

AND A VISION APPEARED UNTO THEM OF A GREAT PROFIT: EVIDENCE OF
SELF-DECEPTION AMONG THE SELF-EMPLOYED*

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Abstract

Evidence is presented that the self employed expect better financial outcomes than do employees but experience worse realisations. This is consistent with theories that entrepreneurship is driven by unrealistic optimism.

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Introduction

According to Adam Smith 'The chance of gain is by every man more or less over-valued and the chance of loss is by most men under-valued.' (Smith, 1937, p.107). Actors and barristers, then as now, were classic cases who perceived a low probability of very high earnings, but imagined it to be not as low as it really was. A substantial body of modern psychological research, surveyed in de Bondt and Thaler (1995), validates Smith's perspective. In particular, Shelley E. Taylor (1986), among others, distinguishes between excess optimism about events you cannot affect and excess optimism about those you can. The second kind, much empirical work finds, involves even less realistic expectations than the first.

These considerations lead de Meza and Southey (1996) to suggest that entrepreneurs will be drawn disproportionately from the super optimists. Not only are entrepreneurs in control, but the inherent unpredictability of returns means that an optimistic bias makes entrepreneurship seem especially attractive.¹ Pessimists and realists tend to opt for the more predictable returns associated with employee status. People start up businesses and crowd into the self-employed sector until the subjective expected return of the marginal entrant is zero. But optimists' expected returns do not fall to zero until correctly estimated returns are negative. Realists will have withdrawn from entrepreneurship by this stage and hence, in the model, though not all optimists necessarily become entrepreneurs, all entrepreneurs will be optimists. De Meza and Southey derive a series of testable implications of this model. Here, some direct evidence on financial expectations is reported.

¹ See also Manove, (1997), Manove and Padilla (1997) and Niehans (1997).

The Evidence

Our data is from the British Household Panel Study and covers the years 1990-96. Each year panel members were asked ‘Would you say that you yourself are better off, worse off or about the same financially than you were a year ago?’ and ‘Looking ahead, how do you think you yourself will be financially a year from now; better than you are now, worse off than you are now, or about the same?’ For each individual in each year therefore, there were nine possibilities (the three predictions multiplied by the three outcomes). Aggregating the data over the five years for which forecast and realisation are available yields Tables 1 and 2 below. Employment status is that recorded in the forecast year.² The first bracketed figure in a cell shows the percentage of those making the specified forecast who experienced the particular realisation, and the second bracket is the percentage of those experiencing the specific realisation making the indicated forecast. The brackets in the bottom row and final column are the overall percentages.

² Ideally, we would like data on expectations of the returns to self employment prior to becoming self employed, but it is unlikely that choosing to become self-employed creates optimism; if anything the experience of self employment would be sobering.

TABLE 1 -- EMPLOYEES

	Realisation			
	better	same	worse	total
Forecast				
better	(48.3)3133(50.5)	(30.6)1984(24.1)	(21.1)1376(24.4)	(100.0) 6493 (32.4)
same	(24.3)2603(42.0)	(50.1)5376(65.4)	(25.6)2749(48.8)	(100.0)10728 (53.5)
worse	(16.5) 467 (7.5)	(30.3) 859(10.5)	(53.2)1509(26.8)	(100.0) 2835 (14.1)
TOTAL	(30.9) 6203 (100.0)	(41.0) 8219 (100.0)	(28.1) 5634 (100.0)	(100.0)20056(100.0)

TABLE 2 -- SELF-EMPLOYED

	Realisation			
	better	same	worse	total
Forecast				
better	(43.3)457(55.5)	(33.3)351(28.3)	(23.4)248(29.4)	(100.0)1056(36.3)
same	(20.7)313(38.0)	(52)784(63.1)	(27.3)412(48.9)	(100.0)1509 (51.9)
worse	(15.7)54(6.6)	(31.1)107(8.6)	(53.2)183(21.7)	(100.0) 344 (11.8)
TOTAL	(28.3)824 (100.0)	(42.7)1242 (100.0)	(29.0) 843 (100.0)	(100.0)2909 (100.0)

As a first take on the data, note that for the self employed 4.6 times as many people forecast an improvement but experienced a deterioration as forecast a deterioration but experienced an

improvement. For employees the ratio is 2.9. The ratio of those making optimistic errors of all sorts to pessimistic errors of all sorts is 2.13 for the self-employed whereas for employees the corresponding figure is 1.55.⁴ This all suggests a general tendency to excess optimism which is even more pronounced for the self-employed.³ The same conclusion is indicated by the fact that for both groups, the percentage of correct forecasts is greater when predicting deterioration rather than improvement, and the difference is greatest for the self employed. Again, it is notable that for the self employed the ratio of those forecasting improvement to experiencing it is 1.28 whereas for deteriorations the ratio is 0.41. The corresponding ratios for employees are 1.01 and 0.5, also the optimistic pattern, but not so extreme.

Another approach is to infer the mean of the underlying continuous distribution of percentage income changes from the categorical survey data. The functional form of the underlying distribution must be assumed, most usually the logistic (see e.g. Wren-Lewis (1985)).

Applied to our data, the procedure implies that the mean expected percentage increase in income is 33% higher for the self employed than employees, although applied to the realisations the method yields a small fall in average income of the self employed in contrast to a rise for employees.⁵

Although this procedure quantifies the difference in optimism, a non parametric approach is

³ As the self employed experienced a slightly higher proportion of worse realisations (in which case errors can only be optimistic), there is a bias in favour of finding the self employed more optimistic. This problem is avoided by looking at the distribution of realisations for the forecast of unchanged income, which for the self-employed are much more concentrated in the worse than the better tail than is true of employees. It is possible but seems implausible that for those most likely to stay the same, the objective probability of a worsening is greater than of improvement, and the difference is most marked for the self employed.

⁴ Throughout the paper it is implicitly assumed that realisations are reported without bias. It could be that in an attempt to minimise cognitive dissonance, the self employed are also prone to exaggerate realisations. This would strengthen our conclusions.

⁵ Computing the expected and realised income changes requires knowledge of the unobservable interval within which income changes are not noticeable. As this parameter enters multiplicatively in the logistic case, the ratio of forecast to realisation is invariant to it.

less restrictive. So, we now test the following propositions:

1) The self-employed unambiguously forecast better outcomes than the employed

(2) The self-employed unambiguously experience worse outcomes than the employed

(3) Even employees are over-optimistic

(1) Our criterion for deciding the first question is whether the distribution of forecasts for the self-employed can be generated from that for the employees by transferring probability weight from lower forecasts to higher. It can; taking the forecasts of employees, the forecast distribution of the self-employed can be obtained by transferring 2.3% of the sample from the worse off to the no change forecast, and 3.9% from forecasting no change to predicting they will be better off. As our data are samples, when stochastic dominance is satisfied, it should be tested whether the finding is statistically significant. The methodology for doing this is as follows. Let the proportion of pessimists, realists and optimists amongst the employees be θ_1 , θ_2 and $\theta_3 (= 1 - \theta_1 - \theta_2)$, and the proportion of pessimists, realists and optimists among the self-employed be $\theta_1 - \theta_{12}$, $\theta_2 + \theta_{12} - \theta_{23}$, $\theta_3 + \theta_{23}$. The transfer test is whether there exist $\theta_{12} > 0$ and $\theta_{23} > 0$.

We reject the null hypothesis $\theta_{12} = \theta_{23} = 0$, that the self-employed are no more excessively optimistic, if θ_{12} and θ_{23} are both non-negative and at least one of them is positive. The null hypothesis may be tested against this alternative by a test statistic with a Generalised Likelihood ratio test, leading to an asymptotic chi-squared distribution. The null is rejected

with a chi-squared statistic of 531.39 as against the 5.99 critical value under the null at the 5% significance level.

(2) So the self-employed expect better outcomes. To show they are more *over*-optimistic than the employed, it is now sufficient to show that their realisations are less good (which is itself evidence of excess entry). Again we use the transfer test: taking the realisations of employees, the realisation distribution of the self employed can be obtained by transferring 2.6% of the sample from better off to no change and 0.9% from no change to worse off. The likelihood ratio test on this occasion comes up with a chi-squared statistic of 8377.16.

(3) Finally we establish that even the employed are overoptimistic. In our sample, 32.4% of them expected to be better off but only 30.9% were, while only 14.1% expected to be worse off but in the event 28.1% were. Clearly the transfer test is passed, while the likelihood ratio test gives a chi-squared statistic of 1354.46.

It follows from all this that the self-employed are more liable to excess optimism.⁶ This presumably means that the excessively optimistic are more liable to self-employment, and in Table 3 we look directly at whether optimism influences the likelihood of working for yourself. Because there may be characteristics (sex, age etc.) which might *both* influence your degree of excess optimism *and* affect the decision to be self-employed irrespective of your degree of excess optimism, it is appropriate for our test to include underlying

⁶ Forecasts may differ between the groups not only because of biased reasoning but also because it may be intrinsically harder to predict outcomes for one group. The noisier the signals the less dispersed will rational forecasts be. At first this seems a serious problem in concluding that the evidence indicates overoptimism. For example, fewer of the self-employed forecast "no change", but this could be caused *either* by greater dispersion, *or* by greater optimism outweighing the effects of smaller dispersion. In fact, it is not a problem. If the self-employed's forecasts are more (less) dispersed, then the fact that fewer (more) of them predict "worse (better) off" is even more decisive evidence that they are more optimistic than the employed, even if the fact that more (fewer) predict "better (worse) off" can no longer be interpreted.

characteristics, as well as forecasts, as independent variables.

Consider the results of Table 3. The first coefficient in Table 3 is the effect of a dummy for forecasting “better off”, with “worse off” as the benchmark. The second coefficient measures whether forecasting no change rather than “worse off” makes it more likely that the individual is self-employed. As implied in the discussion of Tables 1 and 2, the theory does not make a prediction as to whether the self-employed are more likely to forecast no change. But the coefficient on “forecast better off” is highly significant. Once again, the evidence is that unrealistic optimism is a hallmark of self employment.

Table 3 -- Logistic regression with employment status as the dependent variable[†]

number of obs = 22965

pseudo R² = 0.0818 chi² (14) = 1428.50, p < 0.0000

<u>variable</u>	<u>coefficient</u>	<u>asymptotic t-ratio</u>
forecast better off	0.680	9.71
forecast same	0.267	4.08
university*	-0.078	1.03
hnd/hnc*	0.000	0.00
a level*	0.275	4.22
o level*	0.140	2.47
cse*	0.248	2.57
disabled	0.040	0.19
age	0.097	8.97
age squared	-0.001	5.42
married	0.139	2.71
homeowner	0.382	5.35
mortgage	-0.017	0.28
male	1.060	23.30

[†] Self-employed = 1, employees = 0

* Highest educational qualification attained. O-levels were typically taken in 8-10 subjects around the age of 16. CSE's were a simple version for less able children. (Both have since been replaced by the GCSE.) A-levels are taken in 3 or 4 subjects at around age 18, and usually lead to either hnd/hnc (one or two-year diplomas normally awarded by colleges of further education) or a university degree.

Finally, we investigate the intrinsic determinants of optimism. Since self employment does seem to screen out pessimism, it is appropriate to drop employment status. Table 4 does this.

Table 4 -- Ordered logistic regression with forecast error as dependent variable

number of obs = 22965

pseudo R² = 0.0020 chi² (12) = 114.17, p < 0.0001

<u>variable</u>	<u>coefficient</u>	<u>asymptotic t-ratio</u>
university	-0.2994	6.71
hnd/hnc	-0.0683	1.45
a level	-0.0824	2.02
o level	0.0175	0.51
cse	-0.0262	0.47
disabled	0.0390	0.28
age	0.0198	3.17
age squared	-0.0003	3.56
married	-0.0256	0.85
homeowner	-0.2294	-5.08
mortgage	-0.1239	3.73
male	0.0753	3.02

Unrealistic financial optimism is lower for the better educated, peaks at age 36, is less for women and singles. The first two are plausible. It would be disturbing if education and experience *didn't* produce a more sober and realistic frame of mind. The importance of gender may be a little less obvious at first, but is consistent with evolutionary psychology, as indeed is optimism itself.⁷ The starting point is that the prospect of future success generally makes a person more attractive as a partner. Now, the best way to convince another of your own abilities is to really believe in them. So, self delusion may be individually advantageous. Trivers (1972) applies this perspective to the differing genetic interests of men and women. Humans are a high male parental investment species, and females, with relatively few reproductive opportunities, will be concerned with a mate's commitment and future prospects. Men, with the potential to spread their genes much more widely, will be less concerned in screening mates. So, in his study of 37 cultures, Buss (1989) found that in all of

⁷ Manove (1997) argues that optimists survive because the over emphasis on good outcomes makes them more willing to work and save. An extension of this idea is that in a bias towards work offsets the partnership shirking involved in a Nash equilibrium. So, for objective reasons, optimists will be sought after partners and their irrational commitment may redound to their advantage.

them females placed more emphasis than males on a potential mate's financial prospects. Now a man who wants to attract a woman by sounding about-to-be-rich will do it most convincingly if he really believes it himself. Hence, males have most to gain by overoptimism and females from developing the psychological skills to detect such deceptions.

Conclusion

Psychologists have reported that most people are excessively optimistic in their expectations about a wide variety of events, particularly those perceived as under the individual's control. Applied to the choice of employment status, the implication is that the self-employed will be drawn from the most optimistic part of the population. We therefore investigated (i) whether people in general are over-optimistic (ii) whether the self-employed are the most over-optimistic of all. Our evidence is consistent with both these propositions. Entrepreneurs seem to be driven by wishful thinking.

REFERENCES

- BUSS, DAVID (1989). "Sex Differences in Human Mate Preferences : Evolutionary Hypotheses Tested in 37 Cultures", *Behaviour and Brain Sciences*, 12 : 1-49
- DE BONDT, W.F.M. and R.H. THALER (1995). "Financial Decision-Making in Markets and Firms: A Behavioural Perspective," in R. Jarrow et al., ed., *Handbooks in Operations Research and Management*, Vol. 9, Amsterdam: Elsevier Science, chapter 13, 385-410.
- DE MEZA, DAVID, and CLIVE SOUTHEY (1996). "The Borrower's Curse: Optimism, Finance and Entrepreneurship," *The Economic Journal*, 106, 375-86.
- MANOVE, M. (1997). "Entrepreneurs, Optimism and the Competitive Edge," Boston University, unpublished.

- MANOVE, M. and A. JORGE PADILLA (1997). "Banking (Conservatively) With Optimists," Boston University, unpublished.
- NIEHANS, J. (1997). "Adam Smith and the Welfare Cost of Optimism", *History of Political Economy*, 1997, Vol. 29, No. 2, 185-200.
- SMITH, ADAM (1937). *The Wealth of Nations*. Modern Library, New York (1st publ. 1776)
- TAYLOR, SHELLEY E. (1989). *Positive Illusions: Creative Self-Deception and the Healthy Mind*, Basic Books.
- TRIVERS, ROBERT (1972). "Parental Investment and Sexual Selection" in Bernard Campbell, ed., *Sexual Selection and the Descent of Man*, Aldine
- WREN-LEWIS, SIMON (1985) "The Quantification of Survey Data of Expectations" *National Institute Economic Review*, August:39-49