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The Impact of Seller Reputation on Price: Evidence from *The Da Vinci Code* and Amazon.com**

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I analyze the impact of seller reputation on prices using data from Amazon.com. The book, *The Da Vinci Code* was selected to investigate this impact because it is one of the best-selling books of all time and has a well-developed market for used copies. The results suggest that sellers with better reputations are more efficient than others and that the costs of developing these reputations are not passed on to consumers. In addition, the consumer benefits from lower prices. This result contrasts with those found by Melnik and Alm (2002) and Dewan and Hsu (2004). **JEL: D820, L810**.

♣ Helpful comments were received from William P. O'Dea, Michael Rossetti, and an anonymous reviewer. The views expressed do not necessarily represent those of the Internal Revenue Service of the United States.

1. Introduction and Background

The seminal work in the economics of information was completed by Stigler (1961). In that research, Stigler analyzed the influence of information on market price. He found that price advertising reduced the dispersion of asking prices. Rothschild (1973) surveyed the theoretical literature regarding the effect of incomplete information on market equilibrium. Akerlof (1970) focused on the relationship between information and quality using the automobile market as an example. He found that lack of consumer information led to a reduction in the average quality of used cars and also in the size of the market.

Nelson (1970) defines a search good as one whose qualities can be determined by the consumer before purchase. Likewise, he defines an experience good as one whose qualities cannot be determined before purchase. Nelson's basic hypothesis is that there will be more advertising for experience goods than for search goods. The difference in advertising intensity between search and experience goods is a result of the difference in the type of information that advertising provides to the consumer. The information that advertising of experience goods provides to the consumer is mainly that the brand advertises. Besides information that relates a brand with its function, there is little direct information contained in the advertising for experience goods. On the other hand, advertising for search goods provides direct information to the consumer about the qualities of a particular good. Thus "advertising of experience qualities increases sales through increasing the reputability of the seller, while advertising of search qualities increases sales by providing the consumer with 'hard' information about the seller's products" (Nelson 1974, p. 740). In order to test this hypothesis, Nelson looked at advertising to sales ratios for 1957 and found the mean ratio of the experience good category to be greater than the mean ratio of the search good category.

As a further test of this hypothesis, Leahy (2005) examined national-brand advertising in newspapers and merchandise line sales for 1972. Using Nelson's (1970, p. 325) classification of experience and search goods, the ratio of national-brand advertising in newspapers to sales by type of good was calculated. The results provide strong support for the hypothesis that there will be more advertising for experience goods than for search goods. Because this test used newspaper advertising data only, however, while Nelson's test was based on advertising expenditures in all media, these results are not as general. Their comparability to Nelson's results depends on the distribution of advertising expenditures by product category in newspapers versus that distribution in other media.

Using Yellow Pages data, Laband (1986) also found that the provision of consumer information for experience goods is greater than that of search goods. Furthermore, he found that because of greater consumer mobility, these advertisements contained more information in the Washington, DC area than in Baltimore, MD, where consumers develop alternative sources of product information. In a subsequent paper, using newspaper advertisements from 1986, Laband (1991) found that seller provided information is a positive function of product price. Using a classification of 1987 magazine advertisements based on survey data, Ford, Smith, and Swasy (1990), found that consumers are more skeptical of experience good claims than of search good claims. Mixon (1995) analyzed Yellow Pages advertising in New York

City and Los Angeles. His results indicated that sellers respond to consumer search costs by providing product information to minimize these costs.

Recent innovations in consumer information gathering, such as direct mail, the Internet, and television's home shopping channels and info-mercials are likely to affect the intensity of advertising for experience goods more than for search goods.[1] Because there is more advertising for experience goods than for search goods, these substitutes for other advertising media are likely to have a greater impact on the former types of goods. These innovations may change both the consumer's approach to gathering product information and the seller's approach to providing product information. Direct mail and the Internet are more suited to advertising for search goods, because the consumer would be able to refer back to these advertisements. Television's home shopping channels and info-mercials are more suited to advertising for experience goods, because this type of reference is not possible. Nevertheless, for the reasons discussed above, greater advertising intensity would still be expected for experience goods than for search goods.

Darbi and Karni (1973) added the concept of "credence" qualities, i.e., those qualities that cannot be evaluated in normal use, to the theory of the economics of information. They showed that consumer fraud and related practices result from significant costs involved both in the determination of product quality and in the effective vertical integration of buyer and seller through an exchange of property rights. Spence (1973, 2002) applied the term "market signaling" to the economics of information relating to labor market-hiring decisions. He found that lack of information leads, under certain conditions, to the use of signals such as education to assess prospective employee productivity.[2] Wilde (1980) surveyed theoretical research on consumer information acquisition including both models of individual behavior and market equilibrium.

Despite the above work on the economics of information, not a great deal of research has been done on the influence of seller reputation on price. Melnik and Alm (2002) examined the influence of seller reputation on auction prices on eBay.com. Their results suggest that having a better seller reputation slightly increases prices. Likewise, Dewan and Hsu (2004) found that the seller reputation mechanism on eBay has a small but significant effect on auction price and probability of sale. Although these results might be expected if the cost of developing an improved seller reputation is passed on to consumers, or if ceteris paribus, a better reputation represents less risk for buyers and is therefore something they would pay for, there is an alternative hypothesis. If improved seller reputation is the result of greater efficiency, in terms of providing a lower price per unit of utility to consumers, then a better reputation might be associated with lower prices.

I examine the impact of seller reputation on prices using data from Amazon.com. The book, *The Da Vinci Code* was selected to investigate this impact. *The Da Vinci Code* is one of the best-selling

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[1] Poon (1999), however, finds evidence suggesting that product characteristics have no significant impact on Internet commerce.

[2] A survey of the literature on signaling is contained in Riley (2001).

books of all time (Amazon.com sales rank #9). It also has a well-developed market for used copies. The hardcover book had 211 used copies available for sale on Amazon.com when this study was conducted. Of those 211 copies, 170 were being offered for sale by sellers with a continuous numerical (1 to 5) seller rating on Amazon.com based on customers' reviews of their experience with these sellers.[3] The higher the numerical rating, the better the seller's reputation. The number of ratings received in the previous twelve months is used as a proxy for the scale of the seller's operation. It is hypothesized that the larger the size of the seller, the lower their costs. It is expected that these lower costs would be passed on to consumers in the form of lower prices.

2. Methodology

The basic model is specified as follows:

$$PRICE = b_0 + b_1 COND + b_2 REP + b_3 RATE + u \quad (1)$$

where, (all variables relate to *The Da Vinci Code* on Amazon.com):

PRICE = used hardcover book price,
COND = seller supplied condition of hardcover book[4],
REP = rating of seller reputation,
RATE = number of ratings in the previous 12 months, and
u = an error term with mean zero and constant variance.

3. Results and Conclusion

The results of the estimation procedure were as follows (t-statistics in parentheses):

$$\underset{(7.28)}{PRICE = 574.75} + \underset{(0.33)}{2.02}\, COND - \underset{(7.01)}{114.74}\, REP - \underset{(3.76)}{0.00055}\, RATE \quad (2)$$

$R^2 = 0.24$, $F = 17.68$, $N = 170$

As can be seen from equation (2) above, the results indicate that the COND variable does not have a significant effect on price whereas the REP variable has a negative and significant impact on price. The latter result suggests that sellers with better reputations are more efficient than others, in the sense described earlier, and that the costs of developing these reputations are not passed on to consumers. In addition, the consumer receives a benefit from this greater efficiency in the form of lower prices. These results contrast with those found by Melnik and Alm as well as those found by Dewan and Hsu.[5] Furthermore, the RATE variable has a negative and significant impact on price, suggesting that larger sellers have lower costs than smaller sellers and that these cost savings are passed on to consumers as well.

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[3] The ratings for *The Da Vinci Code* sellers ranged between 2.3 and 5.

[4] The COND variable was constructed based upon the four categories of used book quality given on Amazon.com for *The Da Vinci Code*. Thus, if acceptable, COND = 0; if good, COND = 1; if very good, COND = 2; and if like new, COND = 3. Therefore, the greater the number, the better the condition of the book.

[5] Seller reputation may be more likely to raise eBay auction prices than Amazon.com non-auction prices because Amazon offers a guarantee that enables the consumer to obtain a refund if they are not satisfied with the delivery or condition of their purchase. Therefore, seller reputation would be less important in the latter case.

A non-linear equation using a logarithmic transformation of the RATE variable was also estimated. The results were as follows (t-statistics in parentheses),

$$PRICE = 765.28 + 1.71\,COND -$$
(7.79) (0.28)

$$472.37\,LOGREP - 0.00049RATE \qquad (3)$$
(7.55) (3.49)

$R^2 = 0.27$, $F = 20.36$

where LOGREP is the natural logarithm of the REP variable. As can be seen from equation (3), the fit and statistical significance of the equation, given by the values of the R^2 and F statistics, respectively, are slightly better using the logarithmic form of the equation. The results, however, are similar to the linear form of the equation in terms of the signs and significance of the estimated coefficients of the variables.

4. Potential Policy Implications

The above results add to the debate as to the impact of information on prices. For example, it has been argued and there is empirical evidence to suggest that advertising, by providing information to consumers, would lower prices (Nelson, Leahy). On the other hand, the more traditional view of advertising is that it would increase product differentiation, and would therefore tend to raise prices (Comanor and Wilson). This study provides additional support for the former view of the effect of advertising in prices.

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*** The views expressed here are personal to the author and do not necessarily reflect those of the other staff, faculty or students of this or any other institution.*

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Book Review:

Philip Arestis, John McCombie and Roger Vickerman (eds.). (2006) Growth and Economic Development: Essays in Honour of A. P. Thirlwall. Published by Edward Elgar. Cheltenham. PP 294. ISBN 1-843-76878-X.

In this age of orthodox neoliberalism, a reader on Thirlwall – especially in the United States, where academic discourse in economics has been reduced to the level of an investment-oriented supply-side view, if not to the level of ideological demagogy – is a breath of fresh air and rationality. More than two decades of unfettered free-market economic policies have successfully served the interests of the wealthy everywhere in the world, condemning masses of people to poverty, especially in Africa and Latin America. The growing evidence to this effect has not shied the elite away from pushing their agenda further, minds and eyes closed to any criticism, bringing the global economy more and more to the brink of a deep-rooted recession. Even the recent (January, 2008) downward spiral of the US and UK economies has not been able to stop the neoliberal mania. Having dismantled any government agency to stimulate growth, how these nations will recover from recession is unknown. Of course, the brunt of this economic shortsightedness will be borne by the economically disadvantaged.

Thirwall, a Keynesian, saw the potential undesirable effects of unregulated free-

market policies early in his productive career. He was educated at the Universities of Leeds (undergraduate) and Cambridge (PhD) and at Clark University (MA) in the United States, and has taught at the University of Kent for over 40 years. In addition to his books, his contributions to economic theory and policy have been published in numerous scholarly journals. He has been advisor to various domestic and international agencies, among them the African Development Bank and UNCTAD. In 1979, he laid the grounds for what was later called Thirlwall's Law, in an article published in the Banca Nazionale del Lavaro Quarterly Review (128(791):450-53). This law, as presented by Mohammed Nureldin Hussain in Chapter 1 in the reader, states that the "rate of growth of any developed country in the long-run is equal to the growth rate of the volume of its exports divided by its income-elasticity of demand for its imports" (p.24). The law's implication in the context of the contemporary world economic order is that, since low-income developing economies have a relatively higher income elasticity of demand for imports, and that faster growth necessitates higher imports leading to deficits constraining in return further growth. Hussain investigates the relevance and implications of Thirlwall's law for African countries. As expected, free-market-based export promotion has deepened income inequality and poverty in African countries. Hussain's conclusions are active economic management to change the production and export patterns in African economies coupled with a 'transformation strategy' that calls for an all-embracing socio-economic development program.

As the editors mention in the Introduction, the Reader is an eclectic one without a particular focus other than Thirlwall's writings that are not well-covered by Thirlwall's own two-volume collection of essays. Although there is nothing wrong with this eclectic approach, it deprives the Reader from a common focus and renders its review quite challenging.

In the next short technical chapter, Setterfield reconciles the actual and potential rates of growth in Thirwall's balance-of-payments-constrained growth model. The issue here is whether growth is a neoclassical supply-led or Keynesian demand-led process. Setterfield eloquently shows that "…it is the structure of the supply side that adjusts to accommodate the demand-determined actual rate of growth. The demand-side thus 'rules the roost' in what can be identified as a model of fully-demand-determined growth" (p.55).

In Chapter 3, Harcourt challenges Thirwall's modeling of imports as a function of expenditure rather than of income in the short-run, which is more in line with Keynes' writing, while in Chapter 4, Davidson analyzes Keynes' General Theory in terms its relevance in the contemporary global economy. An ongoing critique of Keynes today is that his closed economy world is not applicable in the era of globalization. Drawing on General Theory, Davidson articulates eloquently the validity and relevance of Keynes emphasizing the importance of macroeconomic management in achieving full-employment, a defining characteristic of the supply-side export-led growth strategy. Moreover, Davidson draws on Thirlwall's Law to show that in an open economy money is never neutral as argued by the orthodox economists.

In Chapters 5 through 7, the focus of the Reader shifts to growth in a closed economy. Leon-Ledesma analyzes the

relations among business cycles, demand shocks, and economic growth in light of Thirlwall's contributions to growth. He finds that not only have cycles historically effects on the trend output in three industrial economies he studies (UK, US, and Germany) but they do so differently in each country depending on the labor and financial markets and their structures. Hence, the author concludes in a Thirlwallian manner, arguing that sound demand-management is necessary to achieve a healthy long-run growth path. In Chapter 6, Roberts extends Setterfield's open systems-*ceteris paribus* model, which is based on the Dixon-Thirlwall model on cumulative causation, and shows that it is consistent with Kaldor's historical growth, reiterating that it is possible to model historical growth process based on cumulative causation. In Chapter 7, Arestis and Sawyer follow Thirlwall in critiquing the endogenous growth or the new growth theory. The argument is that there is not much new in this theory and that externalities associated with investment in human capital have been part of neoclassical growth theory. More importantly, this chapter once again underlines Thirwall's contributions to growth theory that range from the role of demand and balance of payments constraint to sectoral analysis, important topics that are not covered in the endogenous growth theory.

Additional critiques of neoclassical growth theory are provided in Chapter 8 by McCombie. The main arguments are that supply-side driven and predominantly closed economy growth models cannot explain the growth process in the interconnected contemporary world economy. In addition, McCombie questions the aggregate production function approach common to these models questioning their testability.

In Chapter 9, Cornwall builds an extended Keynesian model characterized by short-run demand-determined unemployment and long-run growth in a political economy context. Furthermore, the author argues that historical facts on nine industrial countries are in support of his model as opposed to the alternatives.

Chapters 10 and 11 address the European Union. In Chapter 10, Tamborini and Targetti bring to attention the selective application of the Stability and Growth Pact and the Maastricht Treaty and argue that the pact has created an institutional crisis—economic, legal, and political—and should be replaced by a so-called European Confederation Treasury… a utopian alternative to a justifiable criticism. In Chapter 11, on the other hand, Gibson and Tsakalotos analyze the financial and macroeconomic framework of the ten new member countries of the EU and argue that the current institutional framework of the union is not suitable to assist the new members in their transition period, as it did the original 15 members. They call for "… significant changes in the priorities, policies, and institutions *within* the EU" (p.202).

Singh, in chapter 12, argues that an International Competition Authority is what is needed today in order to promote different competition policies for developing countries at different levels of development and governance structures and experiences. New institution building is easier said than done; however, Singh's argument deserves attention, especially given the failure of the *'one recipe for all'* approach that dominated neoliberal global policy making.

FitzGerald then extends Thirlwall's models on aggregate savings in

developing countries by adding them into an inter-temporal and open macro economy framework and autonomous investment functions. As the author says, "this exercise permits a clearer view of the role of both wealth and income distribution in the savings and adjustment process. This has two advantages: on the one hand, to clarify the reasons for low and unstable savings rates; and on the other, to re-introduce political economy considerations to growth models" (p.261).

The concluding chapter by Toye focuses on Keynes' contributions to development economics and on the role Thirlwall played in clarifying these contributions. It discusses skillfully Keynes' influence on development economics. Topics in the heart of development economics, such as involuntary unemployment, demand management policies, Keynesian accounting formats, and international development, contribute to Keynes' legacy followers like Thirlwall.

Growth and Economic Development is a timely book, first and foremost for honoring Thirwall for his contributions to the field, and also for touching on economic issues of utmost importance and relevance in today's global economy. It is unfortunate, however, that the book lacks a concluding chapter that synthesizes the 14 chapters analytically. It is a must-read book for graduate development economics students, as well as domestic and international policy makers, in case they are willing to begin the rebuilding of the world economy which has suffered heavily under the influence of neoliberal development and growth strategies.

Mehmet Odekon

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