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Determinants of online sperm donor success: how women choose

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ABSTRACT

Because the worldwide demand for sperm donors is much higher than the actual supply available through fertility clinics, an informal online market has emerged for sperm donation. Very little empirical evidence exists, however, on this newly formed market and even less on the characteristics that lead to donor success. This article therefore explores the determinants of online sperm donors' selection success, which leads to the production of offspring via informal donation. We find that donor age and income play a significant role in donor success as measured by the number of times selected, even though there is no requirement for ongoing paternal investment. Donors with less extroverted and lively personality traits who are more intellectual, shy and systematic are more successful in realizing offspring via informal donation. These results contribute to both the economic literature on human behaviour and on large-scale decision-making.

KEYWORDS

Online sperm donor market; informal market; offspring; donor success; personality traits

JEL CLASSIFICATION

J13; D10

I. Introduction

Because an excessive demand for sperm donors has led to an acute shortage of gametes donors worldwide (Van Den Broeck et al. 2012; Yee 2009), an informal[1] online market has emerged to accommodate additional demand. As yet, however, we have limited empirical understanding of how such a market works. Being a new phenomenon that is not subject to any uniform set of laws, the use of this market may be enhanced by factors such as resource constraints, information asymmetry, institutional or social discord, logistics issues, ongoing contact, perceived prejudice or simply just a lack of time. In some countries (e.g. Canada), the purchase, sale or advertisement of gametes is even illegal, with punishments including a fine up to $500 000 or/and imprisonment for up to 10 years (Yee 2009). Nevertheless, this market allows men and women to capitalize on the Internet's capacity as a conduit for the sperm donation process.

The significant growth in the global demand for donated gametes over the last three decades has motivated researchers from a range of disciplines to explore the characteristics, attitudes and motivations of gametes donors (Riggs 2008; Robinson et al. 1991; Thorn, Katzorke, and Daniels 2008; Van Den Broeck et al. 2012). The bulk of such research focuses predominantly on the motivation of men who donate their semen, primarily acknowledging the monetary and altruistic motivations in their decision-making process (Cook and Golombok 1995; Daniels 1987; Lui et al. 1995). Despite a large body of literature on such post-donation dynamics as contact and donor disclosure (Daniels et al. 2005; Jadva et al. 2011; Scheib and Cushing 2007), however, *ex ante* research that explores the demographic and physical characteristics or personality traits of gametes donors is limited (Hedrih and Hedrih 2012; Schover, Rothmann, and Collins 1992). Even less research is available on the men who donate in informal settings (Bossema et al. 2014; Riggs and Russell 2010), and to the best of our knowledge, this article is the first to include males that are donating gametes purely through unregulated websites and forums.

In the formal sector, donation agencies substantially coach donors to generate a profile that is saleable. For example, Almeling (2006) reports an agency assistant director saying 'I don't want you to be somebody that you're not, but think of being

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[1]For example, through sperm donation forums and websites on the Internet.

sensitive to their needs and feelings' (149). Another donor manager from Western Sperm Bank encouraged donors to rewrite portions of their profile (150). The problem with sperm banks, however, is that they preselect individuals based on their notion of potentially successful sperm donor candidates, which biases the actual possibility set of recipients. For example, CryoCorp and Western Sperm Bank have located themselves close to prestigious universities in order to attract young, healthy, well-educated individuals with great career potential (Almeling 2007). The online donor market, in contrast, permits more interaction between the recipient and the donor, which allows us to explore a set of individual donor characteristics and their implications for the likelihood of being picked and realizing offspring. In particular, research has shown that humans are good at judging personality traits with only minimal exposure to appearance and behaviour (Ambady and Rosenthal 1992; Bar, Neta, and Linz 2006) and that when provided with visual and vocal information, humans can ascertain 'relatively accurate assessments of intelligence in strangers' in as little as one minute (Murphy, Hall, and Colvin 2003, 485).

II. Data and method

Data collection ran from 23 November 2012 to 1 March 2013 and began with the posting of the online survey's URL on regulated (paid), semi-regulated and unregulated (free) online sperm donation forums and websites.[2] The survey URL was also emailed to donors (inviting them to participate) who had posted an email address on any of the sites listed. All participant information, surveys and procedures (detailed in Whyte and Torgler 2015) were obtained and handled in accordance with the QUT Ethics guidelines (QUT Ethics Approval Number 1200000106).

The sample consists of 56 males who identified themselves as currently seeking to 'donate my sperm to someone' in an informal setting and were asked to complete a questionnaire. Although not large, the sample size is consistent with many sperm donor studies on the formal sector. In fact, as Van den Broeck et al. (2012) point out in their literature review, the median sample size for many studies is 52 (13). Our participants are between 23 and 66 years of age, with 94% being Caucasian, 84% self-identifying as heterosexual and 94% giving their current country of residence as Australia, Canada, the UK, Italy, Sweden or the US. Only 9% of the sample are students, with 77% reporting an undergraduate or higher level of educational attainment. 61% earned an annual wage greater than $50 000. Of those with children by donation, 73% currently had some form of ongoing contact (mail, email, phone, video link or even in person) with at least one of their donor children.

III. Results

Because the number of times a donor has realized offspring via informal donation is not normally distributed (M = 3.089, SD = 4.933, min = 0, max = 23), we use a negative binomial regression to handle overdispersion and include marginal effects (see Tables 1 and 2). Because of the number of available observations, we limit the number of independent factors to no more than nine. We rely on factors that recipients can most easily evaluate when interacting with donors, while also taking into account the individual characteristics in donor self-assessments. We find that *income*[3] and *health*[4] are positively correlated with being selected and hence with offspring success (see specification (1)). A one unit increase in income is linked on average with 0.728 more offspring success, statistically significant at the 1% level. Moreover, according to specification (2), the self-rated attribute of *intellectual*[5]

[2]VoyForum.com, TadpoleTown.com, BubHub.com, FertilityFriends.co.uk – Infertility and Fertility Support, PSD (privatespermdonor.com), Co-Parent.net, Co-ParentMatch.com, PrideAngel.com and Modamily.com.

[3]My annual wage would be in the range of 1 = below $20 000, 2 = $20 000–$50 000, 3 = $50 000–$80 000, 4 = $80 000–$110 000, 5 = $110 000–$150 000, 6 = $150 000–$180 000, 7 = $180 000–$210 000, 8 = $210 000–$240 000, 9 = $240 000–$270 000, 10 = $270 000–$300 000 and 11 = above $300 000.

[4]All things considered, how would you describe your health (1 = very unhealthy, 7 = very healthy).

[5]How well do the following words describe you? For each word, select one box to indicate how well that word describes you. There are no right or wrong answers. 1 = Does not describe me at all, 7 = Describes me very well. All the other self-rated attributes have the same scale (*systematic, extroverted, lively, shy, fretful*).

Table 1. Selection success.

Dep. Var.: offspring success	(1)	(2)	(3)
Age	−0.335***	−0.370***	−0.364***
	(−2.82)	(−3.54)	(−3.27)
	−0.911	*−0.984*	*0.985*
Age^2	0.004***	0.004***	0.004***
	(2.64)	(3.30)	(3.06)
	0.011	*0.116*	*0.011*
Height	0.221	0.108	0.213
	(1.06)	(0.50)	(1.07)
	0.602	*0.287*	*0.576*
Weight	−0.050	0.106	−0.022
	(−0.40)	(0.62)	(−0.19)
	−0.135	*0.282*	*−0.589*
Education	0.010	0.078	−0.009
	(0.06)	(0.43)	(−0.05)
	0.027	*0.206*	*−0.023*
Annual income	0.267***	0.156	0.226**
	(2.87)	(1.46)	(2.30)
	0.728	*0.415*	*0.613*
Health	0.235**	0.162	0.204**
	(2.04)	(1.42)	(2.15)
	0.640	*0.430*	*0.552*
Intellectual		0.450**	
		(2.42)	
		1.196	
Systematic			0.239**
			(2.06)
			0.647
N	48	48	48

Notes: Marginal effects in italics, *z*-statistics in parentheses; *, ** and *** represent statistical significance at 10, 5 and 1% levels, respectively.

Table 2. Extraversion versus shyness.

Dep. Var.: Offspring Success	(4)	(5)	(6)	(7)
Age	−0.359***	−0.397***	−0.516***	−0.338***
	(−3.37)	(−3.63)	(−3.49)	(−3.19)
	−0.949	*−1.052*	*−1.455*	*−0.909*
Age^2	0.004***	0.005***	0.006***	0.004***
	(3.07)	(3.40)	(3.33)	(2.89)
	0.113	*0.013*	*0.167*	*0.011*
Height	−0.149	0.179	−0.068	0.044
	(−0.71)	(0.94)	(−0.31)	(0.23)
	−0.393	*0.474*	*−0.191*	*0.118*
Weight	0.121	0.080	0.150	0.098
	(0.85)	(0.54)	(0.87)	(0.68)
	0.319	*0.212*	*0.422*	*0.263*
Education	−0.012	0.103	0.117	−0.040
	(−0.08)	(0.60)	(0.71)	(−0.24)
	−0.032	*0.275*	*0.330*	*−0.109*
Annual income	0.229**	0.144	0.222**	0.206**
	(2.42)	(1.42)	(2.13)	(2.15)
	0.605	*0.381*	*0.627*	*0.555*
Health	0.053	0.151	0.027	0.113
	(0.38)	(1.25)	(0.18)	(0.85)
	0.141	*0.401*	*0.076*	*0.304*
Intellectual	0.521***	0.390**	0.675***	0.358**
	(2.89)	(2.23)	(3.32)	(1.98)
	1.378	*1.036*	*1.903*	*0.962*
Extroverted	−0.323***			
	(−3.84)			
	−0.854			
Fretful		−0.177*		
		(−1.73)		
		−0.471		
Lively			−0.476***	
			(2.11)	
			−1.344	
Shy				0.242**
				(2.40)
				0.651
N	48	48	48	48

Notes: Marginal effects in italics, *z*-statistics in parentheses; *, ** and *** represent statistical significance at 10, 5 and 1% levels, respectively.

is very dominant compared with *education*,[6] reducing the impact of annual income and reporting marginal effects of 1.196.

To understand this aspect better, we substitute *intellectual* with the self-rated attribute *systematic*. This latter reflects the fact that whereas formal donation requires only the provision of a sample in a medical setting at a time and place convenient to the donor, the unregulated online setting requires donors to be more organized, methodical and efficient. Online donation could thus incorporate logistical coordination, financial cost and precise timing to meet the needs of the recipient. In general, according to the evolutionary theory of parental investment (Trivers 1972), women bear a heavier cost in human reproduction, leading to a preference for more intelligent or systematic donors even though paternal investment may not be required post-insemination. Although the effect size for *systematic* is smaller than for *intellectual*, both *income* and *health* again become statistically significant when *intellectual* is not controlled for. We also observe a U-shaped relation for *age* and *offspring success*.

Interestingly, when we retain *intellectual* because of its strong impact and add such factors as *extroverted, lively* and *shy* or *fretful*, being more extroverted or lively does not pay off while being shy does, suggesting that introverted and shy people enjoy a 'success premium'. According to the research, not only is shyness associated with a preference for conversing online (Ebeling-Witte, Frank, and Lester 2007) but shy people choose smaller networks of friends and tend to choose friends who are also shy (Besic et al. 2009). The negative externality is particularly strong for the variable *lively*: a one-unit increase in liveliness reduces the number of offspring successes by more than one (1.344).

[6]My highest level of education achieved at this point in time (1 = below Grade 10, 2 = Grade 10, 3 = Grade 11, 4 = Grade 12, 5 = Technical college (prevocational, trade college, apprenticeship), 6 = undergraduate university study (diploma, bachelor's), 7 = university (graduate diploma, graduate certificate, master's), 8 = doctorate/PhD.

A minimally surprising finding is that recipients are less likely to choose the sperm of fretful men. Two studies by Murphy, Hall, and LeBeau (2001, 2003), for example, demonstrate that fidgeting is negatively associated with perceived intelligence, which may explain why fretful is negatively correlated with donor success. Being socially awkward, nervous or overtly outwardly oriented or active in initial encounters may also diminish recipient trust in the donor or recipient perceptions of donor confidence. The results reported in Table 2 also indicate that income remains statistically significant in three out of four cases even after *intellectual* is controlled for. Overall, personal characteristics matter more than physical traits like height, weight or health.

IV. Conclusions

Because the choice of a biological father is a major decision in any household, the new, emerging, informal market for sperm donation provides novel challenges and opportunities for investigation. Although in this article we limit empirical insights into the negative externalities of an informal online market that does not regulate donor quality, our results indicate that, in general, female choices in this informal environment seem carefully thought out. Personal attributes such as being intellectual, shy or systematic or having a certain level of income are rewarded, while the attributes extroverted, lively or fretful are punished. These results contribute to both the economic literature on human behaviour and on large-scale decision-making. Further research into this burgeoning market is warranted, both to assist those participating and to inform any potential future policy decisions.

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