

Financial Returns to Collecting Rare Political Economy Books

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Abstract

Rare books of political economy are eminently collectable. Using historical prices, I employ hedonic regressions to estimate financial returns to collecting the works of ten eminent political economists and develop a price index for this corpus of collectables. For the observation period 1975-2019, I find that in those 45 years investing in rare political economy books yielded an average annual real rate of return of 2.8%, which is well in line with the returns to collecting rare books of classical literature. Compared with other collectibles such as fine art, investing in rare books turns out to be financially more profitable.

JEL Codes: G110, Z110.

Keywords: rare books, political economy, price indices, collectibles, cultural economics, history of economic thought.

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1. INTRODUCTION

Many economists who take an interest in the history of political-economic thought treasure collectable editions of books that had a significant influence on the development of the discipline. Even though financial returns are perhaps a minor consideration when assembling collections of rare books, the question remains whether buying pricy collectors' items are a money-losing business or an investment that can somehow be justified from a financial point of view.

Answering this research question, requires, first, to identify political economists and their works that are representative of the concerned corpus of literature, and, second, to determine the appertaining historical book prices that allow estimating price trends and constructing price indices. To identify those political economists who are nowadays still held in high esteem because of their great influence on the development of political economy is, of course, a tricky business because scholarly reputation can be defined in many different ways. To arrive at a short-list of candidates, I settled for an agnostic strategy and used standard bibliometric measures that are indicative of a person's outstanding significance. Unfortunately, only few political economist that my bibliometric selection criterion attributed outstanding significance satisfy the obvious requirement that their books were sold sufficiently often to allow computing a reasonably sound estimate of the rate of return to investing in their work. In the end, my two selection criteria left me with a sample of ten political economists, all of them British with the immigrant Karl Marx thrown in.

My source of historical book prices are auction records from the period 1975-2019. I use this data to investigate rare book price formation and to construct a first rare book price index for scholarly works of political economy based on the standard hedonic approach that was developed for real estate valuation and later on applied to explaining price formation in many fields including fine art and other collectables. My exclusion criterion of a sufficient number of price observations is thus predicated on the data requirements demanded by the hedonic regression method. One of the main finding of the study is that the financial real (compound) annual return to investing in rare political economy books amounted in the observation period 1975-2019 to 2.8%.

To put that annual return into perspective, the paper concludes by comparing the financial returns to collecting rare political economy books with investing in rare books of classical literature, works of fine art, and traditional financial and non-financial assets. It turns out that the financial return of rare book collections, both collections in political economy and classical literature, do quite well as compared with investments in fine art, real estate, gold, and bonds. As compared with stocks, rare book collections do, however, in the long run underperform substantially in terms of financial

returns, indicating what is obvious to any book lover, that the non-financial returns to assembling, owning, and cherishing a fine book collection are large.

This study belongs to two established bodies of literature. Estimating rates of returns to investing in various kinds of collectibles ranging from fine art to wine and old-timers can be found in the economic and finance literature. Burton and Jacobsen (1999) provide a first-generation survey. Studies dealing with the book market in general are less numerous but address nevertheless a large variety of topics. Those topics include investigations of book price regulations (Canoy et al. 2006, Poort and van Eijk 2017), price competition between online retailers and stores (Clay et al. 2002), the effects of reduced VAT rates (Borowiecki and Navarrete 2018), demand determinants (Ringstad and Loyland 2006), the influence of literary prizes (Ashworth et al. 2010), word of mouth advertising (Beck 2007, Gaffeo et al. 2008), the bestseller phenomenon (Walls 2014), the expansion of the E-book market (Crosby 2019), cultural diversity (Benhamou and Peltier 2007), and literary translations (Ginsburgh et al. 2011). Most closely related to this study is its companion paper (Ursprung 2020) that deals with rare books of classical literature.¹ Rudd (2009) pursues a similar objective, employs however more elementary empirical methods.

The study unfolds as follows. In section 2, I discuss the selection of the included authors and describe the information provided by the auction houses. Section 3 presents the empirical strategy by using Adam Smith's *Wealth of Nations* as an example. Section 4 extends the analysis to the full sample of political economist and presents the average annual nominal returns to investing in rare books written by those authors. The nominal price index for rare political economy books is presented in section 5. In section 6, I convert the nominal price index presented in section 5 into a real price index and compare the real returns to investing in rare political economy books with the returns to alternative investments. Section 7 concludes.

2. SAMPLE SELECTION AND DATA

To arrive at a sample of authors whose books the average bibliophile economist would certainly consider to belong to the collectable corpus, I consulted three histories of economic thought: Schumpeter (1954), Blaug (1985), and Niehans (1990), and the dynamic on-line edition of *The New Palgrave* dictionary. Using standard bibliometric indicators, i.e. normalized numbers of mentions in the name indices and normalized page or word counts in the entries dealing with individual authors,

¹ Wyburn and Roach (2012) identify with help of hedonic regressions the price determinants of American collectable comic books but cannot derive in their non-temporal framework rates of return.

I arrived at four comparable rankings of political economists that, by way of aggregation, yielded a shortlist of significant political economists.

My source of historical book prices is the *American Book Prices Current* (APBC) database that mainly covers auction houses in the United States and Great Britain. ABPC records on its online portal auction prices beginning in 1975. My observation period is thus restricted to 1975-2019. For most of the shortlisted political economists, the number of ABPC entries is, unfortunately, too small to estimate a rate of return to investing in their work. Two reasons appear to be primarily responsible for this lack of data. First, many of those shortlisted authors were professionally active in the 20th century, which left for most of them too short a period to acquire the kind of eminence that is necessary for one's work to become collectible. The only exception that does not fit this pattern is John Maynard Keynes. Second, those shortlisted authors who were born and educated in continental Europe, had their works first published in their native language and those especially collectable first editions are less likely to appear for sale at the auction houses covered by ABPC. The only exception here is Karl Marx; the first edition of *Das Kapital* turns up quite often at sales of American and British auction houses, and so do the first translations that appeared in Russia, France, the United States, and England.²

In short, I am left with only ten significant political economists whose work is sold sufficiently often to allow inclusion in my study: seven Englishmen (Petty, Bentham, Malthus, Ricardo, J.S. Mill, Jevons, and Keynes), two Scotsmen (Hume and Smith), and the German maverick and iconoclast Karl Marx who emigrated to England where he wrote his magnum opus and lived for the rest of his life. It is clear that a price index based on the collectable works of these authors cannot claim to be representative of the universe of collectable political economists. The best I can do at this stage is to explain how such an index can be derived, show how closely that index follows the price developments of other collectibles, and draw some conclusions about the investment potential of collectable political economy books. I begin my exposition by describing in some detail the specific features of hedonic book price regressions using Adam Smith's *Wealth of Nations* as an example.

The data provided by ABPC contains, in the first instance, the hammer prices (when necessary converted) in US dollars. The surcharge accruing to the auction houses is not included and, as usual, buy-ins, i.e. books that remain unsold, are not recorded. Apart from the hammer price, APBC provides further information about each book sold at auction. Exhibit 1 shows a representative

² In a few cases, the small number of sales of collectible books by significant political economists is that they simply did not write an oeuvre that is sufficiently large to turn up at auctions on a regular basis. Richard Cantillon and Anne Robert Jacques Turgot are cases in point.

auction record. After the author's name, lifetime, and the book's title, the record indicates place and year of publication. In the present case, the letter L denotes London, which already makes clear that we deal here with a true first edition of *Wealth of Nations* because the only other edition of *Wealth of Nations* that appeared in 1776 is the one pirated by a Dublin publisher. The first London edition appeared in two quarto (4to) volumes. Quarto volumes are printed on sheets containing four book pages of text on either side. Those sheets were then folded twice to arrive at four leaves of the book and bound according to the specifications of the buyer, in the showcased book probably by the first owner (as indicated by "contemporary") in calf leather with gilt lettering on the spine. The following lines detail the general condition of the book.³ The last two lines report the auction house, the date of sale, the lot number, and the hammer price. The last line refers to some bibliographies covering Smith's works.

Exhibit 1: Representative ABPC auction record

Smith, Adam, 1723-90 - An Inquiry into the Nature and Causes of the Wealth of Nations.
 L, 1776
 2 vols. 4to,
 contemp calf gilt
 tailcap to vol 1 chipped; repaires to joints & spine ends, a few scuffs
 1st Ed
 With cancels M3, Q1, U3, 2Z3, 3A4 & 3O4 in Vol I & cancels D1 & 3Z4 in Vol II.
 Tiny hole in 3N2 in vol 1 touching 1 word; marginal repair to 2Z1 in vol 2 (not affecting text); some
 leaves in 4b & 4C in vol 2 misbound
 Christie's, Jul 11, 2018, lot 322, £70,000 (\$92,442)
 Kress 7621; PMM 221; Goldsmith 11392; Grolier, English 57; Rothschild 1897; ESTC T96668

Exhibit 1 sets the stage for the next section that presents the approach to estimating time trends and price indices of rare books. Which book could be better suited for that purpose than Adam Smith's *Wealth of Nations*?

³ Cancels are new leaves containing changes. They are glued onto the stubs of the removed leaves. M3, Q1, etc. are signature statements that refer to the respective sheets and pages. The signatures show how the sheets were meant to be folded and gathered for binding.

3. ADAM SMITH'S WEALTH OF NATIONS

During his lifetime (1723-1790), Adam Smith had only two books published: *The Theory of Moral Sentiments*, in 1759, and *An Inquiry into the Nature and Causes of the Wealth of Nations*, in 1776. Apart from those two major works, the only other work that Adam Smith intended for publication are the *Essays on Philosophical Subjects*, posthumously published in 1795.⁴ This is not to say that other publications by Adam Smith are not collectable; however, they very rarely appear at auctions. An example is the first publication in 1761 of Smith's essay "Considerations concerning the first formation of Languages" in *The Philological Miscellany*. At the time of writing, Peter Harrington, one of the top-rated rare booksellers in Europe, offers that volume for €25,000.⁵

In this section, I focus on the *Wealth of Nations* to introduce my approach to explaining rare book price formation. I will add the *Moral Sentiments* and the *Essays on Philosophical Subjects* to Smith's oeuvre in section 4. Because ABPC covers mainly auction houses in Great Britain and the United States, I restrict myself to editions in English, more precisely to editions of *Wealth of Nations* published in London up to 1822 and the pirated first Dublin edition published in the same year (1776) as the first London edition.⁶ Multi-volume editions, such as *Wealth of Nations*, are often sold in incomplete sets that are hard to compare with other sets. I therefore did not include incomplete sets. In my observation period of 45 years (1975-2019), those restrictions left me with 351 auction sales of early complete sets of *Wealth of Nations*.⁷

⁴ The editor writes in the introduction that the essays, probably written before the appearance of *Moral Sentiments*, were never published because Smith intended to use them for "a connected history of the liberal sciences and elegant arts", an overambitious plan that he never managed to execute. In the 18th century, the term "philosophical" encompassed all investigations that would today pass as scientific.

⁵ Collectable are also Adam Smith's published lecture notes. In 1876, notes of Smith's lecture on jurisprudence were discovered. They appeared in 1896 under the title *Lectures on Justice, Police, Revenue and Arms: Delivered in the University of Glasgow by Adam Smith - Reported by a Student in 1763 - and Edited with an Introduction and Notes by Edwin Cannan*. Further notes of Smith's lectures were discovered 1958 by John Lothian of the University of Aberdeen who purchased two volumes of manuscripts at the sale of an Aberdeenshire manor-house library. He published those notes in 1963 as *Lectures on Rhetoric and Belle Lettres Delivered in the University of Glasgow by Adam Smith, Reported by a student in 1762-63*. Chapter 3 of the *Lectures on Rhetoric and Belles Lettres* is a shortened version of the essay on the formation of languages published in 1761. Lothian found among the items included in the 1958 sale also manuscript notes of Smith's lecture on jurisprudence which turned out to represent a more elaborate version of volumes 2-6 of the lecture notes published in 1896, and, after an extended search in Aberdeen junk shops, he also found the missing volume 1.

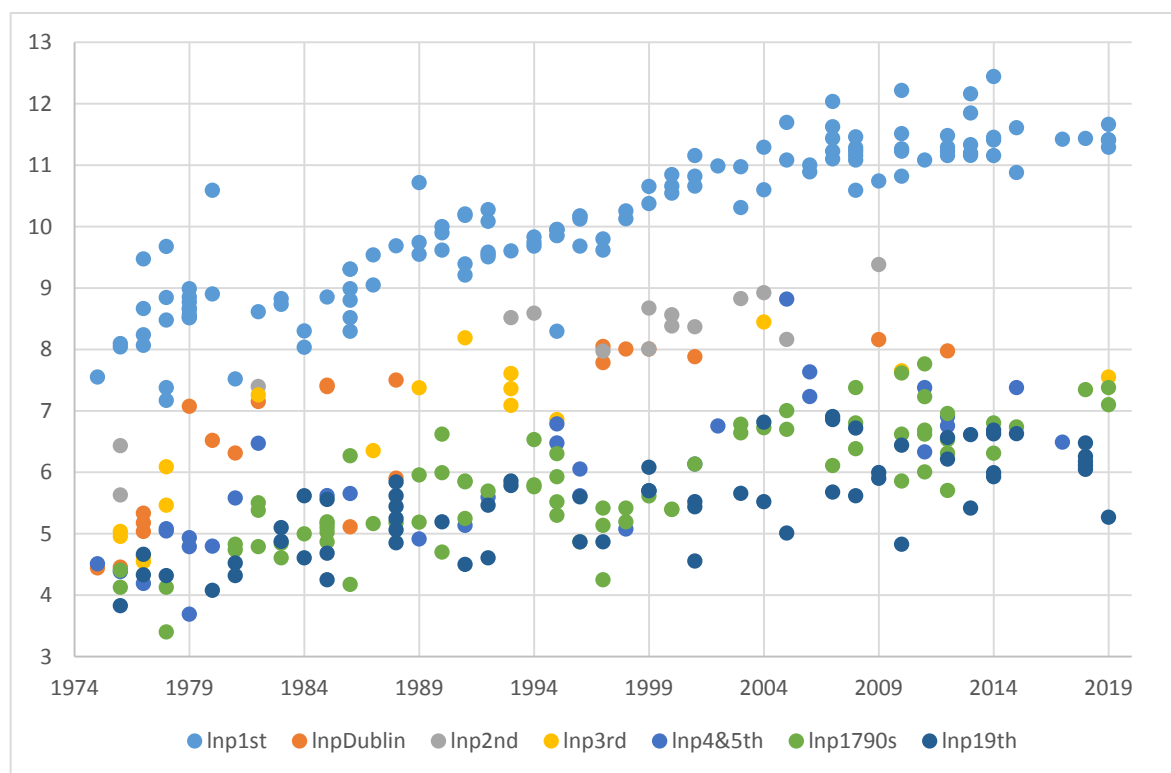
⁶ Apart from London and Dublin, early English editions of *Wealth of Nations* appeared in Edinburgh, Glasgow, Philadelphia, and Basel.

⁷ I did not include in my sample the sale by *Christies London* in December 2018 of Adam Smith's own copy of *Wealth of Nations*. It sold for €750,000 (\$965,250) which is roughly ten times as much as the current price of an "ordinary" copy.

3.1 Descriptive statistics

Figure 1 provides a first impression of how the prices for collectable copies of *Wealth of Nations* developed across time. The scatter diagram distinguishes seven types of early editions of *Wealth of Nations*: (1) true first editions published 1776 in London, (2) first (pirated) Dublin editions also published in 1776, (3) second London editions, (4) third London editions, (5), fourth and fifth London editions, (6) London editions published in the 1790s, i.e. the London editions 6-9, and (7) London editions published in the 19th century up to 1822, i.e. the London editions 10-15. The prices in the scatter diagram are in US dollars converted to natural logarithms.

Figure 1: log prices of early editions of *Wealth of Nations*



The scatter diagram reveals that the log-prices of copies of early *Wealth of Nations* editions increased over time in a rather linear manner (implying an exponential price development in nominal prices, i.e. a constant growth rate). Moreover, it provides a lucid justification for distinguishing between different editions of the same title. Copies of the first London edition of 1776 are clearly more valuable than copies of the pirated Dublin edition also published in 1776 or copies of the second London edition published 1778. This price hierarchy or layering continues with the third edition published in 1784, the fourth and fifth editions published in 1786 and 1789, the editions 6-9 published in the 1790s (1791, 1793, 1796, and 1799), and the editions 10-15

published in the early 19th century (1802, 1805, 1811, 1812, 1819, and 1822). Price differences in a specific title (her the *Wealth of Nations*) can thus be explained by different dates of sale and different title specifics (here editions). Notice, however, that even within the seven groups of editions, prices can vary a great deal, even within one year. The printing history (editions) and the date of sale are thus far from explaining rare book auction prices. The question, therefore, arises whether other features of the books sold at auctions can explain at least a part of the remaining price variation. An empirical method to answer that question is the hedonic regression approach.

3.2 Hedonic regressions

The descriptive statistics presented above gives rise to a first hedonic regression model which tests the hypothesis that rare book prices develop exponentially over time (the second model will replace the time trend with *year-of-sale* dummy variables):

$$\ln p_{it} = \alpha + \sum_{j=1}^n \beta_j x_{ji} + \delta t + \varepsilon_{it}. \quad (1)$$

The dependent variable, $\ln p_{it}$, is the natural logarithm of the US dollar hammer price of book i sold in year t , x_{ji} denotes characteristic j of book i , δ denotes the time trend of the log-price, and ε_{it} is the error term. Table 1 reports in columns (1-4) the estimates ($\hat{\delta}$) of the time trend and the estimates ($\hat{\beta}_j$) of the coefficients of the included hedonic variables x_{ji} . Model (1) does not include any hedonic characteristics x_j , the second model uses only the *title-specific characteristics*, i.e. the seven different groups of editions detailed above. Those title-specific characteristics are dummy variables assuming the value 1 if book i is of the indicated edition (or group of editions), and zero otherwise; the group of the 19th century editions serves as the reference category.

The estimates reported in columns 1 and 2 of Table 1 reflect the impression conveyed by the scatter diagram in Figure 1: prices increase steadily across time and earlier editions are on average more expensive than later editions. True, the coefficient of the Dublin 1776 edition is smaller than the coefficient of the second London edition, but then the *ceteris paribus* clause does not apply when comparing printings by the legal publisher with pirated copies. Using the estimates of δ amounting to 0.067 (column 1) and 0.073 (column 2), one arrives at estimated compound annual rates \hat{r} of price increases of 6.9% and 7.5%, respectively.⁸

Table 1 at the end of the paper

⁸ $r = \exp(\delta) - 1$

Those estimates are very similar, implying that the title specific variables do not follow a consistent pattern countervailing the time trend, at least not over the entire observation period of 45 years. The third specification adds seller-specific characteristics. Six possibilities are distinguished: sales by (1) an UK auction house (but not Christie's or Sotheby's), (2) Christie's London, (3) Sotheby's London, (4) Christie's New York, (5) Sotheby's New York, and (6), the reference category, other auction houses in the US. Only the estimated coefficients of the dummy variables *Christie's London* and *Sotheby's New York* are statistically significant and the estimate of the time trend remains largely unchanged. Two last characteristics that can be gleaned from auction catalogues are provenance and condition. The dummy variable *Provenance* indicates whether a book was previously part of a well-known collection or inscribed by the author (which, in the case of *Wealth of Nations*, does not apply to any copy in my sample). *Condition* is a rather coarse, self-coded, variable that assumes one of the following numerical values: borderline collectable (1), subprime (2), collectable (3), and eminently collectable (4). The regression results reported in the fourth column show that those variables have a statistically significant price effect; the estimated time trend is again in line with the previous estimates.

Since true first editions of *Wealth of Nations* are by far the most sought-after and constitute a substantial part of the observations in my sample, I test in specification 5 whether the price trend for those 1st editions differs from the price trend of the other, less coveted, editions by including an additional term in regression model (1):

$$\ln p_{it} = \alpha + \sum_{j=1}^n \beta_j x_{jit} + \delta t + \theta y_i * t + \varepsilon_{it}, \quad (1')$$

where the dummy variable y_i assumes the value one if copy i is a copy of the first London edition, and zero otherwise. The results show that the estimated coefficient of the *Year of sale* variable drops to 0.06 which implies an annual compound price increase of 6.2 % for copies that are not real 1st editions. The price of real 1st editions, on the other hand, increases at a statistically significant additional rate of 2.6%, yielding an annual compound price increase of 8.8%.

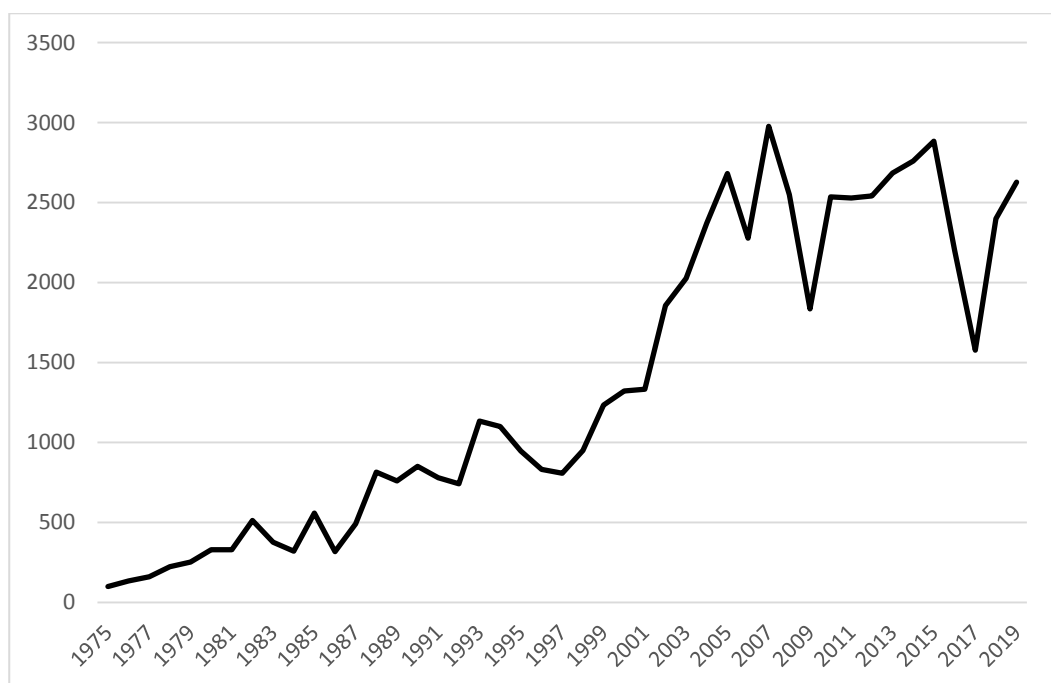
The estimated rates of return \hat{r} reported in columns (1)-(5) of Table 1 are *compound rates* for the entire observation period of 45 years. To construct a price index, I modify the regression model by replacing the *year of sale* variable t by *year of sale dummy variables* Y_{it} for each year:

$$\ln p_{it} = \alpha + \sum_{j=1}^n \beta_j x_{jit} + \sum_{t=1}^{43} \gamma_t Y_{it} + \varepsilon_{it}, \quad (1a)$$

where the dummy variable Y_{it} assumes the value 1 if copy i was sold in year t . For the initial reference year $t=0$, the year of sale dummy Y_0 is set equal to 0. The estimated values \hat{Y}_t can then be used to construct a price index $I_t = \exp(\hat{Y}_t) - 1$ that measures pure time effects because it is

based on annual price changes that are not attributable to the included hedonic characteristics. The results of estimating model (1a) are reported in column (6) of Table 1. The estimates of the year dummy coefficients are not shown; a better way of reporting those estimates is to illustrate in Figure 2 how the estimated price index I_t developed across the observation period.

Figure 2: Price index of *Wealth of Nations*: 1975=100



Note: The value for the year 2016 is interpolated because ABPC does not report any sale of *Wealth of Nations* in that year.

Apart from documenting that rare editions of Adam Smith's *Wealth of Nations* yielded healthy nominal returns over the last 45 years, the results reported in columns (1-5) of Table 1 indicate that reliable estimates of trends in rare book prices should include title-specific variables. Compared with those title-specifics, the other hedonic variables (seller specifics, provenance, and condition) appear to contribute much less to explaining rare book prices. Figure 2, which is based on model (6) of Table 1, makes moreover perfectly clear that estimates of a long-run average price trends do not simply blind out some negligible noise, but neglect information that is essential for understanding the development of rare book prices.

4. THE RATES OF RETURN TO THE WORKS OF TEN POLITICAL ECONOMISTS

4.1 Author-specific returns

I now turn to estimating, author by author, rates of return to investing in the work the ten political economists in my sample. To estimate rates of returns to an author's work, one usually considers more than one title of that author. I therefore include in model (1) title fixed effects v_{ik} that equal one if book i has title k , and zero otherwise:

$$\ln p_{it} = \alpha + \sum_{j=1}^n \beta_j x_{jit} + \delta t + v_{ik} + \varepsilon_{it} \quad (2)$$

The vector x includes the full set of hedonic variables j , i.e. title specifics, seller specifics, the provenance indicators, and the condition index. The time trends $\hat{\delta}$ estimated in the ten separate regressions for each author are reported in Table 2 together with the associated estimated annual rates of return \hat{r} . Since the title-specific covariates differ by definition across authors, the following brief comments on the work of these eminent economists is perhaps of interest but probably not necessary for understanding the main message.

Table 2: Time trends and compound annual returns to the works of 10 political economists
OLS estimates; dependent variable: log hammer prices in USD

	William Petty 1623-1687	David Hume 1711-1776	Adam Smith 1723-1790	Jeremy Bentham 1748-1832	Thomas Malthus 1766-1834
year of sale ($\hat{\delta}$)	0.048*** (0.0069)	0.049*** (0.0049)	0.068*** (0.0028)	0.037** (0.0145)	0.032*** (0.0035)
annual return (r)	4.9%	5.0%	7.0%	3.7%	3.2%
observations	74	142	432	42	253
adj. R ²	0.63	0.81	0.91	0.64	0.85
	David Ricardo 1772-1823	John Stuart Mill 1806-1873	Karl Marx 1818-1883	Stanley Jevons 1835-1882	John Maynard Keynes 1883-1956
year of sale ($\hat{\delta}$)	0.042*** (0.0058)	0.048*** (0.0058)	0.046*** (0.0082)	0.050** (0.0224)	0.074*** (0.0056)
annual return (r)	4.3%	4.9%	4.7%	5.1%	7.7%
observations	90	144	98	27	138
adj. R ²	0.85	0.75	0.80	0.43	0.78

Notes: Std. Error in parentheses; *** significant at 0.01 level. ** significant at 0.05 level

William Petty (1623-1687) is the only representative of the pre-Adamite political economists in my sample. He is probably the first political economist who advocated using statistical methods (*political arithmetic*), i.e. he advocated replacing anecdotal evidence with observable and objectively measurable facts. Petty is also significant because he discussed many subjects which became later, in particular in Adam Smith's *Wealth of Nations*, major topics of political economy, among them non-protectionist tariffs, the quantity theory of money, the labor theory of value, economies of scale by division of labor, and equitable (consumption) taxation. Being a stern opponent of excessive government intervention, Petty most famously coined the slogan *laissez-faire*. As a trained physician, he was well aware that in his days, physicians did more harm than good – and he realized that quacks are not only to be found in in the medical profession. He believed that without better knowledge it is often detrimental, even with the best intentions, to intervene in a complex evolved system, an idea that 300 years later was taken up by Friedrich Hayek. Petty must have become aware of government failure when accompanying Cromwell's army to Ireland where he was in charge of charting the country.⁹ His interest in Ireland persisted and many of his works deal with the economic underdevelopment of Ireland and ideas about how to expedite economic convergence. In this sense, Petty can also be considered a forerunner of development economics. Given the diversity of Petty's writings, I included the posthumously published *Political Arithmetick* (1690), the three different versions of the *Essays in Political Arithmetick* (1686-1699), and the *Treatise on Taxes and Contributions* (1662); his work on Ireland is represented by *The Political Anatomy of Ireland* (1691), the second edition of which is entitled *The Political Survey of Ireland* (1719).¹⁰ Using title fixed effects for those titles, regression model (2) yields an estimate \hat{r} of the compound annual rate of return of 4.9% (see Table 2 above).

David Hume (1711-1776) is today best known as the preeminent enlightenment philosopher. The question therefore arises why he is included in this sample of political economists. Two reasons justify this choice. First, Hume's general philosophic views indubitably had a profound influence on political-economic thought, not least because Adam Smith's writings are permeated with the philosophy of his friend Hume. Hume, secondly, also wrote on various political-economic topics

⁹ ABPC reports many sales of Petty's maps dating back to that stage of his life. I did not include these sales in my regressions.

¹⁰ A copy of *The Political Survey of Ireland* was advertised in April 2020 by *Peter Harrington Rare Books* as follows: Second edition, corrected and enlarged, following initial publication in 1691 under the title *The Political Anatomy of Ireland*. "Petty wrote his *Political Anatomy of Ireland* about 1671 after his second long stay in the country. It provides a wide survey of Irish institutions and government with much statistical evidence... the volume concludes with *Verbum Sapienti*, a short treatise in ten chapters called by Petty 'A Discourse about Taxes and the value of People', being an assessment of the wealth of the nation and its capacity to pay taxes" (Keynes, p. 34). "This, perhaps, is the best of Petty's works; and is valuable alike for the authentic information it affords respecting the state of Ireland in the latter part of the 17th century, and for the judicious suggestions of the author with a view to its improvement" (McCulloch, *The Literature of Political Economy*, p. 211). Price: £1250.

himself and was certainly perceived by his contemporaries as a political economist. Most of his views on economic issues in the more narrow sense are to be found in his *Political Discourses* (1752), which were later incorporated into different collections of Hume's essays. Hume's writings and ideas on various topics of relevance to political philosophy and political economy in the modern sense are more dispersed in his works because moral and political matters are hard to separate. Hume's views are known so well by political economists that they do not need not be summarized here. It suffices to say that Hume very clearly expressed many views that are now often attributed to Adam Smith. He, for example, emphasized the substantial positive externalities of commerce on the moral, social, and political vitality of a society, called attention to the benefits of the rule of law, private property, and free trade, and called for moderation in exercising state authority. Since all of Hume's works are still inspiring for economists, as are, most notably, his views on the relationship between passion and reason for behavioral economics. I include in my regression seven of his works whose subject matters to some extent overlap (which cannot be avoided in the case of Hume) but nicely cover Hume's world of thought. Those works are *A Treatise of Human Nature* (1739), *Philosophical Essays Concerning Human Understanding* (1748), *Essays, Moral and Political* (1741), *An Enquiry Concerning the Principles of Morals* (1751), *Political discourses* (1752), *Essays and Treatises on Several Subjects* (1753), and *Four Dissertations* (1757). The resulting estimate \hat{r} of the compound rate of annual return of 5.0% is well in line with the respective estimate for Petty's works.

The estimates for Adam Smith's works reported in Table 2 include the three books already mentioned in the previous section: *The Theory of Moral Sentiments*, the *Wealth of Nations*, and the *Essays on Philosophical Subjects*. The title specific variables for *Moral Sentiments* are dummies for copies of the first edition of 1759 and copies of the second edition of 1790, the reference group consisting of the editions published between 1767 and 1809. The provenance-specific variables include in this specification also a dummy variable indicating two copies of *Moral Sentiments* inscribed by Adam Smith. For the *Essays*, only two versions are distinguished: copies of the first London edition published in 1795 and the first pirated edition published in Dublin in the same year. The estimated compound rate of annual returns of 7.0% exceeds those for Petty's and Hume's works but falls a little short of the estimated rate of return of 7.2% for the *Wealth of Nations* (Table 1).¹¹ The most expensive books in Smith's works turn out to be copies of the first London edition of the *Wealth of Nations*, followed by the first editions of *Moral Sentiments*, the second edition of the *Wealth of Nations*, and, in a tie, the first edition of the *Essays* and the first Dublin edition of *Wealth of Nations*.

¹¹ The rate of returns to investing in the *Moral Sentiments* is actually larger than that to the *Wealth of Nations*, but the rate of returns to the *Essays* is much smaller, giving rise to the difference of 0.2%.

Jeremy Bentham (1748-1832) was a prolific writer with many diverse interests; political economy, especially monetary theory and welfare economic considerations, was just one of them. The founder of utilitarianism is often considered more of a social reformer, jurist or philosopher than a political economist even though his influence on the development of political economy was immense and also direct. James Mill, for example, was his collaborator and, of course, in turn the father of John Stuart Mill, whose *Principles of Political Economy* became the leading economics textbook in the second half of the 19th century. Perhaps because of Bentham's wide-ranging interests, none of his works shine out which would make them especially prized items for collectors. Another hindrance to collectability is that third parties often prepared his works for publication and even translated them into French before they appeared in England. The ABPC records reflect that complex publication history of Bentham's work. ABPC reports about 120 auction sales between 1975 and 2019, but only few titles appear regularly. *A Fragment on Government* (1776), Bentham's first book in which he already argued that utility is the basic principle of behavior, was sold 8 times, and *The Book of Fallacies: From Unfinished Papers of Jeremy Bentham; By a Friend* (1824) 9 times. Both of those books deal with deadlocks of political reform and the arguments used by self-interested politicians to thwart reforms. Those two books thus can be said to represent precursors of modern political economy. Under the circumstances, I decided to include all works recorded in ABPC, which sold several times in the same printing, i.e. altogether eight titles with a total number of 42 sales.¹² The estimated rate of return is, compared to the returns to the work of the previous three authors, rather low at 3.7%.

Robert Malthus (1766-1834) is best known for his *Essay on the Principle of Population* (EPP) first published in London in 1798. The second London edition appeared in 1803. I also use all London editions up to 1826 in my regression, i.e. up to the sixth edition, and also the first American edition that appeared in Georgetown in 1809. Apart from the *Essay on the Principle of Population*, I include Malthus's *Principles of Political Economy* (PPE) in its first and second London editions (1820 and 1836), and in the first American edition of 1821.¹³ The title fixed effects thus distinguish between EPP and PPE. The four title-specific hedonic variables for EPP are the first, the second and the remaining London editions bundled together, plus the first American edition; the three title specifics for PPE are the first and the second London editions and the first American edition. The annual return to investing in rare editions of these two major

¹² The remaining six works are the *Introduction to the Principles of Morals and Legislation* (1789), *Panopticon, or the Inspection-House* (1791), *The Elements of the Art of Packing as Applied to Special Juries* (1821), *Rationale of Judicial Evidence, Specially Applied to English Practice* (1827), *Justice and Codification Petitions: Being Forms Proposed for Signature by all Persons Whose Desire it is to See Justice No Longer Sold, Delayed or Denied* (1829), and *Official Aptitude Maximized; Expense Minimized: As Shewn in the Several Papers Comprised in this Volume* (1830).

¹³ Not included are 7 copies reported in ABPC of the 1820 Paris edition.

works by Malthus amount to only 3.2% per annum. As compared to the rate of return to the works of his admittedly more famous predecessor Adam Smith, this must be somewhat disappointing for Malthus collectors. Allowing for title-specific time trend (in the sense of model 1') reveals that first editions of the *Essay on the Principle of Population* had a rate of return of 5.0%, whereas the rate of return to the *Principles of Political Economy* was a mere 1.9%, showing that not all books written by a specific author have the same enduring appeal to collectors.

From all publications by David Ricardo (1772-1823), *On the Principles of Political Economy and Taxation* is most often sold at auctions. I include four different editions of this title: the first three editions published in London in 1817, 1819, and 1821, and the first American edition of 1819 published in Georgetown. The rate of return is at 4.3% somewhat higher than the return to the two books by Malthus, with whom Ricardo consorted and on whose *Principles of Political Economy* Ricardo wrote a long-lost manuscript that was rediscovered in 1919 by one of Ricardo's great-grandsons in the proverbial lumber room and published in 1928 (a quite collectable book in its own right). Again, when running the regression with a separate time trend for first edition copies, the estimated return of first editions turns out to be somewhat higher at 5.1% than the return to the later editions.

John Stuart Mill (1806-1873) was the author of the political economy textbook that influenced at least two generations of economists. *Principles of Political Economy, with some of their Applications to Social Philosophy* was published in 1848 and republished with changes and updates seven times in Mill's lifetime. My dataset includes editions up to 1865. I also included a second work dealing with economic issues: *Essays on Some Unsettled Questions of Political Economy* (1844). But one would not do justice to Mill's entire oeuvre if one neglected his writings on liberalism. I therefore also included *On Liberty* (1859), *Considerations on Representative Government* (1861), and *The Subjection of Women* (1869). For good measure, I also included J.S. Mill's famous and extremely readable *Autobiography* (1873). All those works are, after all, of great interest to modern political economist. They are also highly collectable as documented, by way of an example, by the auction record of a book that is, admittedly, very special by being inscribed by J.S. Mill for another celebrated classical liberal -- who has, however, not appeared to find it necessary to peruse the wirings of his English colleague (Exhibit 2). Be that as it may, the estimated annual return for his entire work amounts to 4.9%, the highest prices for Mill's books, as indicated by the title fixed effects and the corresponding title specifics, are fetched by first editions of *Principles of Political Economy*. Introducing special time trends reveals that *On Liberty* first editions are, among all of Mill's books, associated with the highest annual returns of 7.1%.

Exhibit 2: A very special copy of Mill's *On Liberty*

Mill, John Stuart, 1806-73 - *On Liberty*.
 L, 1859
 8vo,
 orig cloth, unopened
 spine faded, upper cover stained
 1st Ed
 Inscr to Alexis de Tocqueville
 Bonhams, Nov 11, 2015, lot 264, £90,000 (\$136,647)
 BMC, Vol 17, p. 537 (359); PMM 345

Even though Karl Marx (1818-1883) emigrated to England at the age 31 and stayed there for the rest of his life, he wrote his magnum opus in German. In 1867 the first volume of *Das Kapital* was published in Hamburg. A second German edition was published in 1872. In the same year, the first Russian edition appeared in St. Petersburg and also the first French edition began to appear in parts (Paris, 1872-1875). Marx did not live to see any translations of his work into English (the first American edition appeared in 1886, the first British edition in 1887), nor did he live to complete his manuscripts of the second and third volume. Friedrich Engels took over and prepared these manuscripts for publication. They appeared, again in German, in 1885 and 1894. I use all of those editions and include title fixed effects for the Russian, French, American, and English first editions of volume 1; for the German editions, I differentiate between 3 volume sets of first editions, sales of only the first edition of Volume 1, and mixed or incomplete sets. This specification of model (2) yields an adequately non-exploitative annual return to *Kapital* of $\hat{r} = 4.7\%$.

Just as in the case of Bentham, when estimating the rate of return to rare books written by Jevons (1835-1882), the scarcity of observations constrains me to include many titles that were sold only a few times in the observation period of 45 years. Moreover, in the case of Jevons, the sample size is even smaller than in the case of Bentham. Included in my regression are the following titles: *Pure Logic; or, the Logic of Quality apart from Quantity* (1864), a work that reflects Jevon's status of an eminent logician, two works on specific economic fields, *The Coal Question* (1885) dealing with resource depletion and *Investigations in Currency and Finance* (1884), the *Theory of Political Economy* (1871), one of the foundational works of neoclassical economics (2nd edition in 1879), and the posthumously published *Principles of Economics: a fragment of a treatise on the industrial mechanism of society, and other papers* (1905). All in all, I am dealing here with a sample of 27 observations and five titles. Such a small sample leaves me with few degrees of freedom, i.e. very few observations may greatly influence the results. In the present case,

including the seller specific variables distinguishing the six sales by *Christie's* and *Sotheby's* wreak havoc when the condition index is also included as a covariate. The results presented in Table 2 therefore derive from regressions that include in the set of seller specific variables only the variable *UK*. The resulting annual rate of return amounts to 5.1%.¹⁴

The only 20th century economist whose work is sufficiently often sold at auctions to allow estimating a meaningful price trend is John Maynard Keynes (1883-1946). I estimate the rate of return using four of his works: his first book, *Indian Currency and Finance* (1913), written on the occasion of lecturing on Indian monetary problems at the *London School of Economics* and the University of Cambridge four years after he left the *India Office*, *The Economic Consequences of the Peace* (1919), written while attending as a member of the British delegation the Paris Peace Conference (the book became, at the time, a bestseller), *Theory on Money* (1930), and *The General Theory of Employment Interest and Money* (1936). For modern books that were originally sold with dust jackets, the rare book market often charges a substantial premium for copies with dust jackets, especially if the dust jacket is well preserved (which is often not the case). I therefore included a dummy variable indicating the sale of a book with the original dust jacket.

The estimated compound annual return of 7.7% to the specified collection of Keynes's works is in a similar league as the return to Adam Smith's *Wealth of Nations*. Estimating the regression for Keynes's work with a separate time trend for first editions of the *General Theory* reveals that the returns to those first editions even exceeds the return to first editions of *The Wealth of Nations*: 9.5 % versus 8.8%. This is perhaps not surprising considering that more recently produced collector's items have the advantage of having been priced much lower at the beginning of the observation period than items that were at that time already eminently collectable. Moreover, contemporary collectors' interests and tastes are more in tune with relatively modern items; the significance for contemporary buyers appears to diminish as the items become increasingly historic. This kind of preference for more contemporary collector's items has also been observed for rare books of classical literature (Ursprung 2020) and for works of art.¹⁵

The general impression of the results reported in Table 2 is that the annual (nominal) return to investing in rare political economy books is of the order of 5%, the work of some authors fare a little better (Adam Smith, John Maynard Keynes), some a little worse (Jeremy Bentham, Thomas Malthus). The idea of presenting the returns to the work of individual scholars was, however, not to arrive at a ranking (the results presented for Bentham and Jevons are anyhow based on rather small samples of

¹⁴ If I use the full set of seller specific variables but exclude the condition index, the estimated coefficient of the time trend drops marginally from 0.050 to 0.046 but loses statistical significance at conventional levels.

¹⁵ See, for example, Renneboog and Spaenjers (2013).

auction records and need, therefore, be taken with a grain of salt), but rather to call attention to the fact that aggregate returns to rare books and rare book price indices conceal price variations across authors, titles, and even printings.

With this caveat, I now turn in the next subsection to aggregating the price data across authors. In a first step, I derive rates of returns for the entire sample of books, using different specifications of the regression equations with the intent to identify the method that is most suitable for dealing with large numbers of observations. I end up by replicating the author-specific rates of returns reported in Table 2 by using author-specific trends in my preferred specification.

4.2 Aggregating across authors

Regression model (2) can easily be generalized to accommodate the works of different authors if one includes author fixed effects μ_{is} that equal one if lot i is a work written by author s and zero otherwise:

$$\ln p_{ikt} = \alpha + \sum_{j=1}^n \beta_j x_{jit} + \delta t + v_{ik} + \mu_{is} + \varepsilon_{it} \quad (3)$$

Aggregating across many authors makes not only sense if one requires price information about an entire genre of literature but also because the much larger sample size allows estimating the coefficients of the common covariates with much higher precision, at least if one believes that the price determining mechanism is the same for all included authors. Aggregating across the ten authors yields a sample size of 1440 observations of auction sales. Figure 3 shows the distribution of the number of sales over the observation period.

Figure 3: Number of sales: entire sample

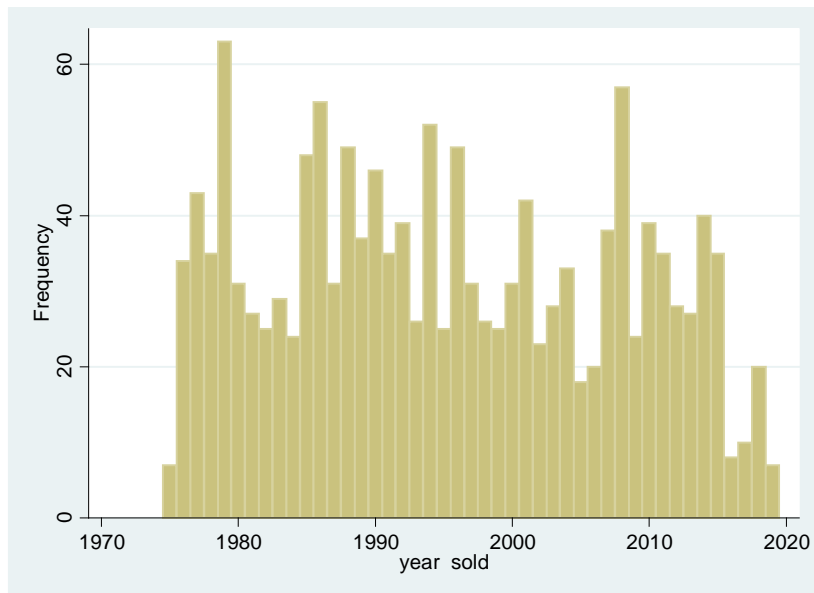


Table 3 reports estimates of the time trend (and the associated rate of return) estimated with regression model (3) when the works of all ten political economists are included, i.e. if $s = 1, \dots, 10$. In all of those regressions, the standard errors are clustered at the author level. To show how inclusion of different groups of covariates affect the estimate of the time trend and the explanatory power of the regression, I begin in the first column by presenting the estimate of a parsimonious specification of model (3) that includes only covariates that are easily obtainable, i.e. author and title fixed effects. Including the seller specifics (column 2) significantly increases the estimated return and the R^2 . Coding the seller specifics, i.e. the auction house handling the sale, does of course not come at a great additional cost to recording the author and title fixed effects.

Table 3 at the end of the paper

Coding the variables added in the following three specifications is more time consuming and not easily programmable, especially if the titles to be included are not predefined. Coding title-specifics is in most cases straightforward as long as only different editions (often identifiable by the place and year of publication) are to be distinguished; when it comes to identifying different issues of certain editions, this business often becomes a matter for specialists. Coding provenance specifics (inscriptions, author signatures, and previous owners) demands some expertise, because not all references to provenance have the same appeal to the buyers. Coding condition from the sometimes idiosyncratic or even lacking description provided by the auction house is even more challenging. The results reported in column (3) reveal, however, that the information contained in the title-specific characteristics of rare books explain much of the variation in book prices and have a clear effect the estimated price trend. The effect of adding provenance-specific characteristics (column 4) is much smaller and so is the effect of adding information about book condition (column 5). The small effect of including the condition index can be ascribed to the fact that the

seller-specifics also capture, at least to some extent, the condition of the books. Another reason may be that book condition simply does not change across time systematically.

The regression results reported in columns (6) and (7) serve to test the sensitivity of the estimates of the baseline regression that includes all covariates (column 5). Each of those regressions excludes one set of covariates that is not easily available: In column (6) the provenance specifics and in column (7) the title-specifics are not included. The regression reported in column 4 excludes, of course, the condition index and indicates that ignoring condition is innocuous when estimating price trends. The results reported in column 6 now suggest that the same argument also applies to the provenance specific characteristics. Problematic is, however, the exclusion of the title-specific variables because excluding these variables has a marked effect on the estimated time trend (or the rate of return) and, moreover, dramatically reduces the explanatory power of the regression as measured by R^2 . The conclusion of this robustness exercise is that if one would want to exclude one of the three characteristics that not easy to come by, it would certainly be the condition index and certainly not the title-specifics. Whether this conclusion carries over to the construction of price indices will be discussed in the following section.

The results reported in column 8 of Table 3 derive from the baseline specification (column 4) that replaces the general time trend with author-specific trends for all ten authors. As compared to the author-specific time trends reported in Table 2, the time trends estimated in column 8 impose the same effect of all covariates that are not author specific, i.e. the seller specifics, the provenance indicators, and the condition index. The difference between the two sets of estimates turns out to be rather small, probably because the impact of the common covariates is, as shown above, rather small. Only in the case of Marx the difference approaches economic significance (about one sixth of the estimates).

5. A PRICE INDEX FOR RARE POLITICAL ECONOMY BOOKS

Price indices always refer to a given class of goods. That class can be open in the sense that new relevant goods are included as they appear on the market, or the class can be closed. A price index for Rembrandt prints, for example, is a closed index. Despite the grandiloquent title, I derive in this section also a closed index because the authors and their works that I chose to include is circumscribed. Compiling a more comprehensive open-class index of rare political economy books that would include more authors and titles and, above all, include those books as they become collectable is, in principle, doable but would not have agreed with my fondness for author personalities and sleek empirical design.

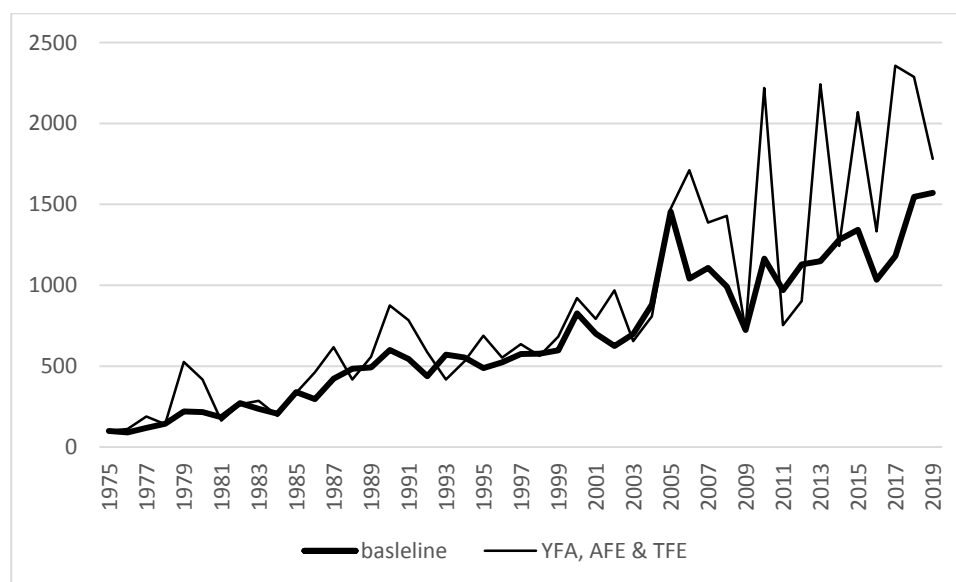
To derive price indices for my sample of rare political economy books, I replace in model (3) the time trend t by year of sale dummy variables Y_{it} (model 3a). The specification for the baseline index includes all covariates because it is, after all, not obvious whether the insights gained in the previous section from estimating long-run time trends carry over to deriving indices portraying annual price changes which are, of course, estimated on much smaller numbers of observations.

$$\ln p_{ikt} = \alpha + \sum_{j=1}^n \beta_j x_{jit} + \sum_{t=1}^{43} \gamma_t Y_t + \nu_{ik} + \mu_{is} + \varepsilon_{it} \quad (3a)$$

Apart from estimating the baseline specification, I test again how the exclusion of certain groups of covariates affects the estimates. The baseline estimates of the year dummy coefficients γ_t are reported in Table A1 of the Appendix together with the standard errors, the price index I_t , and the estimated annual returns \hat{r} . The results discussed in this section derive again from OLS regressions with standard errors clustered at the author level. Because of the relatively small sample size, the index values reported in Table A1 have rather low statistical precision as measured by the clustered standard errors.

More revealing than the numerical estimates are, however, graphical representations of how price indices progress over time. Figure 4 depicts the progression of the baseline index together with a “cheap” index that uses only the year fixed effects (YFE), i.e. the year dummy variables γ_t , the author fixed effects μ_{is} (AFE), and title fixed effects ν_{ik} (TFE). That index is cheap because authors and titles are very easy to assemble.

Figure 4: Baseline index compared with the “cheap” index



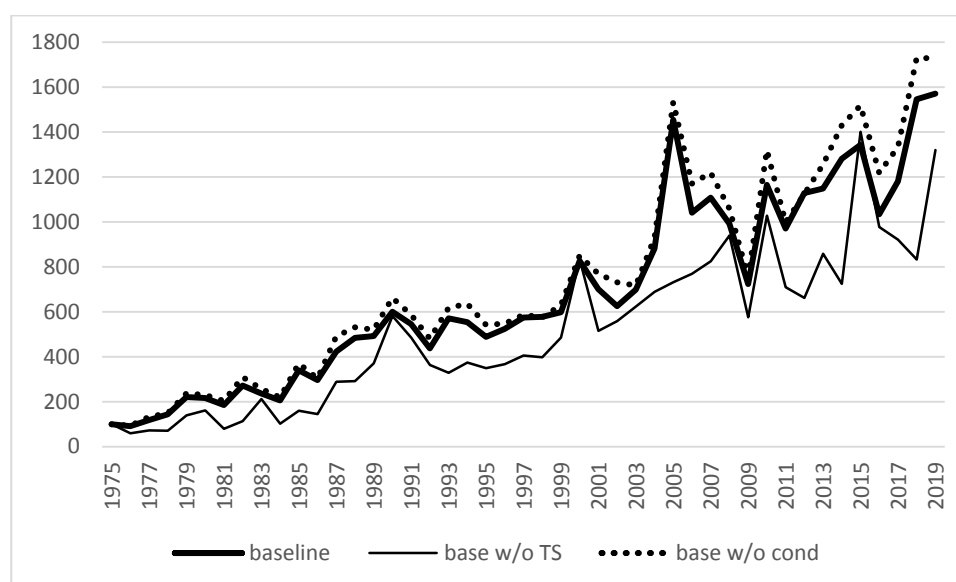
The baseline index follows, with marked medium-run deviations, a steadily increasing path. This result confirms that the additional information provided by estimating price indices as compared to

mere time trends is substantial. The compound annual return indicated by the baseline index amounts, in nominal terms, for the entire observation period 1975-2019 to 6.5%. Because of the substantial medium-run deviations of the baseline index from its long-run trend, the compound annual return depends, of course, considerably on the chosen starting and endpoint of the period.

Figure 4 also clearly shows that the cheap index is far from providing realistic pictures of the price development. The enormous short-run volatility of that index disappears when one takes more characteristics of the auctioned books into account. Pairwise correlations between the growth rates of those two price indices support this visual assessment (see Table 2A in the Appendix). To be sure, all of those conclusions rest on a rather small sample of auction sales, but then the range of collectibles for bibliophile political economics books is simply quite limited.

Figure 5 depicts the progression of the baseline index together with an index that excludes the condition variable and an index that excludes the group of title-specific variables. Ignoring condition does not give rise to substantial deviations from the baseline index (an index that excludes the provenance-specific variables is not shown because it follows rather closely the index that ignores condition and would thus be difficult to visually discern). Excluding the title-specific characteristics makes, however, a significant difference. Again, pairwise correlations of the growth rates of the concerned indices support that visual assessment (see Table A2 in the Appendix).

Figure 5: Baseline index compared with indices that exclude certain groups of covariates



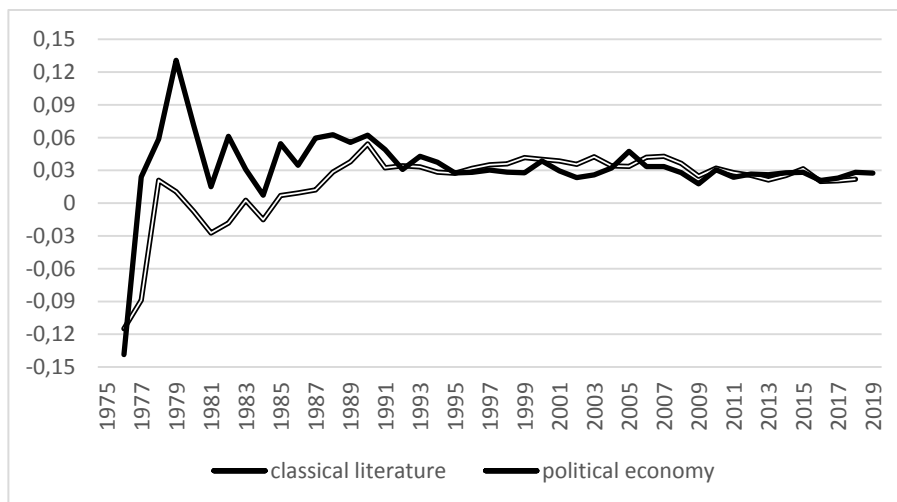
The general conclusion from this exercise parallels that from the robustness tests performed in the previous section. Informative rare book price indices need to be based on normalized prices that correct for various hedonic characteristics. Some characteristics are however more important than others. Title-specific characteristics are important, as every book collector would have expected. Coding the condition of each book using the information provided by the auction house may not stand a cost-benefit test, not only because the cost is in this case especially high but also because the quality of the information provided differs across auction houses and time, and is sometimes even missing. This does, of course, not mean that the condition of a book is not important for the price of that books; it only means that the condition of the books sold does not change very much across time and therefore does not greatly influence the price index.

6. ARE RARE POLITICAL ECONOMY BOOKS A REASONABLE INVESTMENT?

So far, I have reported nominal returns. To be sure, nominal returns are of little informative value when inspecting asset prices in the long run. I therefore converted the nominal price index into a real index by deflating the nominal index with the consumer price index of the United States. For the entire observation period 1975-2019, I arrive for my sample of books at a real (compound) annual return of 2.75% as compared to the nominal return of 6.5%. Since the volatility of rare book prices around the long-run trend are substantial, per-period returns depend on the choice of period. Figure 6 may convey a more balanced impression of how a collectors view the financial return to their investment. Figure 6 is based on the assumption that the entire collection was formed in 1975 and kept unchanged over the years; the graph then traces the compound annual returns from 1975 to the year indicated on the abscissa. To compare the financial returns to the political economy collection with the returns to another kind of rare book collection, I compare the development of the returns to the political economy collection with the returns to a rare book collection of classical literature also formed in 1975.¹⁶

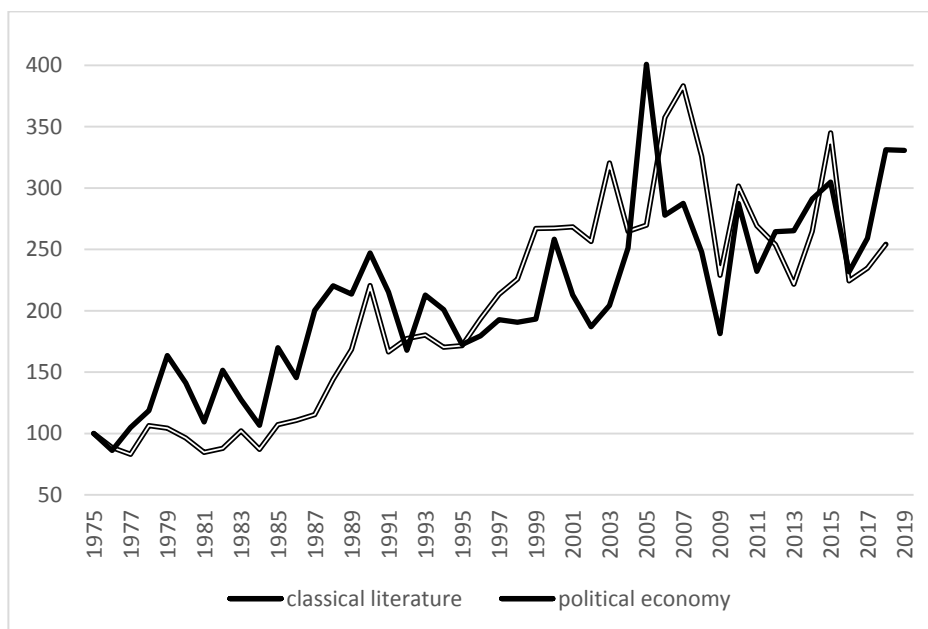
Figure 6: Compound annual real returns from 1975 to the year indicated on the abscissa

¹⁶ The price index for rare classical literature books is taken from Ursprung (2020).



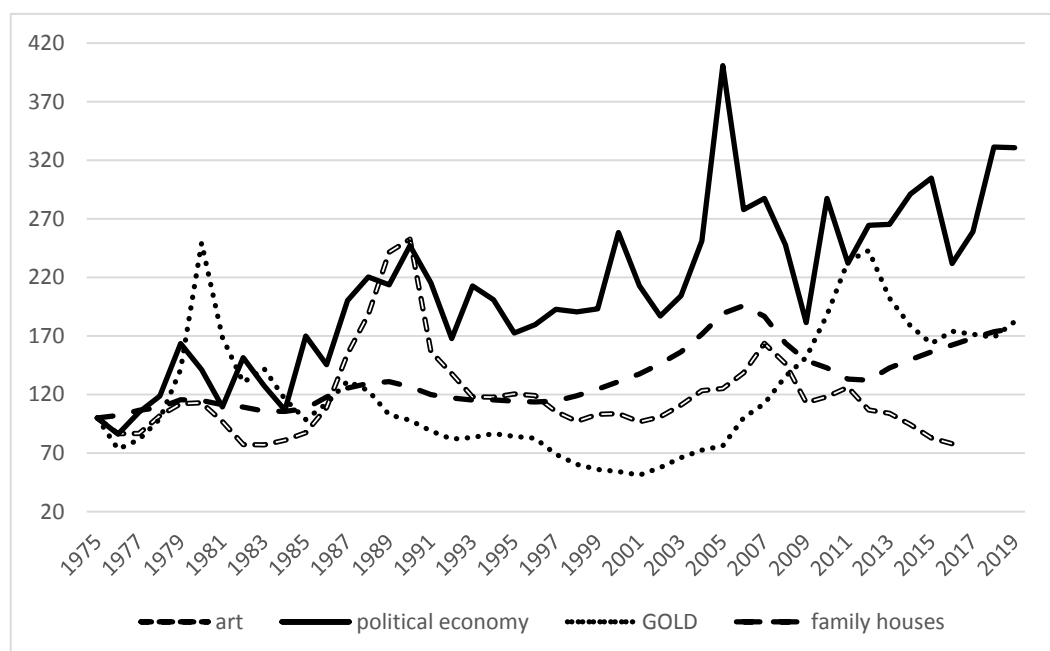
The two graphs in Figure 6 convey that short-run real returns to rare book collections can assume rather large positive and negative values; in the longer run, which is for committed collectors the relevant time horizon, the real return settles, however, via aggregation at more modest levels approaching 3%. The two graphs show in particular that the financial returns of the two types of book collections are very similar. Figure 7 depicts the real price indices of collections of rare books of political economy and classical literature.

Figure 7: Real price indices for rare books of political economy and classical literature



In Figure 8, I compare the real price index of rare political economy books with a real price index of works of fine art.¹⁷ Fine art is also a collectible good and therefore ideal for putting the rare book price index into perspective. Figure 8 also depicts the gold price index and an index of single-family home prices in the United States,¹⁸ both of which are deflated with the US consumer price index. Fine art prices have kept up with the rare book prices up to the early 1990s, then collapsed and did not recuperate for the next 10 years, peaked again in 2007, albeit at a lower level than in 1990, and dived afterwards again; all in all, a rather dismal picture that does not correspond to the usually exuberant art market coverage by the media. Figure 8 certainly suggests a marked underperformance of the art market as compared to the rare book market, an impression that may, however, be questioned because the depicted art price index covers a large range of artwork of different quality, whereas my rare book price index relies on a perhaps more discriminating variety. In any event, a compound rate of annual real returns of -0.6% for the period 1975-2016 is, from a purely financial point of view, not what an art collector would hope for.

Figure 8: Real price indices for art, gold, and family houses



¹⁷ Many art price indices are offered by stake-holders of the art industry. These products are liable to present potential collectors with an overly optimistic view. I therefore use here an art price index designed by academics (Renneboog and Spaenjers 2013). The index values after 1996 do however not correspond to the values reported in that study. They are taken from unpublished work using the same method; they must, therefore, be interpreted with caution. Unfortunately, that updated index is only available until the year 2016.

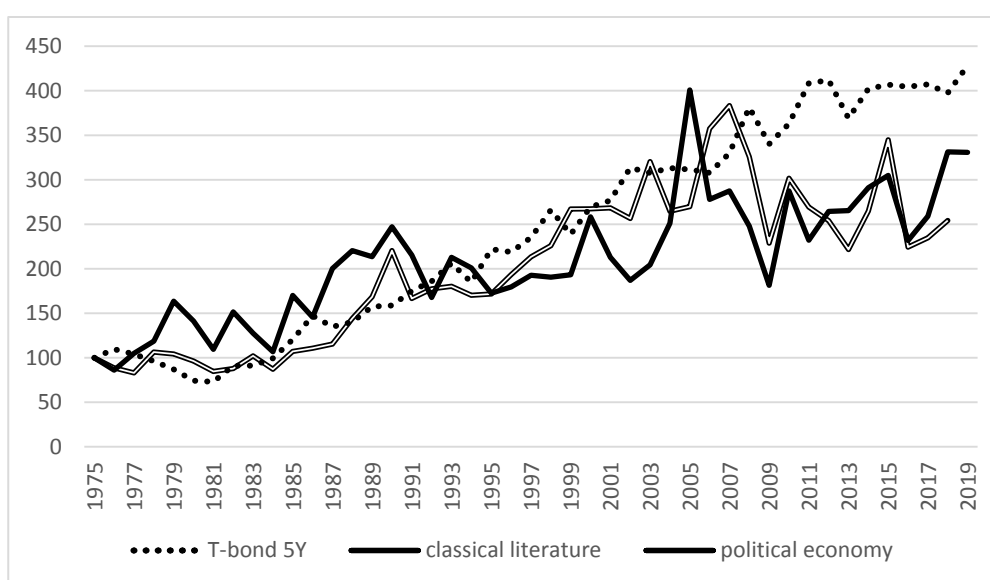
¹⁸ ICE Benchmark Administration Limited (IBA), Gold Fixing Price 10:30 A.M. (London time) in London Bullion Market, based in U.S. Dollars [GOLDAMGBD228NLBM], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GOLDAMGBD228NLBM>, April 7, 2020.

S&P Dow Jones Indices LLC, S&P/Case-Shiller U.S. National Home Price Index [CSUSHPISA], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/CSUSHPISA>, April 6, 2020.

Gold performed in the 1975-2019 period at 1.4% per annum certainly better than fine art but provides for cultured investors, perhaps with the exception of Scrooge McDuck, lower non-pecuniary returns. Table 8 does of course not account for the gold price surge in 2020 which amounts (at the time of writing) to a whopping 27%. In terms of non-pecuniary returns, real estate is often thought to be a wiser investment than useless gold. The index for single-family homes in the United States indicates for the 1975-2019 period an annual real rate of return of 1.3%. Real estate prices also follow a much smoother path than gold prices that are driven by economic crises. To be sure, home ownership provides not only the benefit of a place to live in, but also comes with maintenance cost. Even from a financial point of view, investing in gold or a family home does not necessarily top a rare book collection.

But what about financial assets? Figure 9 duplicates Figure 8 with the two rare book price indices and adds the real value of reinvested 5-year US T-bonds.¹⁹ From 1975 to the start of the great recession in 2008, the three graphs follow a similar trend, the book prices being, of course, much more volatile than the value of a T-bond investment. The financial crisis with the ensuing debt crisis left their mark on the market for rare books; prices fell, bottomed out for about 10 years and appear to continue this sideways movement.²⁰ For the period 1975-2019, investments in both T-bonds yielded a compound average real returns of 3.4%.

Figure 9: Real price index of reinvested 5-year T-bonds



Comparing returns to long-term investments in rare books with investment in the stock market, produces the expected result: the stock market wins hands down (Figure 10). For the period 1975-2019, investments in an S&P 500 fund would have yielded a compound average real return of 7.6%.

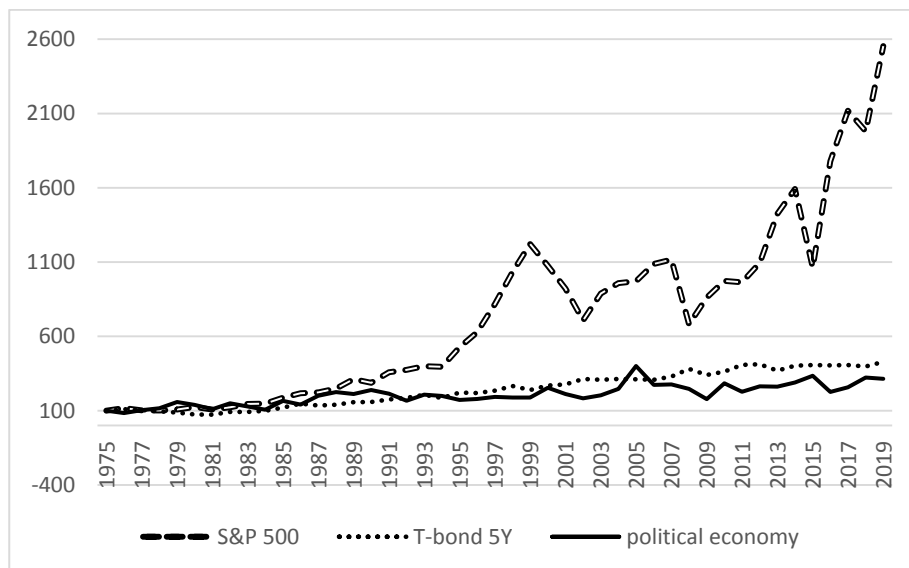
¹⁹ Damodaran data:

http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html#_msoanchor_2

²⁰ The value of the rare classical literature index for the year 2019 is not available yet.

Of course, stock prices are very volatile and stock investments sometimes suffer long lean periods, for example between 1999 and 2013. But then, this also applies to collectibles such as rare books.

Figure 10: Real stock price index (S&P 500)



There is no question: nothing beats stocks when it comes to long-run investments with a view to financial returns. Stocks are also attractive because of their high liquidity and low transactions costs, features that they share with investments in bonds and gold. Collectibles on the other hand, are often hard to divest at good prices and the transaction cost are usually very high; *Sotheby's* seller commission, for example, amounts to 10% deducted from the hammer price. The question for a prospective collector therefore boils down to whether he is prepared to bear the opportunity cost of $7.6\% - 2.8\% = 4.8\%$ per annum for his (the rare book collector is usually male) pleasure of owning, cherishing, being surrounded by, perhaps even reading or, god forbid, showing off his treasures. For a bibliophile, the answer is obviously a resounding yes, for people who are puzzled, flabbergasted, even revolted by somebody who bought at auction a very special copy of *Wealth of Nations* for almost a million dollars (Exhibit 3), a heartfelt: no way!

Exhibit 3: A million bucks for a book?

Smith, Adam, 1723-90 - An Inquiry into the Nature and Causes of the Wealth of Nations.

L, 1776-84

2 vols. 4to,

contemp tree calf gilt

rebacked preserving orig spine & restored by J. Macdonald

1st Ed

Some light spotting to half-title, tp & final 2 leaves; occasional spotting; a few leaves browned; small hole in Xx3 in Vol I with loss of pagination

Smith's own copy (with his letterpress bookplate) - Homer Bews Vanderblue (bookplate)

Christie's, Dec 12, 2018, lot 220, £750,000 (\$956,250)

Kress 7621; PMM 221; Goldsmiths' 11392

7. Conclusions

In this study, I present the first price index, based on hedonic regressions, for rare political economy books. Explaining price formation of cultural goods is a central topic of cultural economics and price indices for collectibles have become important tools for evaluating alternative financial assets. I ask two questions. The first one inquires about the financial returns to investing in rare political economy books. The second one is of a methodological nature and asks which characteristics of rare books are essential in hedonic regressions, and which ones are merely nice to have.

Collectors usually do not care about the short-run financial performance of their collection; they are, if at all, only interested in the long run. My observation period of 45 years (1975-2019) reflects that investment horizon. Using book auction records from auction houses specializing in English language books, my results show that investing in rare political economy books yielded a long-run annual rate of real return close to three percent. This estimate is based on a somewhat restricted sample of ten eminent political economists, nine of them British, with Karl Marx (who, after all, lived the greatest part of his life in London) thrown in for good measure. Given the relatively small sample size, the external validity of the empirical results is admittedly not beyond dispute. Even so, the price index is well in line with a price index, also based on hedonic regressions, for rare books of classical literature.

The hedonic approach has been extensively used in the cultural economics literature to investigate price changes in the fine art market. It is therefore interesting to compare the financial performance of investing in fine art with the financial performance of investing in rare books. This comparison is especially informative because the rare book market and the fine art market are characterized by very similar institutional settings. My results support the conclusion that rare books outperform fine art in financial terms. Why this might be so, is up to speculation. My favorite conjecture is that fine art provides more scope for conspicuous display than a library of rare books, thereby providing the owner with better opportunities to signal the kind of identity he or she wants to convey.

I test the robustness of my results by comparing estimates deriving from regressions that include different groups of hedonic variables. This exercise reveals that some characteristics of rare books do not contribute much to explaining the price variation in rare books. Other characteristics are however indispensable. Even though the physical condition is crucial for the value of individual books, condition does not matter that much for estimating price indices for an entire genre of books. This is good news because coding book condition based on auction records is not only time consuming, but often also a haphazard business. Indispensable for constructing decent rare book price indices is, on the other hand, a careful coding of the different editions and issues of a title. That is less challenging than coding condition but still a task that cannot easily be automatized.

Those methodological insights are important when attempting to base a rare book price index on a much larger sample than the one I used in this study to derive first, perhaps preliminary, estimates of financial returns and to learn how to best tackle a more broadly based investigation. The data for more broadly based investigations may come from auction houses that sell books written in another language than English. Even though most studies on price formation of collectibles use auction data because they are readily available, auctions are just one of the two major marketplaces for collectibles. In the art market, for example, auctions accounted in 2019 only for about 42% of the global transaction volume of 66.1 billion US dollars, the remainder being transacted by the dealer sector, i.e. by traditional galleries, art fairs, and on-line.²¹ For the rare book trade, no comparable data appears to be available. However, rare book dealers are still important agents in the rare book trade, and they sit on a treasure of information that has, as of yet, not been tapped.

²¹ The Art Market 2020. An Art Basel and UBS Report.

Table 1: Price determinants: *Wealth of Nations*, OLS regressions, model (1)

	only year of sale	+ title specifics	+ seller specifics	+ provenance specifics + condition	+ different slopes	with year dummies
	(1)	(2)	(3)	(4)	(5)	(6)
Year of sale t	0.068*** (0.0089)	0.071*** (0.0026)	0.073*** (0.0028)	0.070*** (0.0028)	0.058*** (0.0034)	
Return r	7.1%	7.4%	7.6%	7.2%	6.0%	
t^*1^{st} L ed.					0.026*** (0.0048) 2.7%	
<u>Title specifics</u>						
1 st ed. London		4.74*** (0.095)	4.58*** (0.112)	4.48*** (0.106)	3.90*** (0.147)	4.56*** (0.106)
1 st ed. Dublin		1.95*** (0.158)	1.85*** (0.158)	1.89*** (0.148)	1.45*** (0.163)	2.02*** (0.142)
2 nd ed.		2.82*** (0.177)	2.73*** (0.176)	2.80*** (0.165)	2.80*** (0.158)	2.76*** (0.164)
3 rd ed.		1.77*** (0.166)	1.64*** (0.166)	1.63*** (0.155)	1.57*** (0.149)	1.70*** (0.156)
4 th and 5 th ed.		0.73*** (0.132)	0.68*** (0.130)	0.68*** (0.123)	0.63*** (0.118)	0.74*** (0.124)***
1790s eds.		0.416*** (0.106)	0.42*** (0.104)	0.46*** (0.097)	0.44*** (0.094)	0.42*** (0.097)
<u>Seller specifics</u>						
UK			0.02 (0.089)	-0.05 (0.084)	-0.02 (0.081)	-0.02 (0.085)
CHR UK			0.41*** (0.124)	0.31*** (0.116)	0.20* (0.113)	0.20* (0.115)
SOTH UK			0.19* (0.113)	0.16 (0.106)	0.08 (0.103)	0.15 (0.105)
CHR US			0.01 (0.162)	-0.12 (0.153)	-0.152 (0.147)	-0.22 (0.149)
SOTH US			0.33** (0.140)	0.18 (0.134)	0.24* (0.129)	0.10 (0.130)
<u>Provenance</u>						
				0.17* (0.091)	0.18** (0.087)	0.21** (0.086)
<u>Condition index</u>						
				3.14*** (0.144)	0.29*** (0.043)	0.29*** (0.053)
Adj. R^2	0.14	0.93	0.93	0.94	0.94	0.95

Dependent Variable: ln of US dollar price of *Wealth of Nations*, 351 observations

t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

†: Christie's London and Sotheby's New York coefficients are usually statistically significant; the other coefficients are not.

Table 3: OLS regressions, model (3), SE clustered at the author level, 1440 observations.

Dependent Variable: ln price in US dollars

† This estimate refers to the time trend for the works by Keynes (reference category). This is the largest estimate. The estimates for the other authors are all smaller.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)†
Time trend	0.052*** (0.0074)	0.068*** (0.0089)	0.058*** (0.0076)	0.055*** (0.0075)	0.054*** (0.0068)	0.056*** (0.0067)	0.062*** (0.0077)	0.072*** (0.0006)
Average annual return	5.3%	7.0%	6.0%	5.6%	5.6%	5.8%	6.4%	7.5% †
Author specific trends	NO	NO	NO	NO	NO	NO	NO	YES
Author fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Title fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Seller specific	NO	YES	YES	YES	YES	YES	YES	YES
Title specific	NO	NO	YES	YES	YES	YES	NO	YES
Provenance specific	NO	NO	NO	YES	YES	NO	YES	YES
Condition index	NO	NO	NO	NO	YES	YES	YES	YES
adj. R-squared	30.1%	48.4%	84.4%	85.5%	87.1%	86.3%	54.2%	87.9%

Standard errors in parentheses. *** $p < 0.01$

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Appendix

Table A1: Baseline regression

	<u>Coeff.</u>	Rob. SE	Index	Return %
1975	0		100	
1976	-0.09315	0.21688	91.10563	-0.08894
1977	0.166561	0.186713	118.1235	0.296556
1978	0.36326	0.231765	143.8009	0.217377
1979	0.791181	0.219761	220.5999	0.534065
1980	0.771924	0.261014	216.3925	-0.01907
1981	0.614356	0.21012	184.8466	-0.14578
1982	0.999834	0.308344	271.783	0.470316
1983	0.859331	0.234277	236.1581	-0.13108
1984	0.723287	0.241179	206.1196	-0.1272
1985	1.223524	0.263376	339.9145	0.649113
1986	1.08659	0.19594	296.4149	-0.12797
1987	1.441841	0.248824	422.8473	0.426539
1988	1.577854	0.343787	484.4548	0.145697
1989	1.593932	0.215099	492.3068	0.016208
1990	1.792496	0.321163	600.4421	0.21965
1991	1.695835	0.300148	545.1196	-0.09214
1992	1.47589	0.340592	437.4928	-0.19744
1993	1.743002	0.408796	571.4473	0.306187
1994	1.711363	0.278292	553.6503	-0.03114
1995	1.586539	0.308591	488.6806	-0.11735
1996	1.655995	0.31685	523.8289	0.071925
1997	1.749077	0.255449	574.9294	0.097552
1998	1.753533	0.273311	577.497	0.004466
1999	1.788957	0.30075	598.3209	0.036059
2000	2.112497	0.270227	826.8863	0.382011
2001	1.946987	0.309455	700.7542	-0.15254
2002	1.832855	0.340935	625.171	-0.10786
2003	1.944298	0.349709	698.8724	0.11789
2004	2.176585	0.422897	881.6148	0.261482
2005	2.677582	0.29229	1454.987	0.650366
2006	2.343099	0.379914	1041.346	-0.28429
2007	2.404833	0.415274	1107.658	0.063679
2008	2.294565	0.354697	992.012	-0.10441
2009	1.978768	0.391654	723.3825	-0.27079
2010	2.455347	0.359618	1165.048	0.610555
2011	2.272506	0.373817	970.3688	-0.1671
2012	2.423608	0.438928	1128.651	0.163115
2013	2.441064	0.400413	1148.525	0.017609
2014	2.550182	0.406995	1280.943	0.115294
2015	2.597506	0.261776	1343.02	0.048462
2016	2.33593	0.249114	1033.907	-0.23016
2017	2.468409	0.318287	1180.365	0.141655
2018	2.738285	0.397616	1546.045	0.309802
2019	2.754261	0.343216	1570.943	0.016104

Notes. This table presents the book price indices (column 4) and returns (column 5) estimated for the hedonic regression model (3a) when all covariates are included. I also report the estimated time dummy coefficients (column 2) and the standard error (column 3).

Tables A2: Pairwise correlation of baseline index, cheap index, and indices excluding one group of covariates

	gBL	gNoCond	gNoProv	gNoTSp~s	gOnlyFE
gBL	1.0000				
gNoCond	0.9754	1.0000			
gNoProv	0.9611	0.9251	1.0000		
gNoTSpes	0.5632	0.5965	0.4851	1.0000	
gOnlyFE	0.5876	0.6503	0.6072	0.6312	1.0000

Figure 1: black and white

