

Evolution of the Family: Theory and Implications for Economics

Ingela Alger

Toulouse School of Economics, CNRS
Institute for Advanced Study in Toulouse

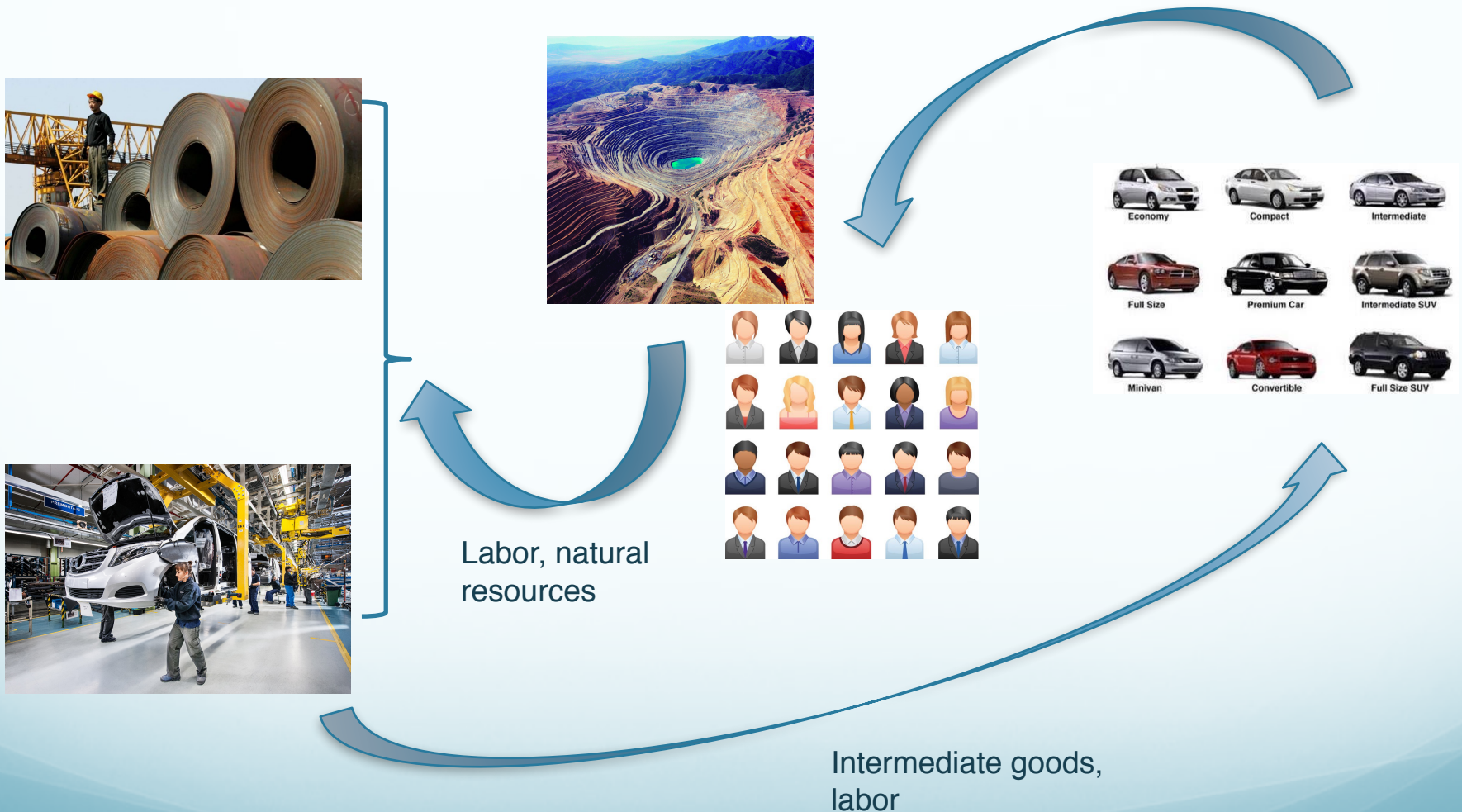
EHBEA Toulouse, April 25th 2019

The Family: a Match Made in Heaven for Economics and Evolutionary Human Sciences?

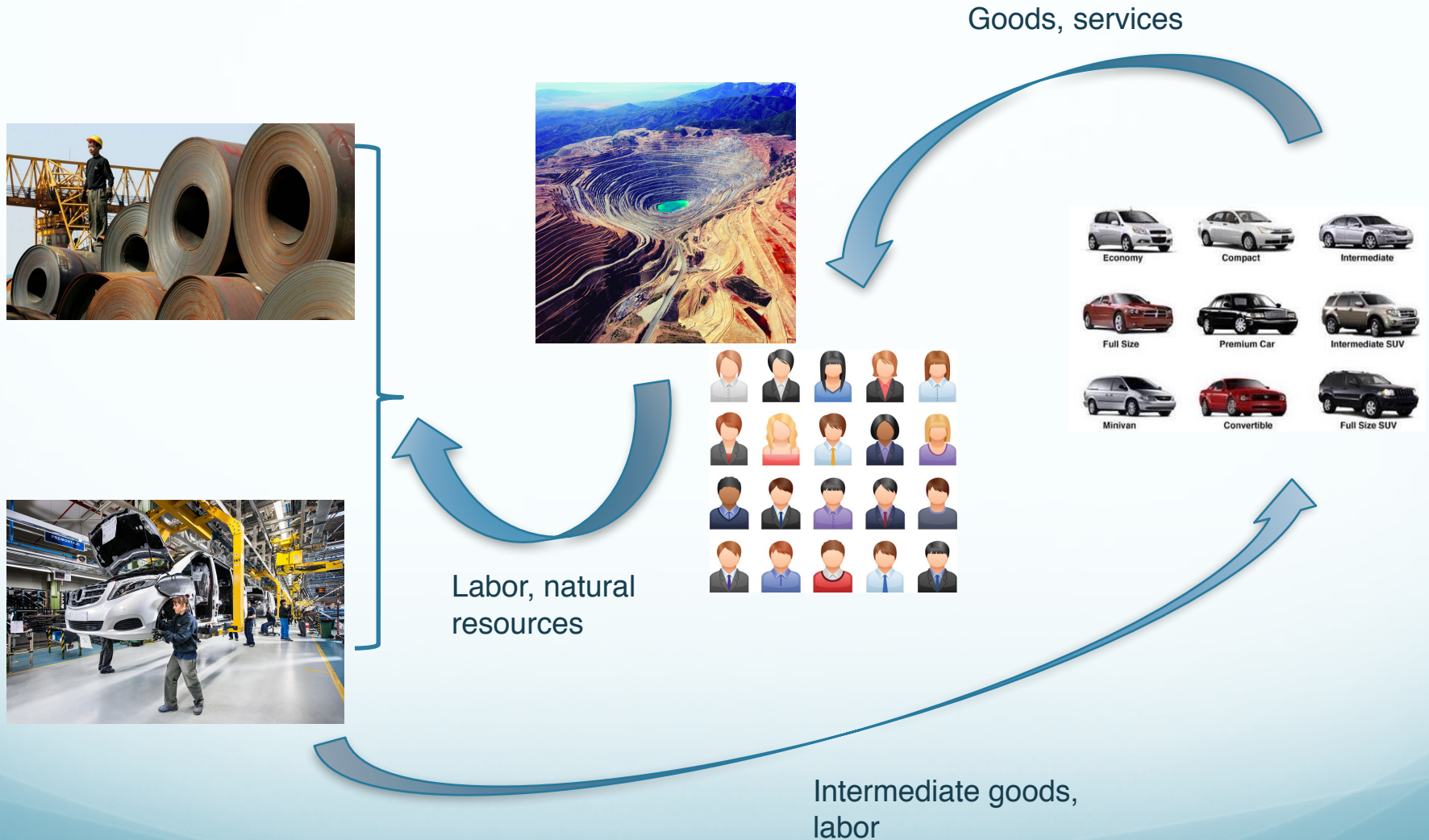
Ingela Alger & Don Cox (Boston College)

EHBEA Toulouse, April 25th 2019

Economics is about resource allocation



The Question: are resources allocated efficiently?



Answer (1950's): The Invisible Hand Theorem

(or the 1st Theorem of Welfare Economics)

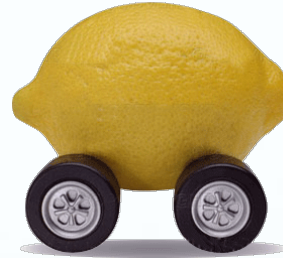
If:

- (i) there is a market for every good,
- (ii) all actors know everything about everything,
- and (iii) no single firm has market power,

then:

a decentralized market delivers an efficient resource allocation,
even if all individuals are selfish.

Answer (1950's): The Invisible Hand Theorem



If:

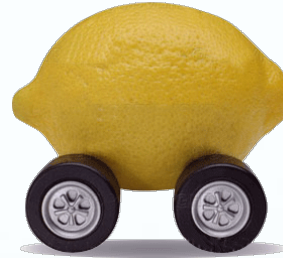
- (i) there is a ~~market for every good~~,
- (ii) all actors ~~know everything~~ about everything,
- and (iii) ~~no single firm has~~ market power,



then:

a decentralized market ~~delivers~~ an efficient resource allocation,
even if all individuals are selfish.

Answer (1950's): The Invisible Hand Theorem



If:

- (i) there is a ~~market for every good~~,
- (ii) all actors ~~know everything~~ about everything,
- and (iii) ~~no single firm has~~ market power,



then:

a decentralized market ~~delivers~~ an efficient resource allocation,
even if all individuals are selfish.

Helped Identify Sources of Market Inefficiencies

1970's - now

Research on how the design of institutions
(i.e., the rules governing market exchange),
and/or the use of taxes and subsidies,
can mitigate market inefficiencies.

1970's - now

Research on how the design of institutions
(i.e., the rules governing market exchange),
and/or the use of taxes and subsidies,
can mitigate market inefficiencies.

1970's – 1980's: reign of the selfish *homo oeconomicus*

1970's - now

Research on how the design of institutions
(i.e., the rules governing market exchange),
and/or the use of taxes and subsidies,
can mitigate market inefficiencies.

1970's – 1980's: reign of the selfish *homo oeconomicus*

1990's – : individuals with other motivations
have invaded economics models,
and theoretical research helps understand
which motivations are favored by evolution

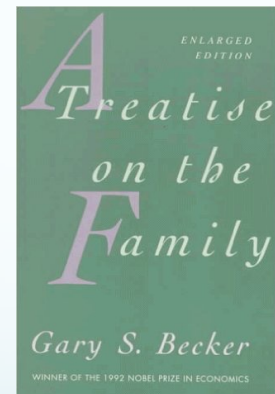
[Alger and Weibull, 2019]

1970's - now

Research on how the design of institutions
(i.e., the rules governing market exchange),
and/or the use of taxes and subsidies,
can mitigate market inefficiencies.

1970's – 1980's: reign of the selfish *homo oeconomicus*

One notable exception: family economics



Notwithstanding market institutions...

**the way individuals care about
various aspects of the family sphere
may affect many economic decisions...**

and, ultimately, economic growth.

Notwithstanding market institutions...

**the way individuals care about
various aspects of the family sphere
may affect many economic decisions...**

and, ultimately, economic growth.

*Insights about proximate
and ultimate drivers of
family-related behaviors
are important for economists!*

Illustration 1: Hamilton's rule and economic growth

Hamilton's (1964) rule: a rich sibling transfers an amount t to a poor sibling if $r \cdot B'(t) = C'(t)$

Illustration 1: Hamilton's rule and economic growth

Hamilton's (1964) rule: a rich sibling transfers
an amount t to a poor sibling if $r \cdot B'(t) = C'(t)$

But if humans anticipate these transfers and adjust their productive efforts accordingly, evolution by natural selection generates ecology-dependent transfer sizes [[Alger and Weibull, 2010](#)]

Illustration 1: Hamilton's rule and economic growth

Hamilton's (1964) rule: a rich sibling transfers an amount t to a poor sibling if $r \cdot B'(t) = C'(t)$

But if humans anticipate these transfers and adjust their productive efforts accordingly, evolution by natural selection generates ecology-dependent transfer sizes [[Alger and Weibull, 2010](#)]

Evidence that resource sharing leads to:

Lower productive efforts by remittance recipients in Mali [[Azam and Gubert, 2008](#)]

Missing entrepreneurs in Sub-Saharan Africa [[Auriol et al., 2019](#)]

Higher efforts (in an experiment) in rural Mexico [[Alger et al., 2019](#)]

Illustration 1: Hamilton's rule and economic growth

The devil is in the details:

Productive efforts depend on both

(i) the society's sharing norm, and

(ii) whether individuals are happy or unhappy to share

[[Alger and Weibull, 2008](#)]

*Underlines the importance of understanding
the ultimate and proximate drivers of
resource sharing.*

Illustration 2: Sex ratios, savings, and labor supply

The sex ratio affects the degree of competition for mates.

Biased sex ratios in China have been shown to impact savings by parents with a son [[Wei and Zhang, 2011](#)]

Illustration 2: Sex ratios, savings, and labor supply

The sex ratio affects the degree of competition for mates.

Biased sex ratios in China have been shown to impact savings by parents with a son [[Wei and Zhang, 2011](#)]

Evidence of long-term effects of strongly biased sex ratios:

Australia today: women stay at home more in cities with higher M/F sex ratio bias in the 19th century [[Grosjean and Khattar, 2019](#)]

France today: women stay at home less in villages with higher casualty rates in WWI [[Gay, 2018](#)]

Illustration 2: Sex ratios, savings, and labor supply

The sex ratio affects the degree of competition for mates.

Biased sex ratios in China have been shown to impact savings by parents with a son [[Wei and Zhang, 2011](#)]

Evidence of long-term effects of strongly biased sex ratios:

Australia today: women stay at home more in cities with higher M/F sex ratio bias in the 19th century [[Grosjean and Khattar, 2019](#)]

France today: women stay at home less in villages with higher casualty rates in WWI [[Gay, 2018](#)]

A better understanding of the interplay between mating and labor markets is needed.

Illustration 3: Monogamy and education

Measure	Number of 334 alleles			df	F	P
	0	1	2			
Mean score for the Partner Bonding Scale in the three groups						
Partner Bonding Scale	48.0 (6.50)	46.3 (6.16)	45.5 (6.71)	2, 143	8.40	0.0004
Frequency and column-wise percentage of subjects reporting marital crisis/threat of divorce in the three groups						
Have you experienced marital crisis or threat of divorce during the last year?						
No	469 (85%)	277 (84%)	27 (66%)	2, 143	5.00	0.008
Yes	81 (15%)	51 (16%)	14 (34%)			
Frequency and column-wise percentage of subjects being married or cohabiting in the three groups						
Marital status						
Married	457 (83%)	275 (84%)	28 (68%)	2, 143	4.36	0.01
Cohabiting	96 (17%)	52 (16%)	13 (32%)			
Values for the Partner Bonding Scale are means with standard deviation in brackets.						

Values for the Partner Bonding Scale are means with standard deviation in brackets.

Walum et al. (2008)

Allele 334 on avpr1a gene is the human analogue of the AVP receptor gene which has been associated with monogamous behavior in prairie voles [Young et al. 1999]

Illustration 3: Monogamy and education

Measure	Number of 334 alleles			df	F	P
	0	1	2			
Mean score for the Partner Bonding Scale in the three groups						
Partner Bonding Scale	48.0 (6.50)	46.3 (6.16)	45.5 (6.71)	2, 143	8.40	0.0004
Frequency and column-wise percentage of subjects reporting marital crisis/threat of divorce in the three groups						
Have you experienced marital crisis or threat of divorce during the last year?						
No	469 (85%)	277 (84%)	27 (66%)	2, 143	5.00	0.008
Yes	81 (15%)	51 (16%)	14 (34%)			
Frequency and column-wise percentage of subjects being married or cohabiting in the three groups						
Marital status						
Married	457 (83%)	275 (84%)	28 (68%)	2, 143	4.36	0.01
Cohabiting	96 (17%)	52 (16%)	13 (32%)			
Values for the Partner Bonding Scale are means with standard deviation in brackets.						

Values for the Partner Bonding Scale are means with standard deviation in brackets.

Walum et al. (2008)

Deep-seated male preference for monogamy consistent with evolution by natural selection in humans [[Alger, 2015](#)]

Illustration 3: Monogamy and education

U.S.A. since 1950's: marriage rates have declined, co-habitation and divorce rates have risen [[Lundberg, Pollak, and Sterns, 2016](#)]

Pattern more pronounced among low-SES than among high-SES

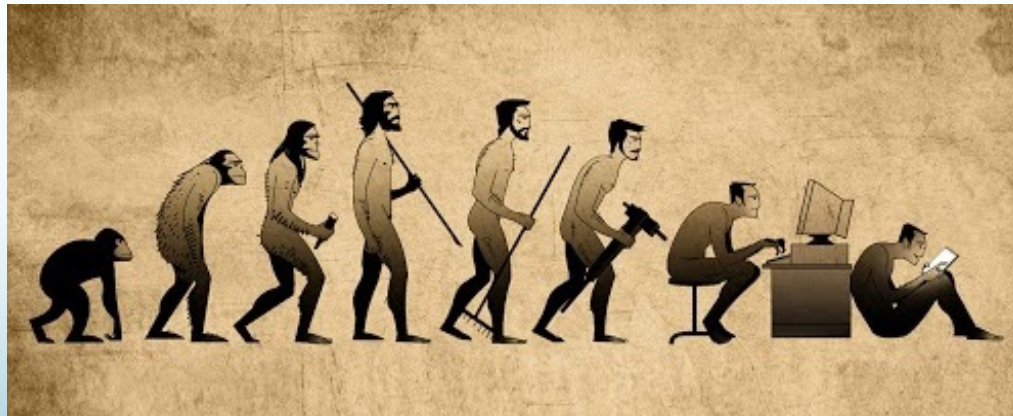
SES correlated with level of education

Question: is the ability to commit to educational goals related to the ability to commit in a relationship?

Underlines the importance of understanding the proximate causes behind marital outcomes.

Bottomline

- How much do we save? How much do we work? What occupations do we choose? What education levels do we choose?

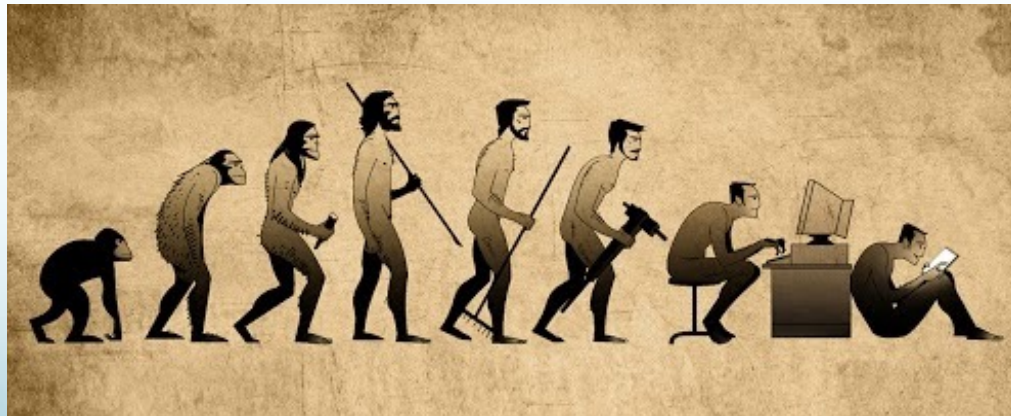


Bottomline

- How much do we save? How much do we work? What occupations do we choose? What education levels do we choose?

economics + evolutionary human sciences = **TrUE LOVE**

Transition to an **U**nderstanding of how **E**volution has had
Long-lasting re**V**erbations on today's **E**conomies



Merci !

