**Pecuniary Motivations to Create: Some Evidence from a Demand Shock to Famous Authors**

This paper studies whether or not creators respond to monetary incentives. Examining this question is important to evaluate the need of having a system of financial rewards (e.g., copyrights, patents) (see Liebowitz and Zentner 2019).

Sorensen (2006) shows that books included in the New York Times list of bestseller books experience an increase in sales. To measure the causal effect of inclusion of a book in this list on sales, he exploits mistakes made when constructing the New York Times bestselling list:

“Although the list is by and large quite accurate when compared with the ‘true’ sales numbers available from BookScan, it is not uncommon for a bestselling book to be missed -- i.e., a book may not appear on the list even though its sales exceeded the sales of listed books. In principle, these mistakes provide a means of identifying the effect of appearing on the list, by serving as an appropriate control group.”

Specifically, Sorensen compares two sets of books:

“Those that were listed at rank 13, 14, or 15 when they first appeared on the New York Times list (n= 44), and those that should have appeared at 13, 14, or 15 when they were mistakenly omitted (n=75).”

Using this methodology, he finds that:

“For books that were published for the first time on the New York Times list, sales declined by an average of 7.6 per cent relative to the previous week (recall that the dominant pattern in sales over time is a steady decay: even for books appearing on the bestseller list, it is rare for sales to increase from one week to the next). For mistakenly omitted books, sales declined by an average of 22.7 per cent. Taken at face value, the difference implies that in the first week, being listed leads to 19 per cent more sales than would have otherwise occurred.”

He also argues that the effects can be larger than estimated since: a) appearing on the bestseller list increases the popularity of future books by the same author, and b) his analysis focuses on hardcover books, but appearing on the bestseller list also affects paperback sales.

**Mechanism**

The inclusion of a book in the New York Times list causes a shock to demand and increases current revenues for the authors who wrote them. Whether the shock affects authors expected revenues from future books depends on how authors form expectation. If authors use the success of their last book when forming expectation, then the shock to demand will affect authors expectation about future financial rewards. We think it is intuitively plausible that authors use current revenues when forming expectations. We don’t think there is a need to formalize how authors form expectations since we would not be able to test these formalizations.

Although what really matters is whether authors *expected* revenues are affected by the shock and we don’t know how authors form expectations, we do know that the shock is likely to affect *observed* future revenues for authors via learning and product discovery (Sorensen and Hendricks 2009, Moretti 2011, Sorensen 2017). These mechanisms suggest that the shock to demand will have a persistent impact. However, authors will revise their expectations if their future revenue expectations are not validated. For this reason, the effect of the shock on creativity might short lived and when measuring the effect we will thus have more confidence on the results in the short run than in the long run.

**How does the size of this demand shock compare to the size of the demand shocks from tax changes that the labor literature has extensively used to estimate the elasticity of the supply of labor?**

This is a difficult question to answer because tax changes affect the amount of work via a more certain effect on future revenue streams than a shock to demand that affect the amount of work via affecting expectations about future compensation.

The tax cut included in the Tax Reform Act of 1986 (TRA86) decreased the top tax rate for individuals from 50% to 38.5%, in addition to making other tax changes that create complications when using tax changes to measure the elasticity of the labor supply. The tax increase in the Omnibus Budget Reconciliation Act of 1993 (OBRA93) increased marginal rates from .31 to .396 for income greater than $250,000 and from .31 to .36 for income between $140,000 and $250,00 (Goolsbee 2000).

Although it is difficult to compare the shock used in this paper and the changes in tax rates used in the labor literature, we note that the shock to revenues that we use led to a 19% difference in sales between the treatment and control groups, although these differences are during the week immediately following the shock.

**Model**

We can use the demand shock to examine the effect of reward on creativity. We estimate the effect of these “mistakes” on creativity using the following difference in differences model including author-level fixed effects:

(1)

where i represents an author, t represents a year, represents either the number of books or the number of pages, represents an author specific fixed effect, represents a year fixed effect, represents a dummy variable that takes the value 0 for years predating 2001 and the value 1 for years after 2002, and represents a dummy variable that takes the value 1 if author’s i book was mistakenly excluded from the list of bestselling books and the value 0 if author’s i book was included in the list of bestselling books.

The coefficient measures how the shock to revenues affected the number of books or the number of pages written. We expect to be negative if monetary reward increases creativity since authors of books mistakenly omitted from the list of bestselling books did not experience a positive shock to their future revenues and are thus expected to write fewer books or fewer pages than authors who experienced a positive shock to their future revenues.

**Data**

This paper uses data from three sources. The original list of books in the treatment and control groups comes from Sorensen (2007) and the information for each of the authors on this list was collected from Goodreads (a company that belongs to Amazon) and Wikipedia.

The data use in Sorensen (2006), however, includes books and authors that are listed more than once. Authors whose books are in both the treatment and control group are excluded from the analysis. Moreover, some of the books in the list have more than one author and in these cases, we follow the publication history for all coauthors. Accounting for these issues there are 96 authors in the sample, 32 in the treatment group (authors who experienced a revenue shock because their books was included in the list of bestselling books) and 64 in the control group (mistakenly excluded from the list of bestselling books).

Measuring productivity using data from Wikipedia

All authors on the list except one (Adele Lang) have a Wikipedia page that contains the lifetime list of works. This is unsurprising since the authors on the list are “famous.” For each of the authors, I collected the history of works (these data are unstructured and 10 RAs helped retrieving these data during the months of September and October 2019).

There are some caveats when measuring an author’s productivity from Wikipedia. Take the example of Mario Puzo. Wikipedia lists 40 pieces of work under his name within five categories: “Novels,” “Non-Fiction,” “Short Stories,” “Screenplays and Film Adaptations,” and “Video Game Adaptations.” Some of these works are not “books” and it is unclear whether all of these works should be counted when measuring productivity. In addition, some of these works are shorter than others and there might be quality differences across an author’s different pieces of work, although these factors might be captured by the author-level fixed effects in the empirical model as long as they are time invariant. Other caveats include: some books are listed as published in more than one year (in which case we sought to record the date of first publication), some authors published books using more than one pen name (Wikipedia include all pen names), some books were published after the author’s death, some works are compilations of previous work, some works are anthologies or part of omnibus publications, and some works have more than one author. In our empirical analysis, we will examine whether the results change when measuring productivity in different ways (e.g., excluding works that are not “books”).

Measuring productivity using data from Goodreads

We scraped from Goodreads all the books written by the 96 authors in our sample. For each book, these data include the number of pages. We used text analysis to filter duplicates, missing data, compilations of previous works, omnibus publications, previews, etc.

**Fame as a Reward**

Sorensen (2007) demonstrated that appearing in the New York Times list of bestseller books caused an increase in revenues, but one question that arises is whether being included in this list also affected fame. This is important because fame might be a reward by itself in which case it might change authors’ incentives to write in the future, making it potentially difficult to disentangle the effects of money and fame.

However, this might not be a big problem because all authors on this list were already “famous” before being included in the list, independently of whether they are in the treatment or control group. In addition, we use the demand shock because current revenues are likely to affect authors’ expectation about future financial rewards. The demand shock might affect current fame, but it is unclear whether the shock affects expected future fame and if it does affect expected future fame it is also unclear how will this affect the incentives to write in the future.

**Preliminary Results using Data from Goodreads**

**Estimates of Model (1) including fixed effects by author and year**

|  |  |  |
| --- | --- | --- |
|  | (1) | (2) |
|  | Total number of books | Number of pages |
| Interaction - Post x Mistake | 0.0953 | 70.45 |
|  | (0.299) | (95.48) |
| N | 3153 | 3073 |
| Clustered standard errors in parentheses (by author) |  |  |
| \* p<0.05 | \*\* p<0.01 | \*\*\* p<0.001" |

Recall that a positive coefficient suggests that monetary reward decreases creativity.

Parallel Trends Model:

The figure below plot over time:

**Number of Books - Test of Parallel Trends – Baseline Year 2000**



**Number of Pages - Test of Parallel Trends – Baseline Year 2000**



There appears to be week evidence of an increase in productivity for the control group immediately after the shock which would suggest that the supply of creativity has negative slope. Since the shock happened in years 2001 and 2002, year 2002 is a year after the shock for some authors and year 2003 is a year after the shock for other authors.

**Preliminary Results using Data from Wikipedia**

**Estimates of Model (1) including fixed effects by author and year**

|  |  |
| --- | --- |
|  | Total Number of Book |
| Interaction – Post x Mistake | 0.0707 |
|  | (0.261) |
| N | 3725 |
| Clustered standard errors in parentheses (by author) |  |
| \* p<0.05 \*\* p<0.01 | |

**Number of Books – Test of Parallel Trends – Baseline Year 2000**

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There appears to be week evidence of an increase in productivity for the control group immediately after the shock which would suggest that the supply of creativity has negative slope.

**Limitations**

We focus on a list of few famous authors (Goolsbee 2000 also focuses on the top part of the distribution).

The shock to future financial reward might not be so large? Is it small?

Small sample. In the book industry, a few books take the majority of all revenues implying that the books on the list represent a substantial percentage of the revenue from of all books in this industry (Elaborate).

**Preliminary Conclusion**

Income does not appear to substantially affect creativity for famous authors. There is weak evidence that the supply function has negative slope.

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