

Psychology and Family Economics

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Overview:

- Availability of new data: Individual psychological traits in large, representative samples
- Eg. German Socio-economic Panel Study
 - personality predicts family behavior: marriage/divorce
- How might we incorporate personality data into an economic analysis of families?
 - Neo-classical approach: preferences or capabilities
 - Behavioral approach: departures from rationality due to limited cognition, limited self-control



Innovations in large longitudinal surveys have provided researchers with data on new dimensions of individual variation:

- German Socio-Economic Panel Study
- British Household Panel Survey—
Understanding Society
- Mexican Family Life Survey
- National Longitudinal Study of
Adolescent Health (U.S.)

Some types of new measures:

- Psychological traits: personality, locus of control
- Economic preference parameters: risk aversion, time preference, social preferences
- Behavioral tendencies: trust, reciprocity
 - survey measures can be validated against experimental evidence



Economic preference parameters can be incorporated into empirical analysis in a straightforward way:

e.g. from family economics—

In a search model of marriage, risk aversion reduces reservation levels of partner quality.

Schmidt (2008) and Spivey (2010) show that risk aversion predicts earlier marriage.

Light and Ahn (2009) find that the risk averse are less likely to divorce.



Trust, reciprocity.....

- Related to both preferences and beliefs about the behavior of others
- Fehr (2008): risk preferences and social preferences predict survey trust
 - trust is endogenous—shaped by experiences and institutions
 - Ermisch and Gambetta (2010): strong family ties reduce trust in strangers due to limits on exposure



What do large-sample measures of individual psychological traits offer economists?

- Measures extensively tested and replicated by psychologists
- Strong associations with behavior/economic and social outcomes
- Contested claims of stability/exogeneity



Personality:

- Stable over adult lifespan
- Consistent and reliable measures of attributes that people find “important and useful in daily interactions” (Goldberg, 1981)
- “Stable patterns of thought, feelings, and behavior” (Borghans et al., 2008)

Divorce hazards for couples in SOEP

- Personality trait—“openness to experience”—is an important predictor of divorce for both men and women
- One standard deviation \uparrow in openness increases the probability of divorce by 12% for women and 20% for men
- Open people: intellectual, adventurous, like change and variety
 - “find familiarity and routine boring” (Johnson)



Personality can yield new insights into the determinants of family change and variation:

- Sources of marital surplus, patterns of assortative mating, causes of divorce, returns to children
- Mechanisms by which policy and institutional environments affect family structure
- Open question: Are neoclassical approaches to family behavior adequate, or do we need to consider behavioral alternatives?

Economics and Personality

- Almost all existing studies using SOEP and BHPS personality measures are focused on labor market outcomes
 - earnings, occupational choice
- Both surveys include a 15-question short-form version of a standard personality inventory



“Big 5” Personality Inventory

- ▶ **Agreeableness vs. antagonism**
- degree to which a person needs pleasant and harmonious relations with others
- ▶ **Conscientiousness vs. lack of direction**
- degree to which a person is willing to comply with conventional rules, norms
- ▶ **Extraversion vs. introversion**
- degree to which a person needs attention and social interaction

“Big 5” Personality Inventory (cont.)

- ▶ **Neuroticism** vs. emotional stability
 - degree to which a person experiences the world as threatening and beyond his/her control

- ▶ **Openness** vs. closedness to experience
 - degree to which a person needs intellectual stimulation, change, and variety

(from Hogan and Hogan, 2007)



Personality traits can affect earnings via:

- Productivity
- Labor market processes: bargaining or search
- Taste-based discrimination (Nandi and Nicoletti, 2009)



Many studies of personality and earnings

- data from U.S., Netherlands, U.K., Germany
- Mueller and Plug (2006)
- Nyhus and Pons (2005)
- Heineck and Anger (2008)
- Heineck (2007)

Neuroticism and agreeableness ↓ men's and women's earnings

Internal locus of control ↑ earnings



Occupational sorting

- Nieken and Störmer (2010)
 - manual workers are less extroverted, agreeable, and open but more conscientious than other workers
- Winkelmann and Winkelmann (2008)
 - personality profiles differ across occupations and worker/job matching affects reported life satisfaction

- Nandi and Nicoletti (2009)
 - decompose pay gaps between personality groups (using BHPS data) into explained (occupation, education, work experience) and unexplained components
 - Pay premium for openness: explained by occupation and education
 - Pay premium for extraversion and penalty for neuroticism and agreeableness not explained by observed qualifications.



Exception: Tavares (2010) examines timing of childbearing

- Agreeableness, extraversion, and neuroticism lead to earlier childbearing
- Openness and conscientiousness delay childbearing
- Interpreted as reflective of preferences for children



A neoclassical application to marriage and divorce

- Do personality traits reflect preferences or constraints?
- Borghans, Duckworth, Heckman, and ter Weel (2008): Personality defines individual capacities and imposes constraints on individual choices.



Personality and marital surplus: A conceptual framework

- Decision to marry:
 - individuals compare expected utility of marriage and single life
 - gains to marriage/cohabitation depend on production and consumption complementarities

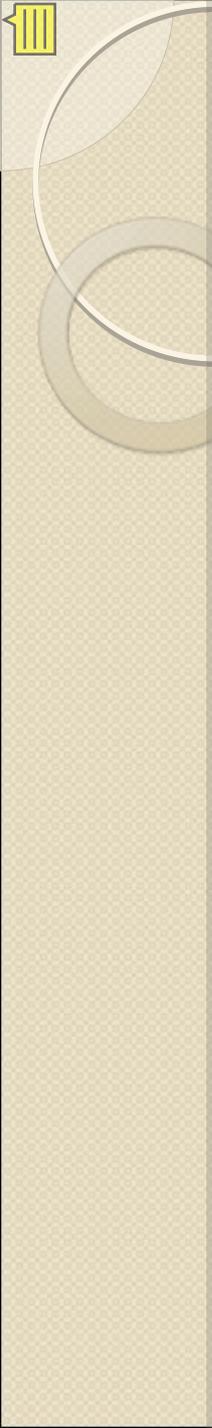
Production complementarities

- Becker's model of the household as a small factory: Marital surplus is generated by economies of scale, and by the returns from specialization and exchange within the household
- Better to match individuals with different skills (capabilities), and different preferences about time use



Consumption complementarities

- Joint consumption of household public goods (children, housing)
- Value of shared leisure time
- Implies positive assortative mating on preferences for these goods (Lam, 1988)



Production and consumption complementarities have different implications for the relationship between marital surplus and psychological characteristics

- are men and women with similar or different characteristics selected into marriage?

Individual preferences and marital surplus

- Preferences of each partner:

$$U_i(Q, x_i) = A(Q)x_i + B_i(Q)$$

Utility is transferable within the household.

Assume cooperative decisionmaking; the efficient level of Q satisfies:

$$\begin{aligned} MRS_1 + MRS_2 &= A'(Q)(x_1 + x_2) \\ &\quad + B'_1(Q) + B'_2(Q) = p \\ x_1 + x_2 + pQ &= Y_1 + Y_2 \end{aligned}$$

- No public good consumed when single and

$$A(0) = 1 \quad , \text{ so } U_i^S(Y_i) = Y_i$$

- Let $B_i(Q) = \beta_i Q$

- then marital surplus is:

$$\begin{aligned} S = U_1^m + U_2^m - U_1^S - U_2^S = \\ A(Q)(x_1 + x_2) + (\beta_1 + \beta_2)Q \\ + c_1^m + c_2^m - Y_1 - Y_2 \end{aligned}$$

1. Personality and tastes for the marital public good

- If a personality trait z_0 increases the value of the household public good, so that:

$$\beta_i(z_{0i}) \quad \text{where} \quad \frac{\partial \beta}{\partial z_0} > 0$$

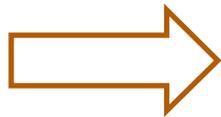
then marital surplus will be increasing in this trait for both men and women, i.e. it should have similar effects on the probability of marriage

- Random matching:

For a woman with personality z_{01}^*

there will be some $\bar{z}_{02}(z_{01}^*)$ such that

$s \geq 0$ for all partners for whom $z_{02} \geq \bar{z}_{02}$



Probability of marriage will be increasing in the value of her personality trait.

2. Personality and household production

- Suppose that, instead of buying Q , we produce it at home by combining time and market goods:

$$Q = F(t, G)$$

$$t = \alpha_1 t_1 + \alpha_2 t_2$$

$$T = t_1 + h_1 = t_2 + h_2$$

$$w_1 h_1 + w_2 h_2 = x_1 + x_2 + p_G G$$

- 
- Let market productivity be enhanced by one personality trait, Z_a , and home productivity by another trait, Z_b
 - With a gender gap in wages such that

$$w_2(\bar{Z}_a) > w_1(\bar{Z}_a)$$

women will tend to specialize in home production

- With random matching, women's probability of marriage will be increasing in Z_b , men's in Z_a

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- Empirical question: Do the same characteristics explain the propensity to marry and divorce for men and women, or is there some evidence of production specialization?



Sample and Outcomes: SOEP

- ▶ Household heads, spouses, and partners 18 to 59 in 2005—9,790 individuals
- ▶ Life-cycle outcomes for age-appropriate samples:
 - ever-married by age 35
 - divorce hazard conditional on first marriage

SOEP Big Five Personality Traits (2005):

I see myself as someone who ...

(7-point scale from 'applies to me perfectly' to 'does not apply to me at all')

- is original, comes up with new ideas
- values artistic experiences
- has an active imagination

⇒ Openness to experience

The Probability of Marriage by Age 35

	Women	Men
“Big 5” Personality Traits		
Openness to Experience	-0.041**	-0.035**
Conscientiousness	0.030	0.051**
Extraversion	0.041**	0.020
Agreeableness	0.032**	-0.021
Neuroticism	0.027**	-0.001
Observations	3429	3196

Marriage by Age 35, Older cohorts

	Women	Men
“Big 5” Personality Traits		
Openness to Experience	-0.011	-0.028
Conscientiousness	-0.018	0.054**
Extraversion	0.066**	0.040**
Agreeableness	0.044**	-0.040**
Neuroticism	0.037**	0.011
Observations	1800	1696

Marriage by Age 35, Younger cohorts

	Women	Men
“Big 5” Personality Traits		
Openness to Experience	-0.062**	-0.046**
Conscientiousness	0.069**	0.047*
Extraversion	0.017	0.004
Agreeableness	0.028	-0.004
Neuroticism	0.020	-0.025
Observations	1629	1500



Sources of marital surplus:

- Younger cohorts: Willingness to comply with conventional norms, low demand for variety and change increase the value of marital public goods
 - same effects for men and women.
 - indicates consumption complementarities
- Older cohorts: Nurturing, sociable, emotional women more likely to marry; antagonistic men
 - gender differences in contribution to marital surplus suggest production complementarities



Other psychological and preference variables

- Internal vs. external locus of control
- Positive and negative reciprocity
- Willingness to trust others
- Risk aversion

⇒ Few significant coefficients and little impact on personality effects.

Divorce Hazard Ratios—First Marriages

	Women	Men
“Big 5” Personality Traits		
Openness to Experience	1.039*	1.048**
Conscientiousness	1.018	0.943**
Extraversion	1.031	1.045**
Agreeableness	0.987	0.996
Neuroticism	1.024	0.994
Observations	3830	3231

Divorce Hazard Ratios—Older cohorts

	Women	Men
“Big 5” Personality Traits		
Openness to Experience	1.026	1.076**
Conscientiousness	1.020	0.940*
Extraversion	1.023	1.053*
Agreeableness	0.938**	0.993
Neuroticism	1.037*	0.974
Observations	1688	1563

Divorce Hazard Ratios—Younger cohorts

	Women	Men
“Big 5” Personality Traits		
Openness to Experience	1.059**	1.009
Conscientiousness	1.009	0.958
Extraversion	1.030	1.039
Agreeableness	1.041	0.996
Neuroticism	1.009	1.024
Observations	2142	1668

Divorce Hazard Ratios-Men

“Big 5” Personality Traits		
Openness to Experience	1.048**	1.056**
Conscientiousness	0.943**	0.944**
Extraversion	1.045**	1.038*
Agreeableness	0.996	1.020
Neuroticism	0.994	0.979
Trust		0.887**
Risk Aversion		0.968
Locus of Control		0.998
Positive Reciprocity		0.994

Divorce Hazard Ratios-Women

"Big 5" Personality Traits		
Openness to Experience	1.039*	1.044**
Conscientiousness	1.018	1.023
Extraversion	1.031	1.013
Agreeableness	0.987	1.005
Neuroticism	1.024	1.009
Trust		0.912**
Risk Aversion		0.923**
Internal Locus of Control		0.980**
Positive Reciprocity		1.012



Union dissolution related to 3 factors:

- Low marital surplus (high openness, low agreeableness—women, low conscientiousness—men)
- Arrival and assessment of alternatives (extraversion, risk tolerance)
- Emotional instability/negative affect (neuroticism, reciprocity, external locus of control)



A digression: Personality and causality

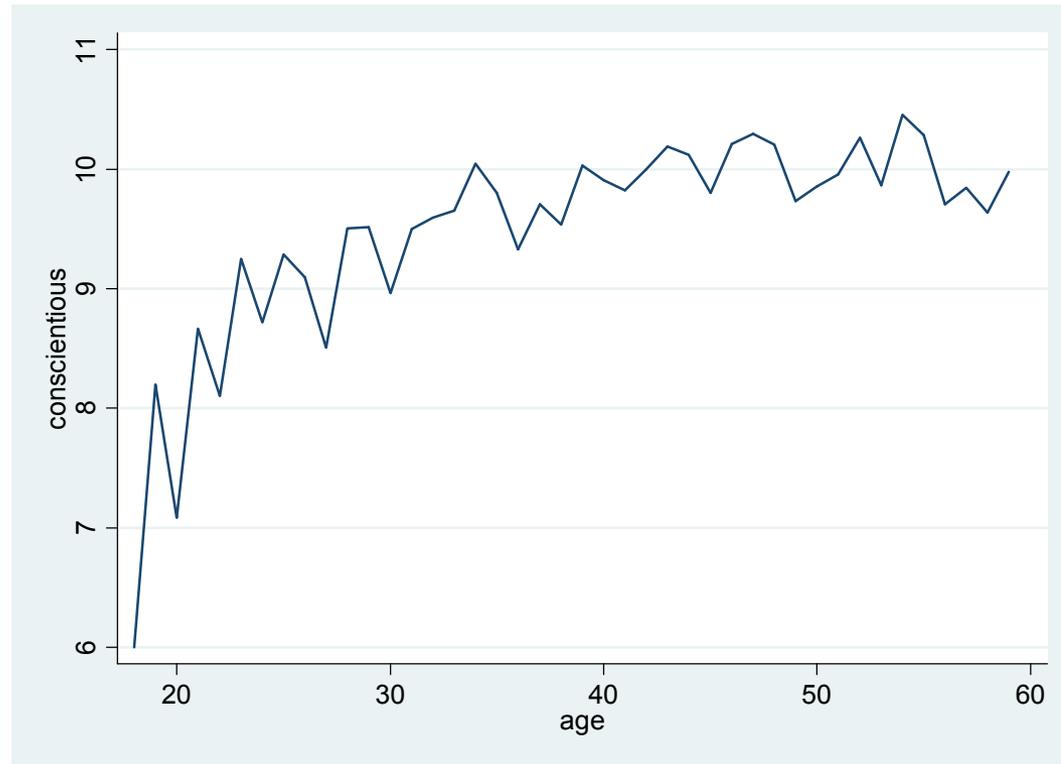
- Considerable research on internal validity, replication across samples
- Increasing longitudinal research but open questions:
- Are personality measures context-specific?
- Is personality affected by experience?



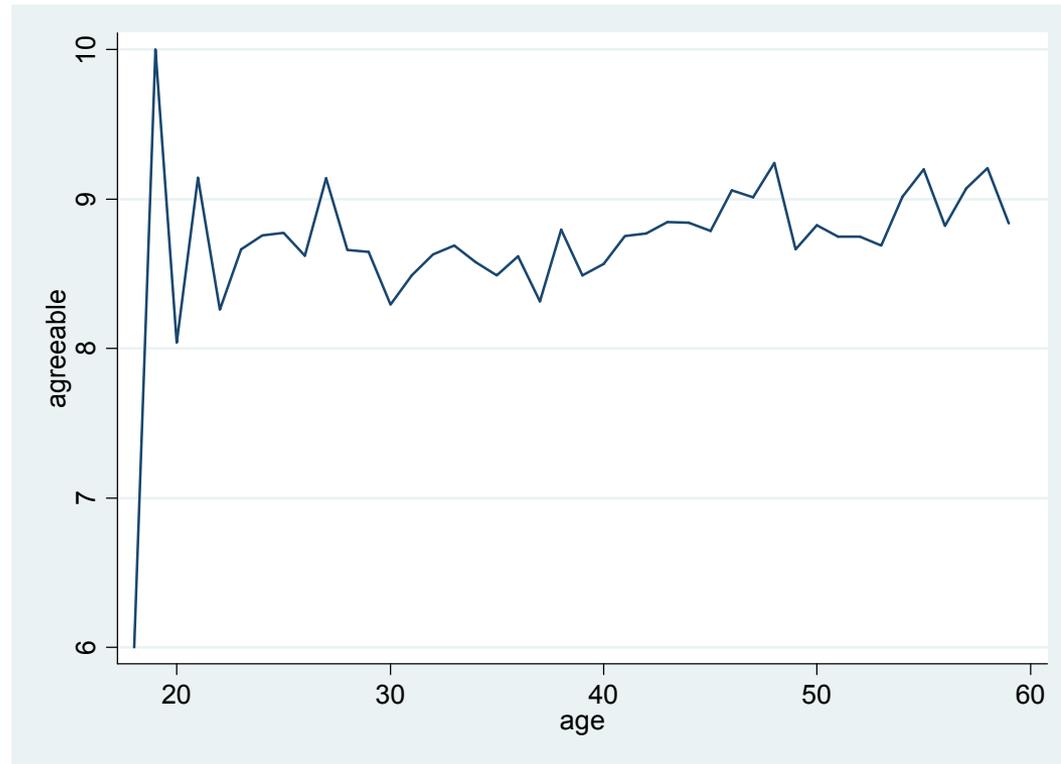
Longitudinal studies of personality

- Some systematic changes with age
 - age-normed in these estimates
- Some changes in early adulthood and late in life, but...
- Relative personality seems to be very stable over adult life

Some systematic variation over lifecycle—Conscientiousness, men



Some traits are very stable: Agreeableness, women



A behavioral approach to family behavior:

- Limited cognition, limited self-control relevant for complex, long-term family arrangements
- Role of emotion in family decision-making
- Difficult to test departures from rationality



Excessive optimism in marriage:

- Newly-married couples do not expect to divorce
- Samuel Johnson, on a second marriage: “the triumph of hope over experience”
- Thaler, Sunstein (“Nudge”) note failure to expect divorce but limit their “nudging couples” recommendations to establishing clear default guidelines for divorce—property division and child custody



Marriage as a commitment device:

- Standard treatment—uncertainty, exit costs, family-specific investments.
- Divorce costs as a deterrent to impulsive behavior, mechanism for behavioral control
 - Akerlof: “Men Without Children” 1998
 - marriage changes men’s behavior
 - work, crime, substance abuse
 - marriage reduces behavioral options



Can personality traits predict departures from rational, forward-looking behavior?

Divorce and self-control:

- Low conscientiousness and high neuroticism:
 - Strongly related to mortality as well as divorce for older cohorts
 - part of the impact of personality on mortality via health behaviors—smoking, drugs, alcohol
 - impulsivity, immoderation



Divorce and cognition:

- Cognitive skills predict rational financial planning and savings decisions in the Health and Retirement Study
- Cognitive ability is negatively related to divorce in the National Longitudinal Survey of Youth 1979 (Blazys, 2009), even after controlling for education

Personality traits:

- Robust effects on propensities to marry and divorce
- Cohort changes consistent with shift in source of marital surplus
- Some traits appear to be related to limited self-control, biased judgments in other domains
- Another dimension of human diversity on which we have acquired large amounts of data
- Analysis of personality-family relationships may improve understanding of partnership and parental decision-making, and responses to policy/institutional environments