one baby

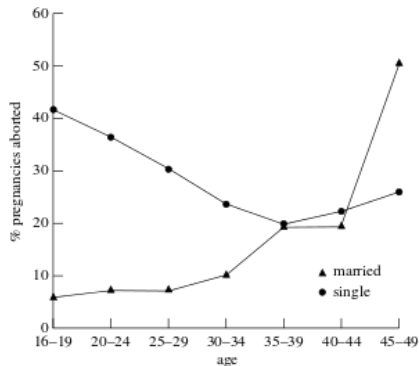


(b) The risk of infanticide at the hands of the natural mother within the first year of life, Canada 1974-83



Maternal investment and age: abortion

Percentage of pregnancies aborted as a function of age in England and Wales (from Lycett and Dunbar, 1999)



Single women: Lack of paternal support → wait for better times

Sex allocation

Are some children more valuable (in fitness terms) than others?

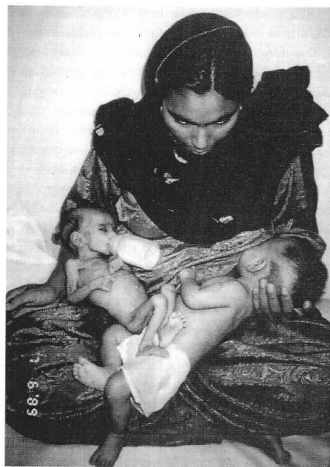
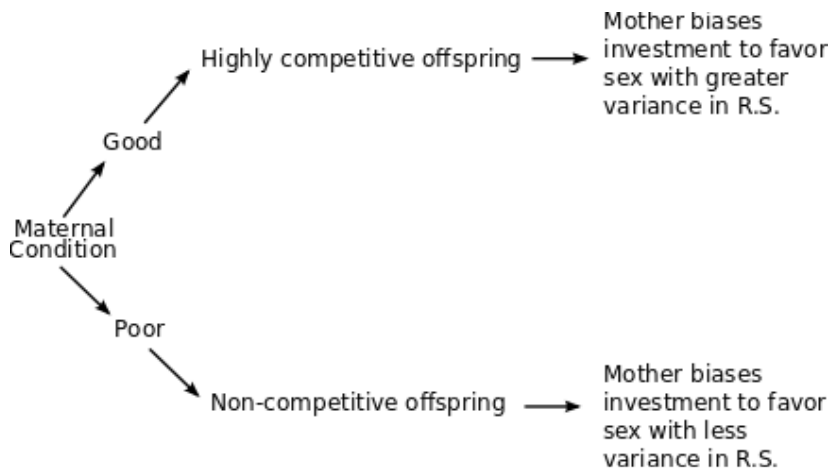


Fig. 13.2 At birth the female twin was taken by the mother-in-law and bottle-fed, while the son remained with his mother and was breast-fed. When they were reunited at five months of age at a clinic, the difference between them was all too apparent. Intervention was too late. The bottle-fed daughter, limp and marasmic, died shortly after this photograph was taken.²³ (Photograph by Gul Nayer Rehman, courtesy of Dr. Mushtaq A. Khan, Children's Hospital, Islamabad)

Sex allocation: Trivers-Willard hypothesis

Can you get higher fitness (more grandchildren) through your sons or daughters?



Lots of studies, evidence in humans is inconclusive.

Trivers-Willard: A case of daughter preference?

Mukogodo (poor neighbors of the Maasai – former foragers)

- ▶ Men: in a poor bargaining position for wives, often stay single
- ▶ Women: marry wealthier men from other groups
- ▶ Breastfeed daughters longer than sons
- ▶ More likely to take daughters to clinic when sick:

	Mukogodo		Non-Mukogodo	
	Males	Females	Males	Females
clinic visits (0-4 yrs)	36%	64%	55%	45%
proportion of population	.42	.58	.51	.49

Summary

Limited time, energy, resources imply tradeoffs between:

- ▶ reproduction and “somatic effort”
- ▶ reproduction: mating and parenting
- ▶ parenting: quality-quantity, now-later, this child-that child

Hence parental investment sensitive to fitness costs and benefits:

- ▶ genetic relatedness: is the child mine?
- ▶ infant condition: will childcare pay fitness dividends?
- ▶ difficult circumstances: should I put resources elsewhere?

Strategic disinvestment a feature of human nature (in traditional societies, historical Europe, modern industrial societies)