

# **Educational Systems as Marriage Markets**

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# 1. The Importance of Assortative Mating

- The question of "**Who Marries Whom?**" is central for an understanding of social inequality in modern societies
- **Rates of homogamy** reflect the degree to which individuals with specific characteristics (education, religion, ethnicity, occupation etc.) marry each other
- Rates of homogamy indicate:
  - the **degree of social exclusion**
  - the **extent to which social networks are closed to outsiders**

## 2. Why study educational homogamy?

- In modern societies, education is an increasingly important factor for status attainment (jobs, income, social class)
- Education reflects cultural recourses and shapes individual (partner) preferences
- There have been dramatic changes in educational attainment across cohort
- There has been an impressive decline in the gender gap in educational attainment

 Educational expansion

 Partner/marriage decisions

 Changes in social inequality

- Educational homogamy implies that:
  - Social inequality - engendered over the individual life course - is further enhanced through marriage because **two individuals pool** their good (bad) economic and socio-cultural resources (cumulation of advantages/ disadvantages in couples)
- Increasing educational homogamy across cohorts means:
  - Reinforcement of social inequality between (married) couples from one cohort to the next
  - as well as a growing **divergence of social opportunities for their children**

### 3. Why do we need longitudinal data?

Earlier  
social  
conditions



Match at  
time of  
marriage

Going back  
to the  
causes

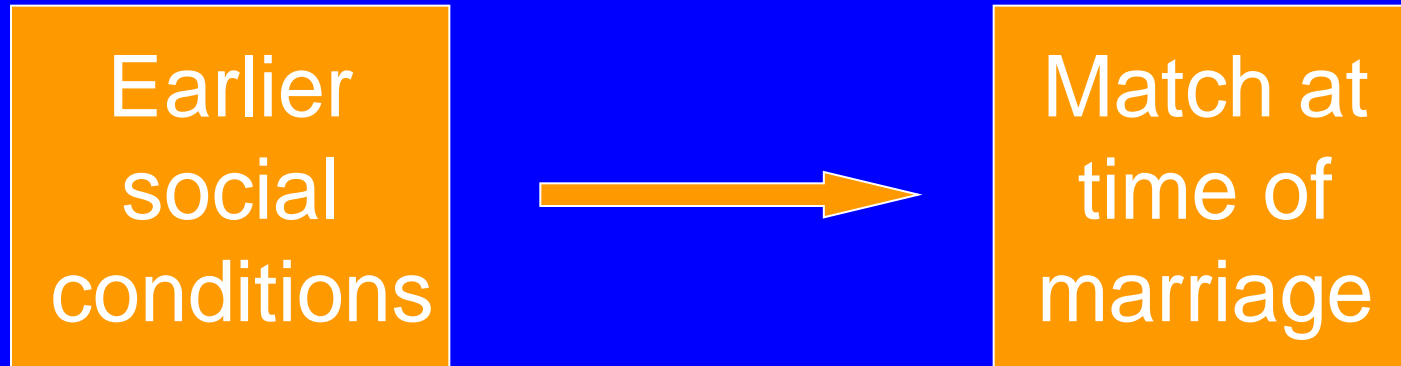
Start from  
the  
outcome



Time

**Singles are excluded from the analysis!**

# Our longitudinal analysis



- Starts with single men and women (at age 15)
- Reconstructs the matching process step by step
- Takes into account changes in the life course
- Considers changes in social networks over time



## 4. Trends in educational homogamy across cohorts

The development in West-Germany as an example

**Table 1: Changes in Women's Upward, Downward, and Homogamous Marriages**  
(Partners' Highest Educational Attainment Level at Time of Marriage)

Birth Cohort	Upward Marriage		Homogamous Marriage		Downward Marriage	
	O	P	O	P	O	P
	%	%	%	%	%	%
(before 1919)	48.4	50.6	50.3	40.2	1.3	9.1
1919-1923	52.1	53.9	43.9	38.7	4.0	7.4
1924-1928	46.7	50.0	49.3	41.6	4.0	8.8
1929-1933	54.4	51.3	40.8	37.8	4.8	11.0
1934-1938	37.8	42.1	56.0	47.1	6.2	10.8
1939-1943	36.9	39.5	58.1	50.6	5.0	9.9
1944-1948	26.7	33.4	65.5	52.6	7.8	13.9
1949-1953	27.0	33.4	68.8	52.5	4.2	14.1
1954-1958	23.9	27.1	70.6	55.0	5.5	17.7
1959-1963	21.6	24.5	70.0	58.4	8.4	16.7
(1964-1978)	22.5	28.5	69.9	49.2	7.8	22.7

O = Empirically observed percentages.

P = Predicted percentages, based on the assumption that marriage decisions were taken randomly  
(given the distributions of educational attainment levels of women and men for each birth cohort).

Source: German Socio-Economic Panel

**Table 2:** Never Married Men and Women by Educational Attainment Level and Age

Education	Percentage of Never Married Men and Women at Age				
	20	24	28	32	36
<u>Women</u>					
Low	73	34	15	10	6
Medium	76	35	19	11	8
High <sup>c)</sup>	97	69	40	27	20
<u>Men</u>					
Low	96	57	35	24	19
Medium	94	57	28	16	10
High	98	80	48	28	16

Source: German Socio-Economic Panel

# Some Conclusions

- Educational homogamy is increasing across cohorts
- Social networks are increasingly closed to outsiders
- There is a rising social inequality among couples
- Individualization (e.g., declining gender gap) and structuralization (e.g., increasing homogamy) are occurring at the same time

5. How can we explain (rising) educational homogamy?

# A dynamic integration of macro- and micro-perspectives

- Patterns of action that recur in many cases, have to be explained via individual actors (**principle of methodological individualism**)
- Changing structural action contexts which cut down the infinite possibilities to act to a **concrete** number of **action alternatives** (e.g., possible partners who can be met) have to be taken into account

- **Mechanisms that single out an option** (possible partner) from the available alternatives have to be specified
- Since individuals choose marriage partners, these mechanisms must be based on individuals' (possibly conflicting) preferences, (incomplete) knowledge, expectations (**definition of the situation, framing** etc.)
- The **free will of individuals** has to be taken into account. This means we can only reasonably model the **generality** but not the determinism of marriage action (**probabilistic causation**)
- If we explain the behavior of many actors, a "weak" model of rational choice ("**bounded rationality**") is useful

# 6. Partner/marriage decisions and structural changes in the life course

- Partner decisions are the result of a long-term cumulative process
- Starting in the family of origin (socialization)
- Branching out in the educational and employment system
- This process is connected with a permanent restructuring of social networks and interaction relationships
- Partner and spouse selection is often made during the phase of transition from youth to adulthood
- Educational institutions are therefore very important

## 7. The educational system as a marriage market

P. M. Blau (1949):

"Without a chance to meet there will be no social relationship; and without a social relationship there will be no marriage"

# Age-grading and stepwise selection processes in the educational system

- Lower-skilled people leave the educational system earlier
- Educational selection produces increasingly homogenous social groups
- Selection increases the probability of contact frequencies and friendships among people still in school (including also leisure activities, friends of friends etc.)
- Participation in education leads to a postponement of marriage decisions (economic dependence; social norms)
- Completion of education is therefore an important condition for marriage in most countries
- Less qualified people (who leave the educational system earlier) are earlier ready to marry and earlier exposed to a more heterogeneous environment

## Consequences:

The likelihood of educational homogamy should increase with the level of educational attainment over the life course

Educational expansion should lead to more educational homogamy and thus (indirectly and unplanned) to more social inequality

# 8. Modeling the marriage process

$$X \rightarrow Y$$

$$\Delta X(t) \rightarrow \Delta r(t')$$

$$t' > t$$

Change in  $X(t)$  at  $t$   
independent processes

Temporal interval

$$(t' > t)$$

$$(t' - t)$$

Change in the rate  
of the dependent process at  $t$

Effect shapes over time

**Table 2a** Transition Rate Models for Upward, Downward, and Homogamous Marriages for Women (with Regard to Educational Attainment Level)

	Upward Marriage			Homogamous Marriage			Downward Marriage		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant	66.97**	57.41**	30.48	-68.23**	-49.20**	-23.24**	-80.96**	-63.39**	-68.80 *
Log(Current Age – 15)	-8.85**	-7.30**	-3.63 *	6.22**	5.06**	1.65	4.72 *	3.84	5.95 *
Log(60 – Current Age)	-13.01 *	-11.83**	-8.25	13.71**	8.01**	3.41	16.36 *	12.89	14.44 *
Log(Current Age – 15) * Education	1.24**	1.06**	0.64**	-0.39**	-0.35**	-0.01	-0.20	-0.10	-0.31
Log(60 – Current Age) * Education	2.36**	1.98**	1.53**	-0.57**	-0.31	0.19	-0.52	-0.33	-0.64
Education	-11.61**	-9.78**	-6.89**	2.96**	1.84	-0.66	2.64	1.66	2.73
Not in School <sup>a)</sup>	0.29			2.00**			2.81**		
Duration in School <sup>b)</sup>		0.21**	0.27**		0.34**	0.25**		-0.30	-0.22
1 – 2 Years After School <sup>c)</sup>		1.93**	2.44**		3.89**	3.28**		0.72	0.82
3 – 4 Years After School <sup>c)</sup>		2.01**	2.71**		4.42**	3.67**		0.24	0.45
5 – 6 Years After School <sup>c)</sup>		1.93**	2.73**		4.62**	3.83**		0.07	0.28
7 – 8 Years After School <sup>c)</sup>		1.87**	2.71**		4.57**	3.80**		0.36	0.51
9 – 10 Years After School <sup>c)</sup>		1.82**	2.69**		4.40**	3.66**		0.39	0.45
11 – 12 Years After School <sup>c)</sup>		1.78**	2.66**		4.26**	3.56**		-0.90	-0.91
More Than 12 Years After School <sup>c)</sup>		1.36 *	2.18**		4.18**	3.61**		-0.34	-0.61
Father's Education		-0.07	-0.04		0.18**	-0.05		-0.04	-0.07
Father's Education * Linear Cohort Trend		-0.01	0.01		-0.01**	0.01		0.00	0.01**
Father's Education < Daughter's Education <sup>d)</sup>		-0.31**	0.10		0.31**	0.03		0.49 *	0.80**
Father's Education = Daughter's Education <sup>d)</sup>		-0.32**	-0.27**		0.41**	0.27**		0.78**	0.66**
Father's Education > Daughter's Education <sup>d)</sup>		0.63**	0.17		-0.72**	-0.30**		-1.27**	-1.46**
Linear Cohort Trend		0.16			0.23**			0.07	
Structural Marriage Opportunities			2.74**			1.68**			4.33**
Number of Events	792	792	792	1394	1394	1394	129	129	129
Subepisodes	43465	43465	43465	43465	43465	43465	43465	43465	43465
Likelihood Ratio Test (LR) <sup>e)</sup>	2834.82	3430.58	3679.02	2834.82	3430.58	3679.02	2834.82	3430.58	3679.02
Degrees of Freedom	6	19	19	6	19	19	6	19	19

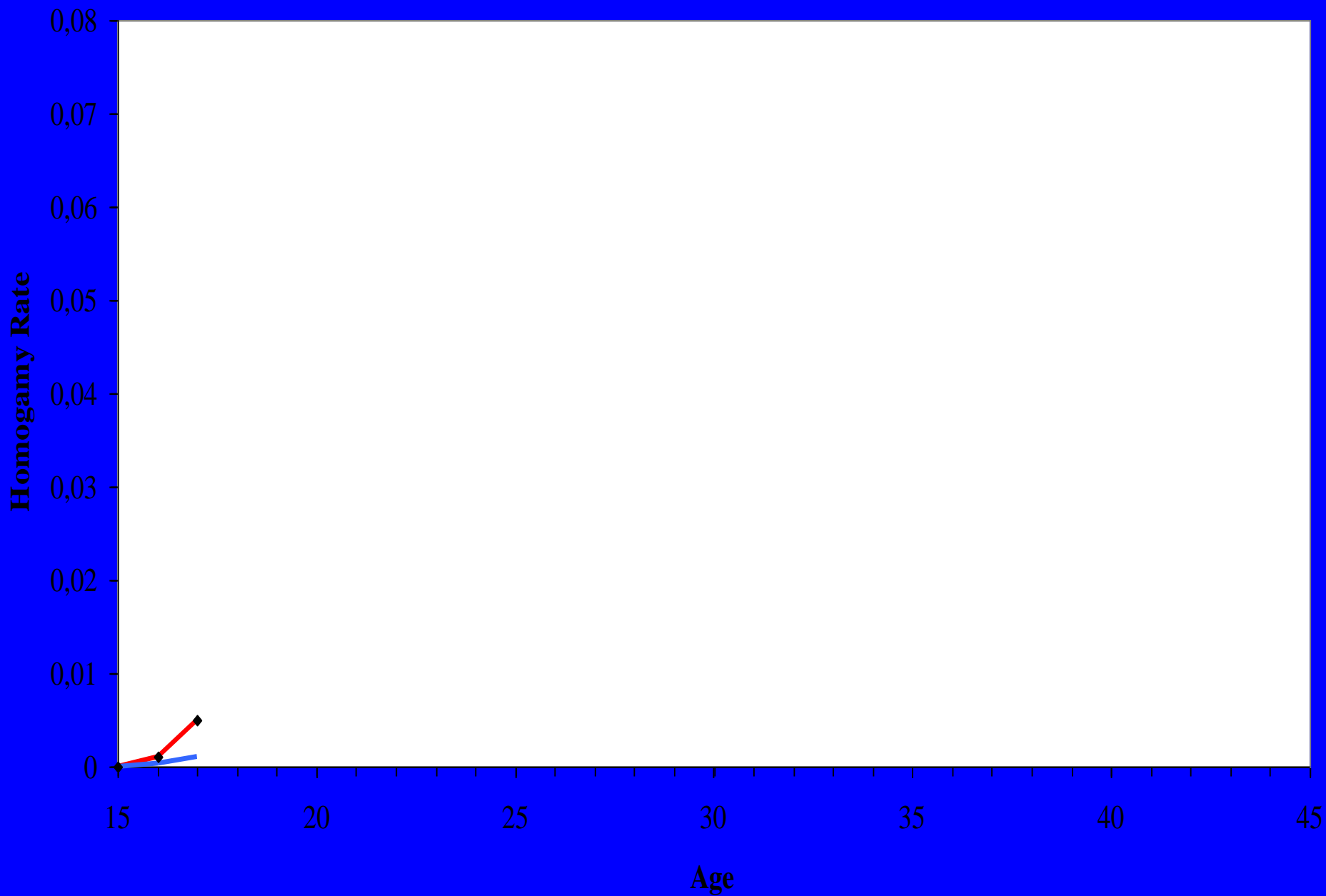
<sup>a)</sup> Reference category: in school. <sup>b)</sup> Measured in numbers of school years after age 14. <sup>c)</sup> Dummy variable (reference category: in school).

<sup>d)</sup> Centered effects. <sup>e)</sup> LR = 2 \* (loglikelihood (model with covariables) – (loglikelihood (model without covariables))).

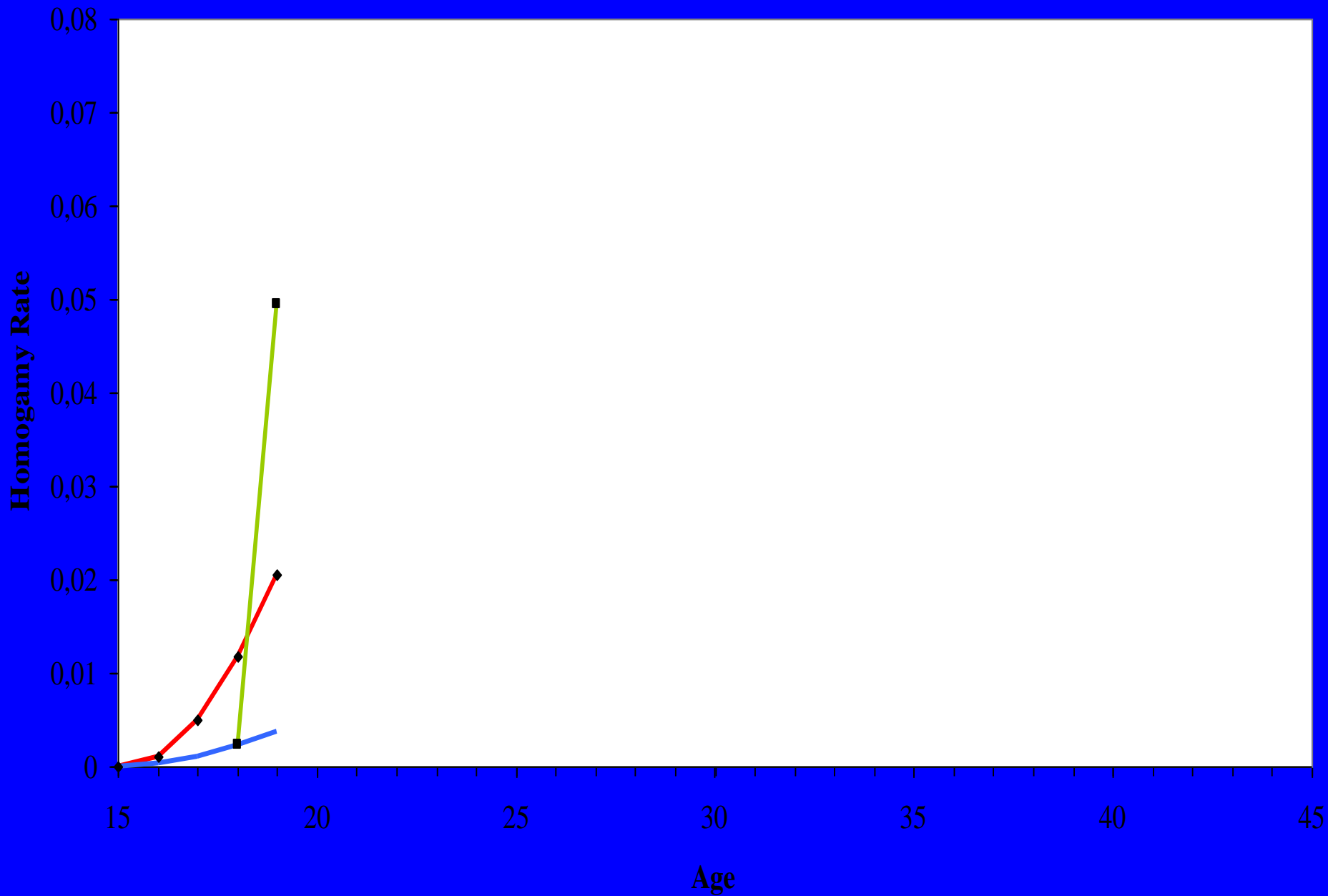
\*\* p < 0.01

\* p < 0.05

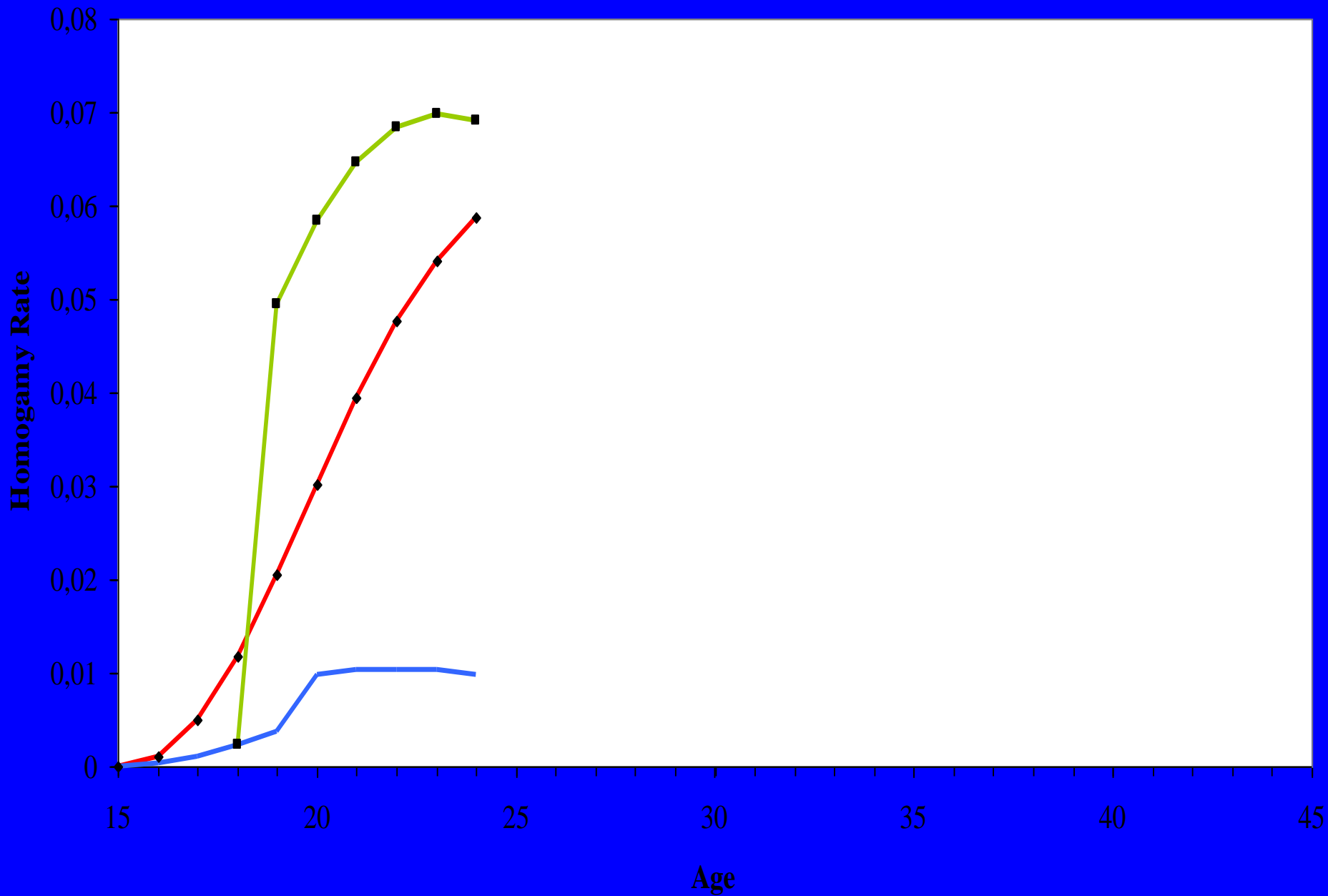
Source: German Socio-Economic Panel



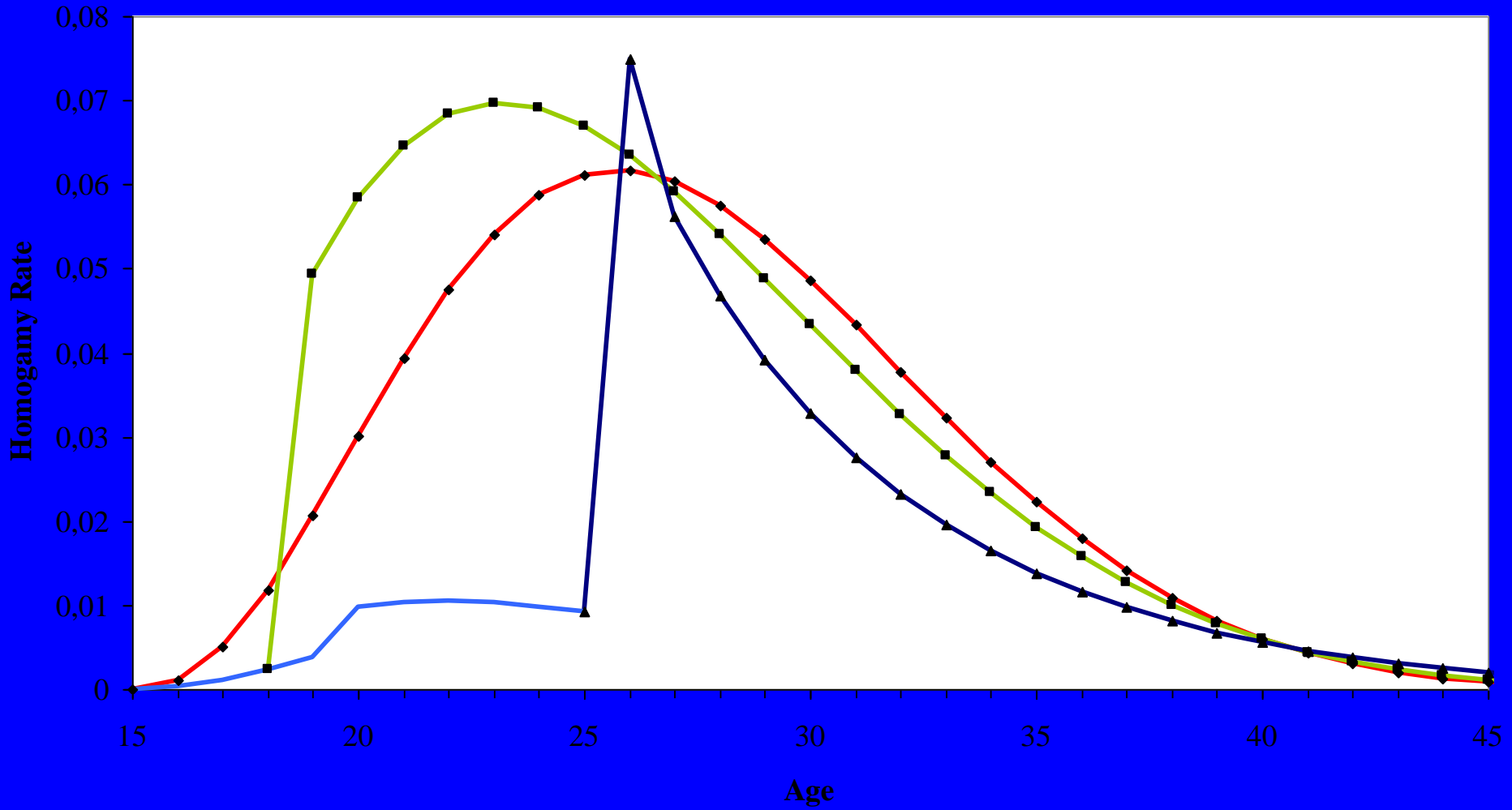
◆ Unskilled    ■ Vocational Training    ▲ University Degree    — In School



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## 9. How do people select their partners within their social networks?

- Partner search is a rather difficult type of decision making process under uncertainty (Gigerenzer, Todd, Miller):
  - Individuals encounter prospective partners in a temporal sequence
  - Partners appear in random order and come from a population with unknown parameters
  - Possible future alternatives are unknown

- Search costs are unknown
- Long-term costs and benefits of concrete partners are hard to evaluate
- There are time limits for partner decisions
- There is the difficulty of backtracking to previously rejected partners (because they might have found already another partner)
- Finally, union formation is a consensual choice (the decision must be mutually acceptable to both prospective partners)

# Simon's satisficing mechanism

- Satisficing is an important decision mechanism when actors have **little information** and **alternatives are encountered sequentially**
- People develop a more or less conscious idea of an "**acceptable partner**" (kind of aspiration level)
- Following Todd and Miller (1999), we assume that this aspiration level is based on individuals' past life course experience and the respective educational attainment level (in other words, it is an **adjustable aspiration level**)

- Prospective partners who do not meet the criteria of the "acceptable partner" are **not considered**
- Selected partners must not necessarily be the "ideal partners"

# 10. Gender-specific preferences and their changes

- G. Becker: If a man and a woman resemble themselves as much as possible in their personal traits (intelligence, education, social origin etc.), then they benefit mostly from each other (high level of utility)
- P. M. Blau: there is empirical evidence that "the like likes the like"

# Preferences in gender-traditional societies

Becker: However, gender-traditional societies with

- sex-segregation in the workplace
- gender-specific occupational and income structures
- gendered division of work in the family

produce **gender-specific utility functions**

- Traditional women have a strong interest in income-strong husbands since their income determines the status of the family
- Thus traditional women prefer highly educated men

- Traditional men have ambiguous preferences with regard to women's educational level:
  - On the one hand, they gain a high level of utility, if their wives are as similar as possible in their traits, including education
  - On the other hand, as providers, they need wives who assume the bulk of family care and domestic functions
- Thus, traditional men prefer women with similar qualification but low labor market orientation
- At least wife's education is less important

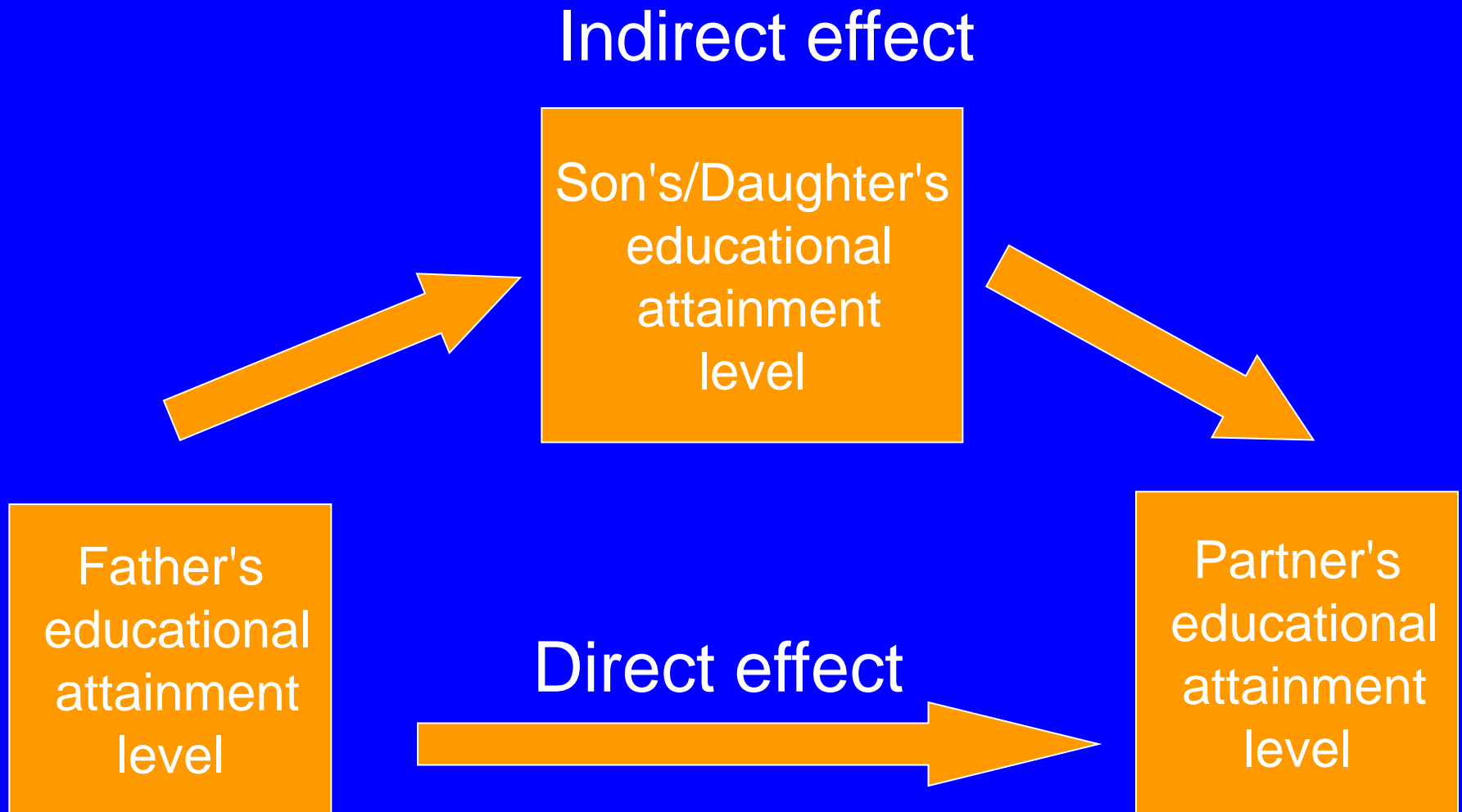
# Changing preferences in modern dual-earner societies

- Increasing labor force participation of married women makes **wives' income an increasingly important factor** for the living standard and "lifestyle" of the family
- **Women's educational level** and income potential is therefore **increasingly important for men of younger cohorts**
- **"Modern" men** therefore increasingly prefer **women with high levels of qualification** and high income potential

# Consequences for marriage patterns

- Men and women from younger cohorts prefer similar qualified partners, and based on the competitive processes on the marriage market, this will **increase educational homogamy**
- However, persistent "male breadwinner" ideology in society **makes it hard for women to marry men with less education**

# 11. Mechanisms of social origin



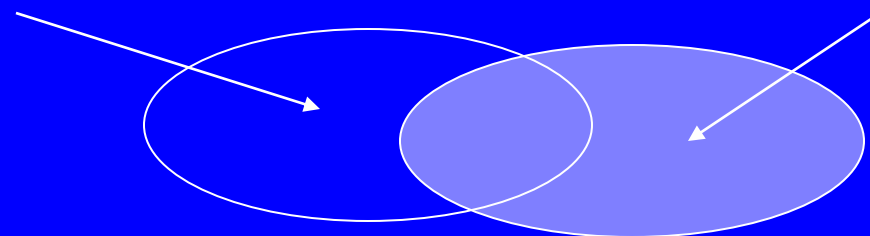
# Direct effect of social origin

- With increasing level of father's education, social networks become more exclusive
- Father's education therefore has a **positive direct effect** on educational homogamy

# Indirect effects of social origin

Social networks via family of origin

Social networks via school



**Table 3:** Indirect Effects of Social Origin on Marriage Patterns

Educational Level Son/Daughter <i>versus</i> Educational Level Father	Upward Marriage	Homogamous Marriage	Downward Marriage
$\text{=}$ “Old and new social networks are similar”		$\text{+}$	
$\text{>}$ “Consolidation of upward move through new social networks”		$\text{+}$	
$\text{>}$ “Counter-mobility via old social networks”			$\text{+}$
$\text{<}$ “Counter-mobility via new social networks”	$\text{+}$		
$\text{= or >}$ “No social networks”	$\text{-}$		

## 12. Cross-national comparative perspective

- 13 country-specific case studies
- Countries serve as different contexts: testing the generality of German results
- Analyses conducted by researchers who have an intimate understanding of the respective countries
- Similar analyses without complete standardization
- Results: Similar developments in most countries
- However: Early educational selection and tracking increase the level of homogamy in a country

**Table 4:** Observed Versus Predicted Homogamous, Upward, and Downward Marriage Rates of Women and Their Changes in Various Countries

Country	Observed Versus Estimated *)		Upward Rates		Downward Rates	
	Homogamy Rates	Trend		Trend		Trend
West Germany	higher	gap increasing	lower	no trend	lower	gap increasing
The Netherlands	higher	gap increasing	lower	no trend	lower	gap increasing
Belgium (Flanders)	higher	no trend	lower	gap increasing	lower	no trend
France	higher	gap increasing	lower	gap decreasing	higher, and then later lower	gap decreasing, then increasing
Italy	higher	gap increasing, then decreasing	lower	gap increasing, then decreasing	lower	gap increasing,
Spain	-	-	-	-	-	-
Great Britain	higher	gap increasing	lower	no trend	lower	gap increasing
United States	higher	gap increasing	lower	no trend	lower	gap increasing
Denmark	-	-	-	-	-	-
Sweden	-	-	-	-	-	-
Hungary	-	-	-	-	-	-
Slovenia	higher	gap increasing, then decreasing	lower	gap increasing, then decreasing	lower	no trend
Israel	not studied	not studied	not studied	not studied	not studied	not studied

\*) Estimated rates assume a random matching between men and women and take into account the changing educational structure of men and women over time.

# Summary of results

- Educational expansion increases educational homogamy and social inequality between couples
- Important factors for rising educational homogamy are:
  - People often prefer to associate with equally educated partners
  - Educational expansion increases contact opportunities for equally educated men and women at an age when young people start to look for partners and form couples
  - Women's changing economic role in dual-earner societies increases the importance of women's education and labor force attachment