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The Dissemination of Marx in England: a Quantitative Assessment

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The dissemination of Marx in England: a quantitative assessment

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Abstract

This paper adopts the synthetic control method to empirically test Willis (1977) thesis that "the major breakthrough" in the dissemination of Marx in England was the publication of the first volume of Capital in English in 1887. The specificities of late Victorian society and the fact that Marx wrote his theoretical works in German contributed to his anonymity in England up the 1880s-1890s. The liberal-radical roots of the left-wing intellectuals and of the working class movements together with the strong parlamentary tradition constituted a challenging environment for the spread of Marxism. After having downloaded data from google Ngram, I run the SC model. Findings reveal that the 1886 is the breakthrough year for the quotations of Marx in England. Willis's thesis on 1887 as the decisive year is thus slightly anticipated by the quantitative result. Rather, two events that possibly revived Marx's quotations were the publication of the first 10 chapters of 'Capital' in Hyndman's newly bought and renamed "To-Day: Monthly Magazine of Scientific Socialism" and the Trafalgrar Riots (also known as West end riots or Pall Mall riots) of February 1886, an event that broadened the perception of socialist imminence to the average public.

1 INTRODUCTION AND HISTOIRCAL CONTEXT

The dissemination of Marx in England is intricately connected to the emergence of 'modern socialism', a label attributable to movements such as those led by Hyndman, William Morris, and the Fabians. In his autobiography John Stuart Mill called himself a 'socialist', but by the mid-1880s his acception of the word, still tied to utopian socialism was already anachronistic. Laurence Gronlund claimed in his 'Cooperative Commonwealth' of 1884: "*modern* Socialism" is "*German* Socialism" and "is fast becoming *the* Socialism the world over" (Gronlund 1965, p. 6; emphasis in original). Modern socialism called for revolution and state control of the economy; was profoundly different from the "wild rapsodies" (Pigou (1966) p. 156) of utopian socialists such as Robert Owen, Henri de St Simon and Charles Fourier, Blanc who fascinated Mill. The latter indeed did not pretended to be as scientific as modern socialism did, thereby raising the concern of many, including Alfred Marshall (Groenewegen (1995)). As explained by the journalist John Rae in his 'Contemporary Socialism' these "philanthropic and experimental forms of socialism" had disappeared by mid-century and the "only form of socialism which has come to life again since 1848' was the product of the Young Hegelians of the Extreme Left" (Rae (2019)). By 1885, a modern socialist movement had begun to take shape in Britain, and by 1886, its goals and strategies were raising concerns among many middle class people. As noted by E.P. Thompson, during "the years between 1870 and 1880 (and even a decade prior to 1870), there had been no consistent Socialist propaganda in Britain—not even with a small group of a dozen or twenty members" (Thompson 1977, p. 276). However, in the early 1880s, initial agitation around land reform, coupled with enthusiasm for Henry George's Progress and Poverty, evolved into the early phases of an active socialist movement. The first modern socialist organization was H. Hyndman's Social Democratic Federation, but after a split in 1884, William Morris and his followers established the Socialist League. Both groups engaged in street corner activism and published written propaganda. A new socialist press, featuring publications like Justice, Commonweal, and Today, explored Karl Marx's economic theories (even printing excerpts from Das Kapital) and condemned the failings of the parliamentary system. The 1885 Industrial Remuneration Conference offered these new socialist organizations a valuable opportunity to present their analysis of Britain's industrial issues. Yet it was only after the intimidating Trafalgar Square riot in February 1886 that Britain's respectable middle class truly became alarmed, now seeing the emerging movement as a serious threat.

As Groenewegen (1995) points out, the 1880s were different from the previous decade, when some liberal circles were ready to applaud socialist schemes. The influences of the old liberal wing of the radical party began to wane and reforms also began to originate from increasingly independent socialist labour movements. Signs of parliamentary conflict

occurred in 1880 in debating the Grand Game Act and Employers Liability Act, which divided the Liberals, in fact, as T.H. Green writes, these acts were 'opposed in the name of freedom....[because they] interfered with freedom of contract'. The best known socialist organisations that became more and more prominent in parliamentary proposals for social reform as the decade progressed were the Hyndman's Social Democratic Federation, William Morris's Socialist League, the Fabian Society and some forerunners of labour movements detached from the liberal parties. An example of these reforms was the Bill reform act of 1884 that extended the franchise to the counties. The type of socialism that emerged was called municipal socialism because it expanded the territory and types of property in the hands of municipal control. By the late 1880s, for example, Birningham had expanded its municipal holdings to include parks, libraries, railway network, cattle markets, harbour dispensaries, schools, hospitals and working housing.

Although Marx had been living in London since 1849 and had already published (and seen some of his works translated) into English, it was only in the above sketched context that his dissemination in England began. Given the large number of events related to modern (or new) socialism, however, it seems interesting to study whether Willis' thesis is accurate or not. The answer of the quantitative model may help not so much to determine the exact event that triggered the dissemination (also because the data are annual), but it may validate or not a thesis like Willis's one. This is the main contribution that a quantitative tool as SCM is able to give to History of Economic Thought in this specific case. If data were monthly and a popular science dataset was avaiable for instance, I would have more room for manoeuvre for quantitative reasoning, such as for instance a multitreatment syntetic control, since it is more likely that a series of events made Marx known than just one. Especially in a society where the media launching of authors was not as well orchestrated as in our current.

The first Marx's work translated in English was the Communist Manifesto (1850), published in the Red Republican, a weekly newspaper edited by George Julian Harney, who previously edited the principal Chartist newspaper, the Northern Star, where Engels wrote. The Red Republican did not last long, the copies were lost or destroyed and the Communist Manifesto did not spread in England. Some of Marx's articles written for the New York Daily Tribune circulated among small radical groups between 1850 and 1860. Actually, as early as the 40s there existed Englishmen who knew Marx, but more as a political pamphleteer and revolutionary journalist than as a philosopher and economist. in vol. I of M. C. Howard and J. E. King's 1989 "A History of Marxian Economics", in noticing that little material was available on Marx when he died, they wrote: "Almost none of the available material was in English. Even the Manifesto, translated in 1850 for Julian Harney's Red Republican, was long out of print, and Marx was best known in Britain for his broadsides against Palmerston's foreign policy and his involvement with

the International Working-men's Association and the Paris Commune. Knowledge of his political economy was acquired at one remove, via the German socialist movement or the critical writings of Continental and US academics." (King and Howard (2014), p. 4). One of the authors' theses that is relevant for the purposes of this paper is that Marx became famous in England not through his own writings, but through those of other authors. With this empirical analysis, however, I am content to identify the point in time (the year) when his citations began to rise and from the result infer what events may have contributed to his fame. Influential summaries and interpretations by writers such as Gabriel Deville in France and later Edward Aveling in England provided more accessible versions of Capital. These interpretations, along with Karl Kautsky's précis in Germany, reached a broader audience and informed many in Britain about Marx's ideas in a more condensed form.

We will have to wait until 1883, almost thirty-five years after the appearance of the Manifesto, to see any of his major work translated; and even then incompletely. In April 1883 the radical magazine 'Today: a Monthly Gathering of Bold Thoughts' (before it was bought by Hyndman) presented a translation of portions of a chapter of the 1872 French edition of Capital.

The first ten chapter of the first volume of 'Das Kapital' began to be translated and published serially from October 1885 through May 1889 in the newspaper "To-Day: Monthly Magazine of Scientific Socialism", recently[1] purchased and renamed by Mr. Henry M. Hyndman, curator of these same editions under the pseudonym of 'John Broadhouse'. Transaltions were "from the original German work" (Today, *IV* n.s. (Oct. 1885 through May 1889)). This publication, although it had limited circulation, gave rise to a series of translations of Marx's works into English: In 1886 the pamphlet "Wage, labor and capital" was published in English, translated by James Leigh Joynes and in 1887 the translation of the first volume of 'Capital' Willis (1977) refers to. This event too was followed by a series of publications: In 1888 Engels, Moore, and Aveling edited the first authorized English edition of the Communist Manifesto. 'Revolution and Counter-revolution' and 'The Eastern Question' (both collections of Marx's and Engels's New York Tribune articles), were compiled and published in 1896 and 1897 respectively, by Edward Aveling and Eleanor Marx Aveling. Value, Price and Profit and the Eighteenth Brumaire of Louis Bonaparte were translated in 1898, the Poverty of Philosophy in 1900; and the Critique of Political Economy in 1904. The second and third volumes of Capital did not appear in English until 1907. By the end of the 1880s-90s decade almost every Englishman was at least broadly familiar with scientific socialism. The theologian Douglas Mackenzie wrote in the Westminster Review of May 1890 that "it is felt by every student and every statesman,

[1] in 1884 and appointed as editors two other pioneering English Marxists, James Leigh Joynes and Ernest Belfort Bax.

even by every one who reads the newspapers, that Socialism is in the air" (Mackenzie (1890)). Criticisms and comments on Marxist ideas abounded, some were founded and pondered others of belly and with little political and historical value (Willis (1977)). Some were calm, others accompanied by an emotional lexicon (Hobsbawm (1964)).

Capital is an unfinished work. The only book that can be considered done and finished by Marx himself is the first, which came out in 1867 in German. Marx also edited the French edition (published in 44 parts between 1872 and 1875, shortly after the Paris Commune) and incorporated the changes made in the latter in the second German edition of 1872. Engels completed the third (published in 1883, year of Marx's death) and the fourth edition (1890, the one used as treatment for dissemination in Germany in subsection 4.1); he also prepared the second and third Volume for their first publication in Germany (1885 and 1894 respectively). The fourth book was only published in 1905 by Karl Kautsky (still in German) with the title "Theorien über den Mehrwert" (Theories of Surplus Value).

The Synthetic control method has been firstly used in economics by Abadie et al. (2010) and in HET by Magness and Makovi (2023). The latter was inspiring, but the naively objectifying spirit of their underlying thesis is very far from that of the present work, as discussed in the conclusion. The critical approach of Magness and Makovi (2023) is not very original, indeed from the second post-war period onwards the argument was widespread that Marx's intellectual reputation had been grossly inflated, for, "disproved by all intellectual tests, the Marxist interpretation of history is sustained and irrationally justified by Soviet power alone" (Trevor-Roper (1956)). This deflating attempt towards Marx has not changed much from the mid 1900s to today, the favourite path of this class of criticism is to compare Marx's theory of value of idealistic philosophical imprinting with observations of empirical nature, creating comparisons between theories that are on different levels of abstractions.

Hobsbawm (1964) more generically than Willis (1977) says that Marx begins to spread from the second half of the decade 1880-90. I use the SCM to empirically test also another hypothesis: that the German edition 'Das Kapital' of 1890 edited by Engels increased his spread in Germany. The core of the paper is therefore mainly an empirical exercise. SCM will prove to be useful to the history of economic thought in general, helping it to untangle the links between historical events and trends in economic theory.

The dataset includes forty-eight authors mainly economists, but also some philosopher. It is built by downloading data from Google Ngram. The dependent variable is the number of occurrences from 1837 to 1900 of the word "Marx" (case sensitive) from the ENG-2019 corpus, with annual frequencies. The next section presents the dataset, the method and the problems related to its application to the particular case. Section 3 contains the results of the model. Subsection 4.1 is on inference and robustness tests, while 4.2 contains

the extension about the German edition of Capital of 1890. The conclusion discusses the results, which move Willis's thesis back a year (1886 w.r.t. 1887). This result would support the hypothesis that the spread of the first volume of capital started in the October of 1885 in Hyndman's newspaper together with the Trafalgar riot of 1886 were two events that raised the fear of socialism and thus the name of Marx. The primary result therefore refutes, albeit slightly, the thesis of Kirk Willis and demonstrates the potential of this type of models in the history of economic thought environment, despite its many limits discussed in the conclusions.

2 AN UNEASY MARRIAGE

The dissemination of Marx in England followed a different path compared to that in other European countries (Hobsbawm (1974), Hobsbawm (1964)). It was gradual, 'slow and difficult' (Willis (1977)). Marx lived in England for thirty-four years, primarily connected to English labor politics through his leadership of the International for slightly over fifteen years. He wrote as a journalist for the New York Tribune and as pamphleteer; and he published his work 'Das Kapital' in 1867 (it was only available in German up to 1972, when, to Marx's own surprise[2], 'Capital' came out in Russian). Despite this activity, as confirmed by Rae (Rae (1881)), only a few thousand Englishmen were familiar with either Marx's name or his writings. Before Marx's ideas entered the English economic debate, it took fifty years, from the unauthorized translation of the Manifesto of the Communist Party in 1850 to the end of the century, when most Englishmen to have a broad understanding of Marx's theory, even if they partially or wholly rejected it.

Hobsbawm asserts that 'Between 1850 and 1880, it would have been hard to find a British-born citizen who called himself a socialist in our sense, let alone a Marxist. The task of disproving Marx was therefore neither urgent nor of great practical importance' (Hobsbawm (1964)). And even after the 1890's only a tiny fraction of Englishmen embraced orthodox Marxist thought (Willis (1977)).

The socioeconomic, political, and ideological conditions played a decisive role in shaping the trajectory of Marxist dissemination in Europe, particularly in England: "... we can make two observations: 1) In countries where capitalism was stable or expanding successfully, social democracy was not revolutionary, whether officially Marxist or not; 2) Even within these countries, social democracy was strongly Marxist only where sectors of the liberal bourgeoisie had not previously led a radical-democratic movement of the petite bourgeoisie, rallying politically conscious workers in a common front against the aristoc-

[2] "My writing against Proudhon (1847), *idem* that against Duncker (1859) [both collected in "For the Critique of Political Economy"] found nowhere a greater outlet than in Russia. And the first foreign nation to translate 'Capital' is Russia" (Marx et al. (1966))

racy. Where the tradition and practice of such a popular alliance against privilege and for reform were strong, the chances for Marxist penetration were weak. England exemplified this most clearly, but it was not the only case. In such countries, in extreme cases, Marxist organizations remained marginal to the labor movement (such as the S.D.F. and the S.L.P. in the United States), while mass socialist parties absorbed elements of Marxist ideas but were not officially Marxist themselves."(Hobsbawm (1974)).

The economist T. E. Cliffe Leslie, writing in the Fortnightly Review for July 1875 on 'The History of German Political Economy', was one of the first to denounce the danger: "German] Socialists, or social-democrats, of whom Karl Marx and the late Ferdinand Lassalle may be taken as exponents, aim at political revolution and at the abolition of private property in land and capital" (Leslie (1875)). But apart from sporadic statements like the one just reported, English economists took little interest in Marx's theory. They were too busy discussing the theoretical innovations of Jevons' marginalism and its consequences on the nature of value. Mill, Jevons, Cairnes and J. N. Keynes never wrote a word on Marx and even popular surveys and textbooks of political economy, such as Henry Sidgwick's Principles of Political Economy (1888), John Stuart Mill's Principles of Political Economy (1848), John Kells Ingram's A History of Political Economy (1888), and Henry Fawcett's Manual of Political Economy (1863, 2nd eds 1887), did not mention Marx. A Westminster Review critic, writing in April 1887, complained that "It is a strange thing that the ordinary manuals of political economy, when discussing the nature of value, seem in general to ignore this famous theory on which scientific Socialism rests"[3].

Another reason that slowed down the dissemination of Marx in England was the fact that 'Das Kapital' had not yet been published in English. The lack of threat posed by socialism to English capitalism explains the calmness evident in critical texts by Victorian bourgeoisie against Marxism (Hobsbawm (1964)). There was no urgency to discredit it. The danger posed by Marxist theory was perceived as close to zero. Kaufmann (1879), for instance, claimed that Marx was a pure theorist who had not attempted to put his discipline into practice (see Kaufmann (1879), p. 241). In terms of revolutionary programs, Marxism was perceived as less dangerous than anarchist thought. There is even evidence that in 1880s England, it was encouraged as an antidote to more bloodthirsty schools of thought (Hobsbawm (2015), p. 281).

The shift in the view of scientific socialism from a minor economic theory to primary cause of revolution in France and to ideological foundation of the mass labor movement in Germany was the trigger of the debate on Marxist theory in England according to both Hobsbawm (1974) and Willis (1977). From the beginning of the 1980s critics (from the most disparate fields of study and cultural levels) began to see scientific socialism as a

[3]Anon.,'Contemporary literature', Westminster Review, cxxvm (Apr. 1887), 121-2. From a review of the first English edition of Capital.

concrete danger and therefore felt the need to discredit scientific socialism (with particular doggedness against the labour theor of value), now perceived as a big thread to the English liberal and parliamentary tradition. Critical writings began to be more detailed and analytical; their tone changed from calm to concerned and "hysterical" (Hobsbawm (1964)). Actually the process of realising the socialist/revolutionary danger had already begun in the mid-1970s, but the debate was still very narrow. Thanks to efforts like Macdonnell's one (Macdonell (1875)), Englishmen became increasingly aware of Marx's influence on German socialism and, secondarily and only imperfectly, of his doctrine. Willis (1977) suggests that one of the reasons why the criticism of Marx came not from experts (philosophers and/or economists), but from a much wider pool, was that the implications of his theory started to be perceived as challenging the English social order *tout court* and not only established economic theory.

A further cause for concern and for starting the criticism of scientific socialism besides those already mentioned was the expansion of the electoral base in 1884 (*representation of the people act*[4]) in order to include those living in the counties. A typical expression of the concern with the expansion of the electorate and its potential conversion to socialism appeared in this passage from an anonymous article in the *Westminster Review* of January 1886:

> "On the eve of this great change in the political life of this country, at a moment when the power which has hitherto been in the hands of the owners of property is about to be placed unreservedly in those hands which are empty, it is not unimportant that we should consider what will be the probable course of legislation, and to inquire what use the people will make of their power... We have given the working classes the instrument of exaction: will they be moderate and let our capitalists keep the half of what they may possess? A demand has already been made on them for the whole. Socialists see distinctly that the political power is with the people, and they intend to use that power to carry out a few extensions of the principle of the Poor Law... That we think is a significant sign of the times. That the far more cogent and thorough views of Marx, Rodbecker [sic], and Engels, now that they are being popularized by such writers as Hyndman and Gronlund, will meet with as complete a welcome from the new voters, in whose hands are the issues of life and death for this nation, cannot, we think, be doubted." (Anon., 'Socialism and legislation', *Westminster Review*, cxxv (Jan. 1886), 3-11).

[4]All men paying an annual rental of £10 and all those holding land valued at £10 now had the vote. This significantly increased the electoral basis; in the 1880 general election, before the passing of the Act, 3,040,050 voters were registered, while in the 1885 general election, after the passing of the Act, there were 5,708,030 registered voters

the 1885-1890 lustre saw a proliferation of articles and books on the success of German socialism and on the French one. Discussions on marxism and in particular on the Marx's theory of value abounded. The four main points of contention were: 1) the assertion that labor is the only source of value, 2) the presumed antagonism between capital and labor ('allies' according to critics), 3) the theory of human nature and motivations (Hobbes), and 4) the feasibility of teaching scientific socialism.

Hobsbawm (1964) emphasizes that the first point (the labor theory of value) received the most critical attention. As for the rest, critics were also willing to learn from Marx, recognizing his importance and abilities. Evidence of such recognition abounds. In 1885, Balfour wrote he considered absurd to compare Henry George's ideas with Marx's, stating that Marx's intellectual force, consistency, reasoning abilities, and economic insights were unmatched (Dilke (1885) p. 344). Richard Ely, an American professor with progressive leanings, asserted that there was unanimity of opinion about Marx's ability (Ely (1883), p. 174). Similarly, W. H. Dawson remarked, 'However its teaching may be viewed, no one will venture to dispute the masterly ingenuity, the rare acumen, the close argumentation, and, let it be added, the incisive polemic which are displayed in the pages of Capital.' (Dawson (1888) pp. 96-97). Marx's theory of unemployment was appreciated or at least presented without criticism (Rae (1887)). His views on the division of labor and machinery were recognized as significant contributions. Finally, Marx observations on wages and economic concentration, but above all his role as a historian, were well received by those who made the effort to read the entire work. Indeed, some commentators were so eager to avoid outright rejection of Marx that William Smart wrote his 1887 review of Capital specifically to encourage readers who might have been put off by the critique of value theory to study the book, which contained much "of very great value both to the historian and the economist."

In any case, the labor theory of value was the main subject of (also petulant) criticisms: "The writings of the Victorian Marx-critics are mostly and justly forgotten" (Hobsbawm (1964)). The reason why it was the chosen target can be traced back to moral shame: "Perhaps the critical fire was concentrated against this because the moral accusation implied in the phrase 'labor is the source of all value' affected confident believers in capitalism more than the prediction of the decline and fall of capitalism" (Hobsbawm (1964)), something perceived as highly implausible in England.

The two main logical arguments against the labor theory of value were that Marx did not take into account the importance of capital (and of the accumulation time) in the creation of value and that goods do not only incorporate labor, but they have many other features, as the utility. The reverend Wicksteed, a "purist of marginal theory" according to Sraffa, asserted: "which all exchangeable things contain, is neither more nor less than abstract utility, i.e., the power of satisfying human desires...Exchange value itself is always im-

mediately dependent, not upon amount of labor, but upon abstract utility". (Wicksteed (1885)). Bertrand Russell, young Fellow in mathematics at Trinity College, in his first book *German Social Democracy* wrote: "We can never be sure, by mere abstraction of differences, that we have hit on the only common quality of a number of things, or that the quality we have hit on is the relevant one." The heart of the English criticism opposed against Marx's theory of value the reigning doctrine of late nineteenth-century English political economy: the theory of final utility. "Marx was incorrect", to quote Russel's *German Social Democracy* again, "for commodities have another common quality, utility namely, or the power of satisfying some need". With few exceptions, it was simply argued that the labor theory of value was wrong (Hobsbawm (1964)). Willis confirms this view: "In their rejection of both the labor theory of value and the natural hostility of capital and labor, Marx's English opponents did little more than assert that the doctrines taught by their own economists were true. They denied Marx, in short, by dismissing him." (Willis (1977)).

Ex-post I feel to say that it is clear that Marx meant that even capital can be seen as the product of accumulated human labor, it is just a different level of abstraction: that one of the continental idealistic philosophy compared to the analytical approach of English empiricism. And it is also true that the theory has limitations: it is a point of view, as are other theories; but it has the merit of wanting to put man and his actions, his labour, at the core of economic theory. There is a level of ingenuity and petulance in Victorian criticism of Marxism that cannot go unnoticed.

Having dismantled the labor theory of value and the antagonism between capital and labor, critics felt they had undermined the foundations of Marxist theory. This is why, according to Willis (1977), other aspects of the latter were superficially reviewed: his theory of money and of the concentration of capital for instance. There is ample evidence (see Willis (1977), p. 449) that one of the most deeply held beliefs of the late Victorian Englishmen was that the greatness of their country come from individual freedom and from the economic prosperity that at the aggregate level self-interest and private initiative implies. John Rae unequivocally writes: "[England] owes her whole industrial greatness, her manufactures, her banks, her shipping, her railways, to some extent her very colonial possessions, to the unassisted energy of her private citizens. England has been reared on the principle of freedom." (Rae (1890) pp. 224-5).

3 DATA AND METHOD

Synthetic control has an increasing use in economics and, albeit lagged in time, also in history of economic thought (Magness and Makovi (2023)) and in economic history

(Gilchrist et al. (2023), Geloso and Pavlik (2021)). The method goes back to Abadie et al. (2010) and consists of a causal model that allows for the construction of a synthetic counterfactual of the treated unit (typically one). In this case, the synthetic control reproduces what would have been Marx's quotations if a certain events had not occurred: the publication on Hyndman newspaper and the Trafalgar riot. The corpus of texts is the ENG-2019 from Google Ngram. The Google Ngram corpora, are continuously integrated with new collections as Google scans additional books and enhances OCR accuracy. The Ngram Viewer quantifies Ngrams as a percentage, calculated by dividing the instances of a specific Ngram in a given year by the total number of Ngrams for that year, thus standardizing results relative to the annual volume of published books. Moreover, an Ngram is considered only if it appears in at least 40 books, ensuring manageable data size. The work has several limitations: first and foremost, one must believe that the number of citations of the word "Marx" is a good proxy for its dissemination (specifically in the case of late Victorian England). Google's Ngram collection is only a subset of Google Books collection. Material is selected on the basis of the quality of the metadata and of the OCR. Most of the periodicals are excluded (Michel et al. (2011)). In early 2011, Google Ngram included 4% of all books ever published (Michel et al. (2011)). By 2012, this has been successively expanded to 6% (Lin et al. (2012)). Therefore, it is only a sub-set of published books and excludes many periodicals, daily and weekly newspapers. It is also not a measure of citations properly speaking, since it measures the number of occurrences of a specific word (or Ngram) in general and not as citations or in the bibliography. These are not properly quotations, but mentions of 'Marx' in Google Books corpus. A proper name can be spelled in many ways and there may be cases of homonymy that affect the accuracy of the proxy. In constructing the dataset, the choice of whether to include the author's first name and surname or just the surname has taken these limitations into account. Some authors will be excluded because Ngram does not provide reliable ways to distinguish them from others (such as Claude-Henri de Rouvroy de Saint-Simon also known as the Count of Saint-Simon).

The six assumptions that must hold in order to apply synthetic control are met (Abadie (2021)). Engels and Hyndman must be excluded because it is plausible that their quotations were influenced by the same treatment that influenced Marx's ones and, more generally, that their citation patterns are correlated. I chose to use standard synthetic control instead of differential synthetic control because my treated unit does not assume extreme values of the dependent variable with respect to the donor pool.

The frequency of the data is annual, so theoretically it could be any other event that occurred in that year that boosted the citations of Marx.

Despite several possible sources of biases I assume that Google Ngram is a good indicator of the change in citations over time. Pechenick et al. (2015) question the validity

of Google Ngram because academic texts have constituted an increasing fraction over time of the Ngram corpus and because it only counts how many times a certain word, phrase or expression appears in a dataset and not how many times a certain text has been discussed, reprinted or read. But the strength of Google Ngram is that it is internally coherent and valid: each author is equally likely to have the citations biased (except for above mentioned cases of homonymy), so the errors are likely to be random and uncorrelated with authors.

Data spans from 1837 (year when Marx begins to be cited in English[5]) to 1900. The pre-treatment period is 1837-1886, while the post-treatment is 1887-1900. The ratio of 1/4-1/5 between post and pre-treatment suggested by Abadie (2021) is met. The dataset consists of forty-eight authors, including Marx. In each period and for each unit, besides observing the outcome variable (the number of citations in English), I observe a series of predictors of the latter: a set of dummies indicating whether the author was socialist or not, political or not, wrote in English or not, and the same for German and French. I include among the characteristics of each author the year of translation to English of his most popular work. The time-varying covariates are the number of quotations in French (fr-2019 corpus in Google Ngram) in German (de-2019 corpus), in Spanish (es-2019), in Italian (it-2019) and in Russian (ru-2019) of each author.

The goal is to estimate the effect of the treatment (1886) on the citations of Marx in English. With $J+1$ units and T periods in the dataset, let define time as $t = 1, ..., T$. Assume that the first T_0 periods are before the intervention and that $t = T_0 + 1$, the estimated equation is:

$$\tau_{1t} = Y_{1t}^{I} - Y_{1t}^{N}, \tag{1}$$

where

τ_{1t} is the effect of the intervention of interest for the affected unit (which, without loss of generality I assume is the first one, i.e. $j = 1$, with $j \in \{1, ...J+1\}$) in the period after the intervention. Y_{1t}^{I} is the outcome variable of the treated unit with the intervention and Y_{1t}^{N} is its outcome variable if the intervention had not occurred. The synthetic control estimators of Y_{1t}^{N} and τ_{1t} are

$$\hat{Y}_{It}^{N} = \sum_{j=2}^{J+1} w_j Y_{jt} \tag{2}$$

[5]Marx was 19 years old in 1837 and had not yet written any significant works, so these mentions could be indirect references, mentions of Marx in the context of his involvement in intellectual and radical circles in Germany or in connection with young Hegelian and other thinkers, not so much mentions of his direct writings. The other two possibilities are discrepancies or attribution errors in the dataset or errors in the optical character recognition (OCR) process

and

$$\hat{\tau}_{1t} = Y_{1t} - \hat{Y}_{It}^{N} \tag{3}$$

respectively. $w_j \in \mathbf{W} = (w_2, ..., w_{j+1})'$ is the weight assigned to unit j in the donor pool. It measure unit j contribution to the synthetic reconstruction of the treated unit. Notice that $\mathbf{W}$ is a vector of J weights ($|\mathbf{W}| = J$) which represents a synthetic control estimator. These weights are restricted such that $w_j \in [0, 1]$ $\forall j \in \{2, ..., J + 1\}$. In other words the synthetic control unit is a convex combination (and not simply a linear one) of the units in the donor pool. This constraint is designed to avoid extrapolation. SCM in this setting just allows for interpolation. There are cases where an unrestricted synthetic control (with weights that add up to 1, but that can also take on negative values, see Abadie (2021)) is more suitable, but this is not one of them. Y_{jt} is the outcome of interest for unit j in period t. What the SCM does is to choose these weights in such a way that the resulting synthetic control synthetic control that resembles as closely as possible the pre-intervention values for the treated unit of the predictors of the outcome variable and for the outcome variable itself in the pre-treatment period. Once the vector of weights resulting from the minimisation has been obtained ($\mathbf{W}^* = (w_2^*, ..., w_{J+1}^*)'$) (3) can be rewritten as

$$\hat{\tau}_{1t} = Y_{1t} - \sum_{j=2}^{J+1} w_j^* Y_{jt} \tag{4}$$

which is the the estimated treatment effect for the treated unit at time $t = T_0 + 1$. Eq. (4) this can be generalized $\forall t \geq T_0 + 1$. Finally, it should be noted that the treatment can last over time and its average effect can be estimated over several years. Specifically, I used Python synth package to run estimates with $t = 1887$ and the effect was positive, but the treatment begin earlier. It starts to be significant from 1886 and remains significant for the subsequent periods (up to 1900). This is also due to the fact that the dataset begins when Marx was young it is physiological that his citations increase over time; for instance in 1888 the first authorized translation and edition of the Communist Party manifesto came out in England and this plausibly further increased his quotations. However, the purpose of the study is to identify the temporal break point, so this type of considerations should not affect the scientific validity of the study.
The complete list of authors in the dataset is in table 1.

Following Abadie et al. (2010) I avoided including authors who have little or nothing to do with Marx, socialism, philosophy and/or economics.

4 RESULTS

The result of the primary SCM regression is displayed in fig. 1, which shows the data and the counterfactual prediction for the whole period 1837-1900.

The treated unit is "Marx" and 1886 is considered the year of treatment. The dashed line represents the synthetic Marx and the solid one the real Marx[6]. The two lines are similar in the pre-treatment period, suggesting a good fitting of the synthetic counterfactual with respect to the real data. The appropriateness of the fitting will be analysed in subsection 4.1 on robustness.

Marx's quotations in both pre-treatment and post-treatment are erratic and correlated with certain historical events. The first relevant peak is observed around 1860. The period from 1852 to 1862 was the most prolific for the journalist Marx, whose early career has been often disregarded. He wrote for the New York Daily Tribune more or less 372 articles (the attribution is difficult, articles were not signed and often deeply modified after the first version was sent) that from 1853 onwards were written directly in English (and not translated ex post by Engles or by Wilhelm Pieper). This peak can be explained by other events that relaunched Marx in England: the founding of the First International in 1864 and the events that preceded it, such as the great workers' rally in London in 1863 in favour of Polish independence or the meeting between French and English workers in 1862 during the London expo. In a first stage Marx played a minor role in the formation of the movement, but soon confirmed himself as one of its most important leaders.

The second peak is observed immediately after the Paris Commune and the writing of the pamphlet "The Civil War in France" (1871), which was written in English and translated into several languages. It is considered to be one of Marx's most important directly political writing and it plausibly relaunched his dissemination also in England. This SCM is a penalized SCM[7] with $pen = 3$.

fig. 2 (top panel) shows the difference between the observed data (solid line) and the synthetic counterfactual prediction (dashed line).

fig. 2 (bottom panel) adds up the pointwise contributions of the top panel and represents the cumulative effect of the intervention.

table 2 shows the authors composition of the synthetic Marx. The latter is composed

[6]Synthetic Marx is the 'reconstructed' Marx by combining outcome variables and covariates from the donor pool before treatment, and projected into the future without fitting constraints as the combination of donor pool's authors variables.

[7]You can think of the ordinary synthetic control method as trying to find weights such that the synthetic control unit is maximally similar to the treated unit *after* you mix the control units. Penalized Synthetic Controls try to find weights such that the control units are maximally similar *after* you mix them into a synthetic unit, but also *before* you mix them. I.e. you would prefer for the units inside the synthetic control to be similar to the treated unit even before you mix them. If the relationship between the outcome and the covariates is non-linear, then the standard synthetic control is biased and this bias grows with the difference (between the covariates of the treated and those of the control units) before mixing.

of 52% of Lassalle, 22% of William Morris, 10% of Mill, almost 6% of Hegel, 5% of Sismondi and almost 4% of Proudhon.

table 3 gives descriptive statistics on both the control unit and the real Marx. Synthetic Marx (first column) is very similar to real Marx. The WMAPE is an increasing function of distance between the synthetic Marx and the real Marx for each specific covariate. The last column shows the importance each feature has in the construction of the synthetic control and its entries add up to one. The result shows how Marx's mentions 'exploded' in 1886, a year earlier than Willis's thesis.

4.1 THE GERMAN CASE

The same exercise is carried out to see if the 1890 German edition of the first Volume of Capital (the one edited by Engles) impacted Marx's quotations in German. That edition became the 'standard' edition of 'Das Kapital'. Marx was dissatisfied with the first German edition of 'Capital' published in 1867, in particular with the double exposition of value forms, one in the text and one in the appendix for non-dialectics philosophers. For the second German edition, published in 1872, Marx drafted a manuscript in which he made various improvements. This manuscript served as the basis for the corrections made to the French edition that came out in handouts between 1872 and 1875. The French translation of 'Das Kapital', which had been approved by Marx but was deemed by modern translators to be highly imperfect, remains the last one fully edited by Marx himself. Results are in 3.

Here too the answer is positive, as can appreciated from the RMSPE ratios in fig. 9 in the Appendix. The permutation test confirms the result, with Marx having almost twice the rmspe ratio compared to Rodbertus and Bebel.
This extension on Marx's dissemination in Germany showed that the 1890 edition had a positive impact on his dissemination and can be considered a cause for his spread in that country. So, at least in the Google books, his popularity increased because of an editorial fact rather than his involvement in the workers' movements or the International.

5 CONCLUSIONS

The paper shows with the SCM that 1886 was the decisive year in reviving Marx in England and, predictably, the treatment remained effective in the following years. Two events can be considered as treatment: the publication of a the first chapters of Capital in the magazine recently bought by Hyndman and the Trafalgar riots in Febraury 1886. The results of the SCM regression confirm that the main triggers of Marx's popularity in England were the atmosphere of threat to liberal values introduced by modern (or new)

socialism, thus the perception of it, and of course publishing facts, editions edited by socialist groups such as Hyndman's, closest to the ideas of Marx and Engels

The work draws inspiration from Magness and Makovi (2023) for the author object of study and for the method. But it is far from the liberalist and falsely objectivising spirit of the two American authors. Their argument is developed by subtending (according to my interpretation) the following proposition: Marx's ideas also gained importance thanks to the Russian revolution, they were somehow 'overvalued' thanks to it. As if there is an objective importance (or an absolute degree of truth) of an idea in the social sciences, this idea makes quite a smile. On the contrary, it could be argued that an idea is all the more important the more it carries historical-political consequences; and Marx's from this point of view made history along with other socialist currents of the time. Moreover, with regard to the latter, Marx was also central as a theoretical reference with respect to which distinguish themselves.

The critical position of Magness and Makovi (2023) and of Trevor-Roper (1956) is not far from that of the Victorian critics, all of them referring to a kind of intrinsic value of an idea. Marx's thought has been overstated with respect to his true (but it is hard to understand where this baseline comes from) value says the former; the labor theory of value is wrong because it does not take into account capital and the waiting time needed to create it (together with the utility of goods), says the latter; clinging to a supposed objective value, a supposed stable organisation of value. On the contrary, it could be argued that every economic theory is a *petitio principii*, even if some are more convincing than others, and their strength might rather consist in their performative capacity and not that much in their degree of truth.

In conclusion, the contribution that the quantitative tool can give us in terms of HET is as follows: Marx disseminated a little earlier (1886) than Willis claimed. On the precise moment of dissemination not much more can be said, however, at least with these data. A possible further step in the study of Marx dissemination may be to rely on a different dataset consisting only of newspapers, weeklies and periodicals (e.g. www.newspaper.com). The reason is that by having a synthetic control over an author who was alive for most of the pre-treatment (he died in 1883) and, given the journalistic, pamphlet and political activity he carried out, it is plausible that his name would be found mentioned relatively less in Google books and more in periodicals, pamphlets, brochures and other popular sciences means of dissemination. It is reductive to trace Marx's diffusion back to a specific event and end it like this. His spread is connected to an historical process of spread of socialism that comprises many events linked each other by complex causal relations. This paper is just an empirical exercise to test the potential of the SCM for the history of economic thought and carries with itself all the limitations of quantitative applications in this field. The application of the Synthetic Control Method (SCM) distinguishes the

present study, providing a robust empirical basis through a quantitative approach that is rarely applied in historical research. This methodology enables a re-evaluation of historical data with precise chronological adjustments. By identifying 1886, rather than 1887, as the pivotal year for the dissemination of Marx's ideas in England, the study highlights the significance of pre-publication events, specifically the To-Day articles and the Trafalgar Square riots. These factors indicate that interest in scientific socialism began to spread before the release of Capital, in a socially receptive environment. Although the one-year shift might seem minor, it reveals how ideological diffusion can precede formal publications within an engaged cultural and political climate. This adjustment, supported by data, provides a nuanced view of how media and social movements shaped the reception of Marxism, offering a dynamic lens on the intellectual atmosphere of late 19th-century England.

A INFERENCE AND ROBUSTNESS TESTS

A.1 ROBUSTNESS OF THE ENGLAND CASE

The inference procedure referred to result displayed 1 and 2 relies on permutation tests. The permutation test consists in an in space placebo test (Abadie (2021)) where, one at a time, all the units in the control pool are assigned as treated units in the period 1885-1887. Indeed the inference procedure implies to reassign the treatment in the data to a comparison unit. In this way, we can obtain synthetic control estimates for authors that did not experience the event of interest. Applying this idea to each author in the donor pool allow me to compare the estimated effect of the flows of translations to the distribution of placebo effects obtained for other authors. I will deem the effect of the treatment significant if the estimated effect for Marx is unusually large relative to the distribution of placebo effects. Or conversely, if we find that many or all control units were affected by the treatment, then we can conclude that the effect on Marx is due to random chance. The results are best visualized plotting the Root Mean Square Prediction Error ratio in fig. 5, which shows the distribution of the ratio for the true treated unit and for each of the placebo treated units. The logic is that in the presence of a large treatment effect, the post-treatment difference between a unit and its synthetic counterpart would be large, relative to its pre-treatment difference. In table 4 Marx is clearly an outlier in terms of post-period/pre-period RMSPE distribution, almost twice as extreme as any of the placebo treated units. This validates the synthetic control estimates (Abadie (2021)). Marx RMSPE ratio is almost the double of that one of the second author: Anne Robert Jaques Turgot. The number of authors in the in space placebo results may be less than the original number of units in the dataset. This is because the SCM for some placebo

treated units fails to converge to a solution, as the latter is constrained (Abadie (2021)). Results are in 4.

Marx is the blue line and the grey ones are the control ones, which in turn are considered as treated units. If the deviation of the synthetic from the true value in the pre-treatment period is large, any deviation in the post-treatment period will be weighted less. It is possible that for some authors in the donor pool the model fails to create a synthetic with a good fit. fig. 5 and 4 show RMSPE for all authors for which the model is able to find a good control.

table 4 is useful because allows us to see who are the authors whose fitting in the pre period is not good and are represented by the grey lines that do not converge in fig. 4. The RMSPE is an inference procedure with some advantages with respect to that one based on the p-values run below (Abadie (2021)).

Some robustness tests are necessary to asses the validity of the result: 1) An in time placebo test, with treatment set at 1887. The in time placebo reinforces the result of the original SCM regression and confutes the thesis that the 1887 edition was the major breakthrough.

This result in 6 challenges Willis' thesis.

2) An attempt using the differenced synthetic control, since there are some constraints inherent in the Ngram data. The Ngram Viewer is limited to identify phrases exclusively, and due to the peculiarities of personal names and their orthographies, the methodology necessitated an amalgamation of 'surname' with 'name surname' within the dataset. This amalgamation could potentially confer an advantage to certain authors over others, predicated on the assumption that, *ceteris paribus*, the frequency of occurrence for 'surname' surpasses that of a given 'name surname'. For the same reason an author referred to simply as 'Proudhon' or 'Rodbertus' might enjoy a preferential citation series compared to one cited as 'John Stuart Mill'.

To control for this possible source of bias, the effect of the treatment is estimated with the differenced synthetic control (Engelbrektson (2021)). This method is new, not well known in the literature and was introduced by Engelbrektson (2021) in his Phd thesis under the supervision of Abadie. The basic idea is that if the outcome of the treated unit is more extreme than those of any or most of the control units, then ordinary synthetic control is bound to fail, as the convexity constraint on the weights (they can never sum to more than 1), implies the best synthetic control will assign all weight to the most extreme control units in order to reproduce the levels of the outcome variable (and also of the characteristics) of the treated one. In this case, Differenced Synth will bypass the problem as it tries only to construct a synthetic control that changes the same way as the treated unit, not one that changes the same way and has the same level as the treated unit. In my donor pool there are authors who have many more citations in English than

Marx (e.g. Hegel, Hobbes, Marshall and Adam Smith), thus the problem just discussed the treated unit should not be a source of bias; but I use this method as a robustness check, since Marx has a considerable number of citations in English compared to several authors in the dataset. The DSCM results (7) confirm the SCM one.

The three graphs are compressed into a single figure. The results mirror those of the SCM in fig. 1: the two peaks at about 1860 and after the 1871 are there. After the 1886 the true Marx rises

4) I run a standard SCM (as in fig. 1), but taking the exponential smoothing of the number of quotations in english as dependent variable. The smoothness of the outcome variable is a requirement of the SCM application (Abadie (2021)); and since quotations pattern are quite spiky, I run this SCM with a smoothed outcome variable.

I apply an Exponential Weighted Moving Average (EWMA) to the outcome variable ($CiteEnglish$) in the DataFrame. Algebraically, EWMA is defined as: $\hat{y}_t = \alpha \cdot y_t + (1 - \alpha) \cdot \hat{y}_{t-1}$ with $\alpha = 0.4$. The results are displayed in fig. 8.

The DSC confirms the results of SCM.

5) An alternative way of doing inference with the synthetic control method is to calculate the average treatment effect as a joint standardized p-value. Since the outcome variable in this run is standardized, the joint standardized p-value can be interpreted as the proportion of authors with a ratio between post/pre RMSPE at least as large as Marx's one. An in-time placebo in this setting produces a p-value for each year and assesses the significance of the treatment in that year. Data shows that the year before the treatment (1885)[8] is not significant, while from the 1886 onwards the treatment is almost always significant. is not significant, as displayed in 5.

The years where the treatment is not significant are the 1895, the 1897 and the last two. These p-values are obtained from the regression run with the normalized dependent variable (english quotations), which in algebraic terms means: $y_{t,norm} = \frac{y_t - Min(Y)}{Max(Y) - Min(Y)}$ where $Min(Y)$ and $Max(Y)$ are the minimum and maximum value assumed by the english quotations in the dataset respectively. The Average treatment effect is 0.12 in magnitude and the p-value is significant at any confidence level. The S.E., CI.lower and CI.upper are the standard error, the lower and the upper bound of the confidence interval respectively. p-values are reported with 4 digits after the decimal point, approximating the last digit. To avoid using scientific notation.

6) Lastly, since the dataset has been enlarged to 103 authors I run the SCM with this wider donor pool. Results are reported in 9.

Results of this appendix largely confirm the robustness of the result in 1 and 2.

[8] I included in the table just one year, but all the years previous the 1885 were not significant.

A.2 ROBUSTNESS OF THE GERMAN CASE

The synthetic Marx for the German case is resumed in 6 and 7 below.

table 6 and table 7 summarize for the german case, the composition of the synthetic Marx and his characteristics. The inference procedure is the in space placebo permutation test of 10; the resulting RMSPE are in 11.

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LIST OF TABLES

Adam Ferguson	Bebel	Edmund Burke	Henry George	John Stuart Mill	Malthus
Adam Smith	Bentham	Fichte	Hobbes	Joynes	Mandeville
Anne Robert Jacques Turgot	Blanqui	François Quesnay	Hume	Kant	Marx
Auguste Comte	Charles Fourier	Friedrich Schiller	Colbert	Lafargue	Mary Wollstonecraft
Baptiste Say	David Ricardo	Guesde	James Steuart	Lassalle	Montesquieu
Bastiat	Durkheim	Hegel	John Locke	Liebknecht	Nassau Senior
Proudhon	Robert Owen	Rodbertus	Sismondi	Sir William Temple	Spencer
Voltaire	Walras	William Godwin	William Morris	William Petty	Marshall

Table 1: Lists of the forty-eight authors in the dataset

Author	**Weight**
John Stuart Mill	0.104061
Lassalle	0.525924
Sismondi	0.050583
Hegel	0.059004
Proudhon	0.039544
William Morris	0.220643

Table 2: Synthetic Marx composition

	Marx	Synthetic Marx	WMAPE	Importance
Socialist	1.00	0.90	0.10	0.10
YearofTranslationtoEnglish	1887.00	1878.36	12.80	0.01
wrote_English	0.00	0.32	0.32	0.10
wrote_German	1.00	0.62	0.38	0.10
wrote_French	0.00	0.05	0.05	0.10
Cite_French	763.63	1198.23	950.65	0.10
Cite_German	2097.33	1874.15	2643.07	0.09
Cite_English	1193.24	1193.72	1207.12	0.12
Cite_Italian	174.16	449.98	414.53	0.07
Cite_Esp	35.43	87.44	81.00	0.09
Cite_Russian	593.29	500.18	559.89	0.12

Table 3: Comparison between synthetic and real Marx

Author	pre_rmspe	post_rmspe	post/pre
Marx	382.973240	4414.029074	**12.525685**
Adam Smith	1422.280522	2295.273624	1.613798
Bastiat	311.950310	347.394388	0.973621
Bentham	2463.797414	3612.330593	0.926164
Blanqui	492.974114	1432.857789	2.966558
Charles Fourier	94.452958	98.694821	0.934910
David Ricardo	86.785802	79.296473	0.962703
Durkheim	74.483914	161.996188	4.074915
Hobbes	1039.977749	1254.465010	1.026242
Hume	6535.530978	6526.974845	0.968691
John Stuart Mill	1255.511543	1315.949202	1.088138
Lassalle	321.575906	1222.432465	3.201381
Malthus	621.786588	1093.797152	1.009120
Nassau Senior	107.308604	65.303830	0.608561
Proudhon	500.792476	402.189287	0.863106
Robert Owen	191.909474	311.759358	1.624513
Rodbertus	104.711345	346.098242	3.305260
Sismondi	1144.564160	1106.598268	3.166829
Spencer	14082.324382	40072.196356	2.845567
Baptiste Say	7617.118291	18910.691439	2.482657
François Quesnay	272.788458	217.620417	0.997763
Thomas Robert Malthus	626.117174	1093.276177	1.746121
Anne Robert Jacques Turgot	86.697257	504.927418	5.977469
James Steuart	181.005749	614.247128	1.093523
John Locke	5351.771865	3953.377998	0.728705
William Petty	311.950310	347.394388	0.983621
Sir William Temple	615.974647	1102.137887	1.389259
Hegel	4590.831181	10964.320555	2.388308
Edmund Burke	507.002062	1063.056573	2.096750
Mary Wollstonecraft	181.005749	614.247128	1.493523
Montesquieu	2444.983820	2181.624831	0.892286
Voltaire	4597.588281	11425.261363	1.985055
Kant	2551.665686	3044.642112	1.193198
Friedrich Schiller	79.764519	161.021349	3.818709
Fichte	1139.094672	1065.961675	0.935797
Bebel	43.734375	207.695701	3.663639

Table 4: In space placebo test. The ratio between pre-intervention Root mean square prediction error and the post-intervention one quantifies the magnitude of the effect of the treatment for all units in the donor pool.

Year	p.value
1885	0.7770870
1886	0.0003
1887	0.0006
1888	0.0004
1889	0.0059
1890	0.0018
1891	0.0000
1892	0.0013
1893	0.0041
1894	0.0002
1895	0.1344
1896	0.0000
1897	0.2598
1898	0.0000
1899	0.6535
1900	0.5789

	Estimate	S.E.	CI.lower	CI.upper	Average treatment effect (p.value)
ATE	0.12029494	0.001426594	0.00119338	0.00286560	0.0000

Table 5: Yearly and average treatment effect

Author	**Weight**
Lassalle	0.509327
Robert Owen	0.028084
Rodbertus	0.247490
John Locke	0.209887

Table 6: Synthetic Marx composition

	Marx	Synthetic Marx	WMAPE	Importance
Socialist	1.00	0.90	0.10	0.10
YearofTranslationtoEnglish	1887.00	1878.36	12.80	0.00
wrote_English	0.00	0.32	0.32	0.10
wrote_German	1.00	0.62	0.38	0.10
wrote_French	0.00	0.05	0.05	0.10
Cite_French	763.63	1198.23	950.65	0.10
Cite_German	2097.33	1874.15	2643.07	0.09
Cite_English	1193.24	1193.72	1207.12	0.12
Cite_Italian	174.16	449.98	414.53	0.08
Cite_Esp	35.43	87.44	81.00	0.09
Cite_Russian	593.29	500.18	559.89	0.12

Table 7: Comparison between synthetic and real Marx

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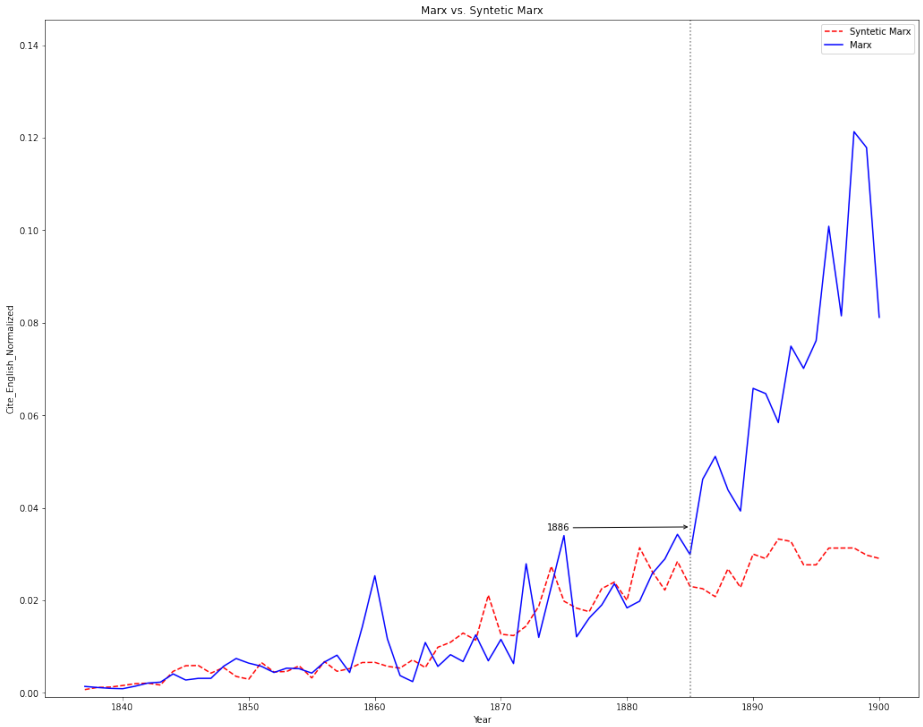

Figure 1: SCM regression, time is on x-axis while the number of mentions of "Marx" in the English-2019 Google corpus.

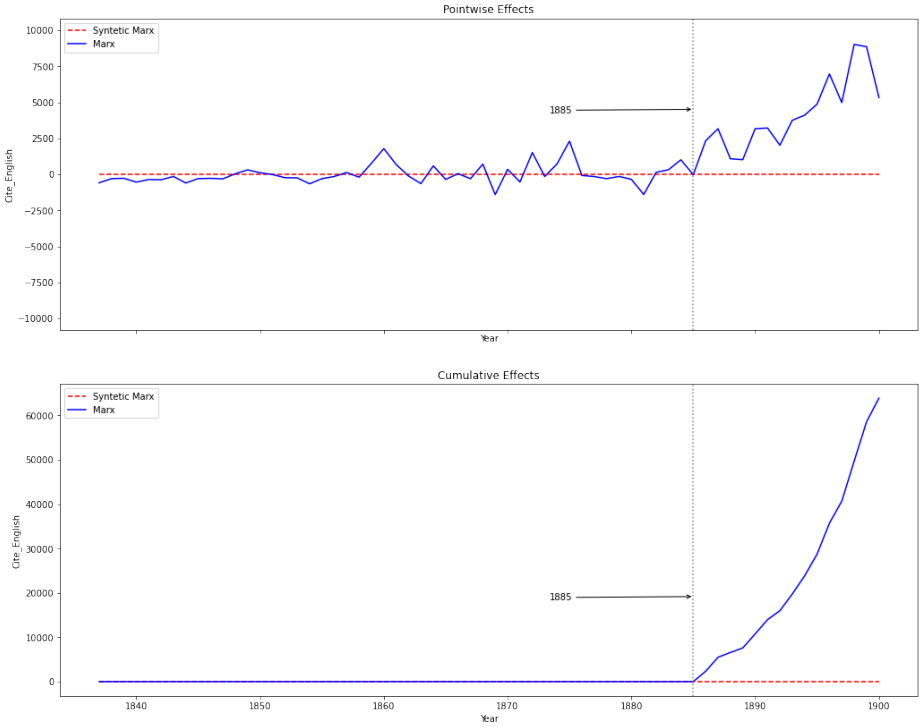

Figure 2: Pointwise esitimate and cumulative effect

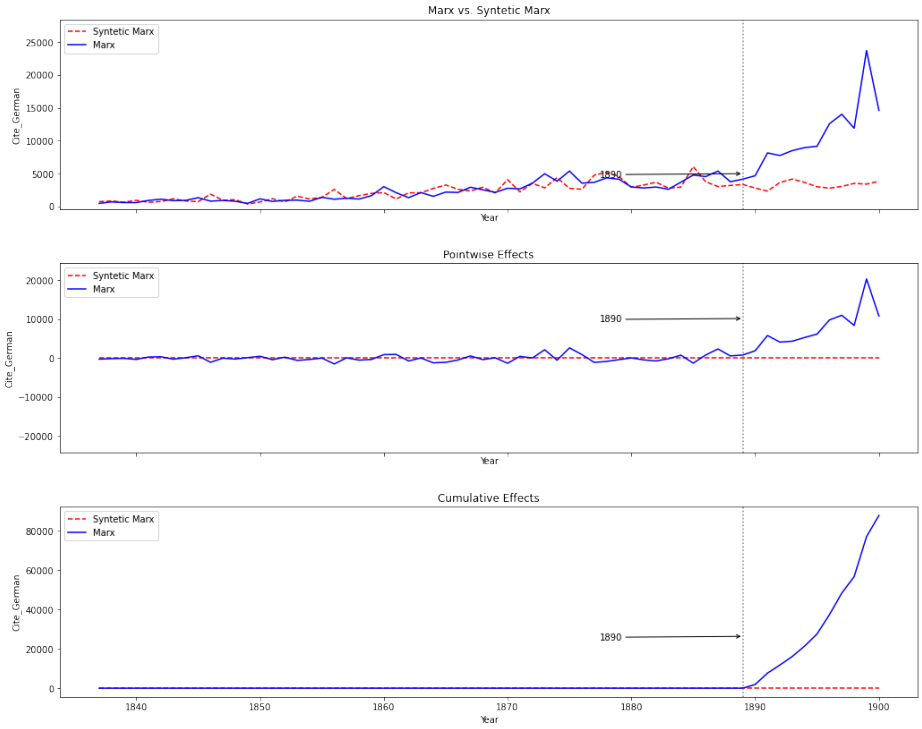

Figure 3: The impact of the german edition of 'Das Kapital' (1890) supervised by Engels on the german quotations of 'Marx'

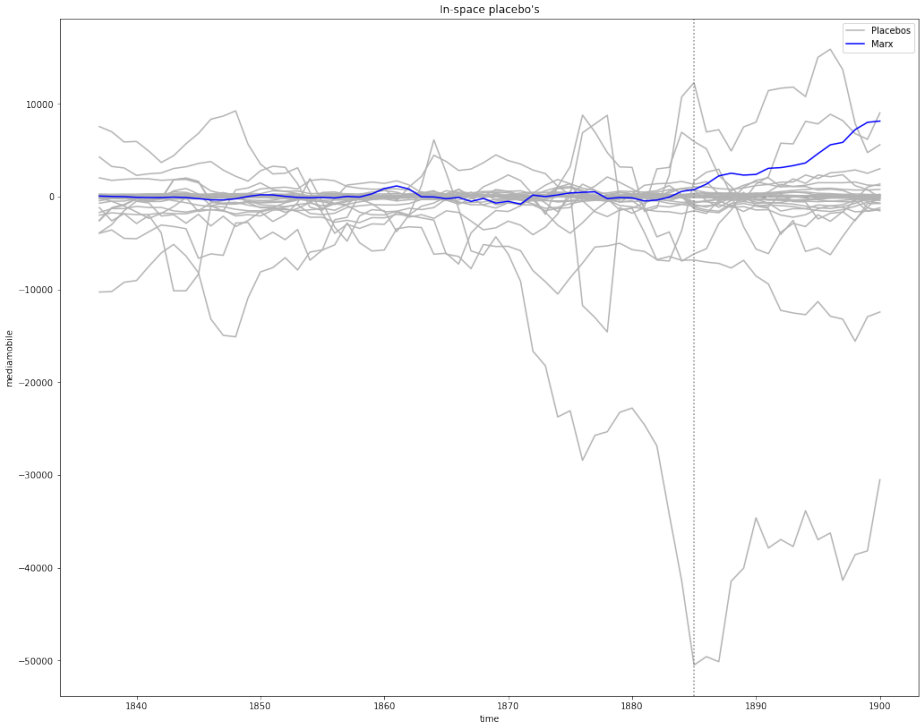

Figure 4: In space placebo test

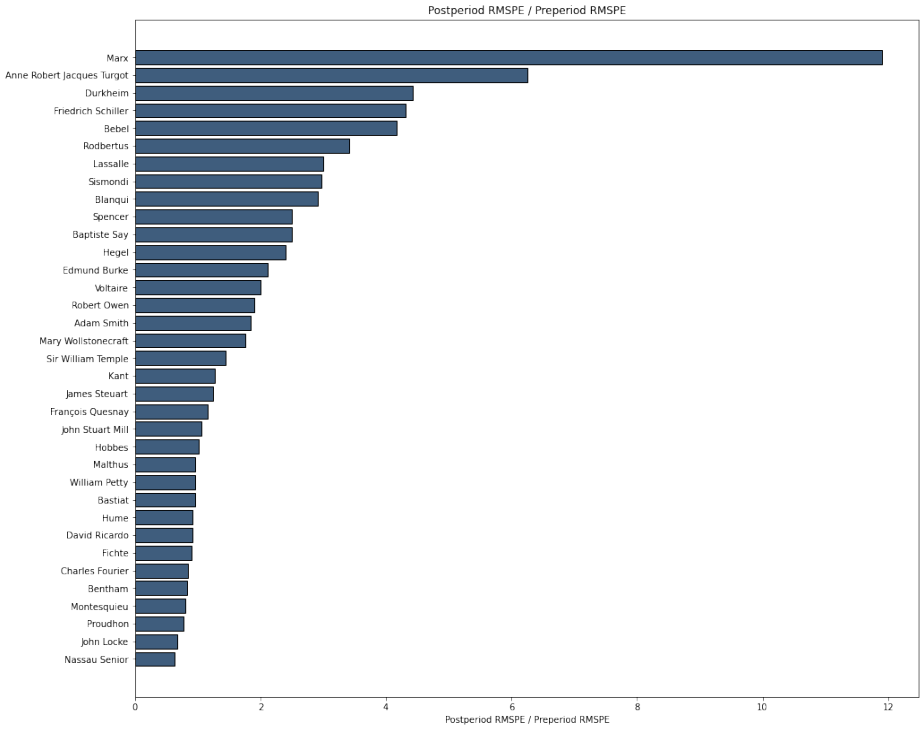

Figure 5: RMSPE ratio: post root mean square prediction error/ pre root mean square prediction error

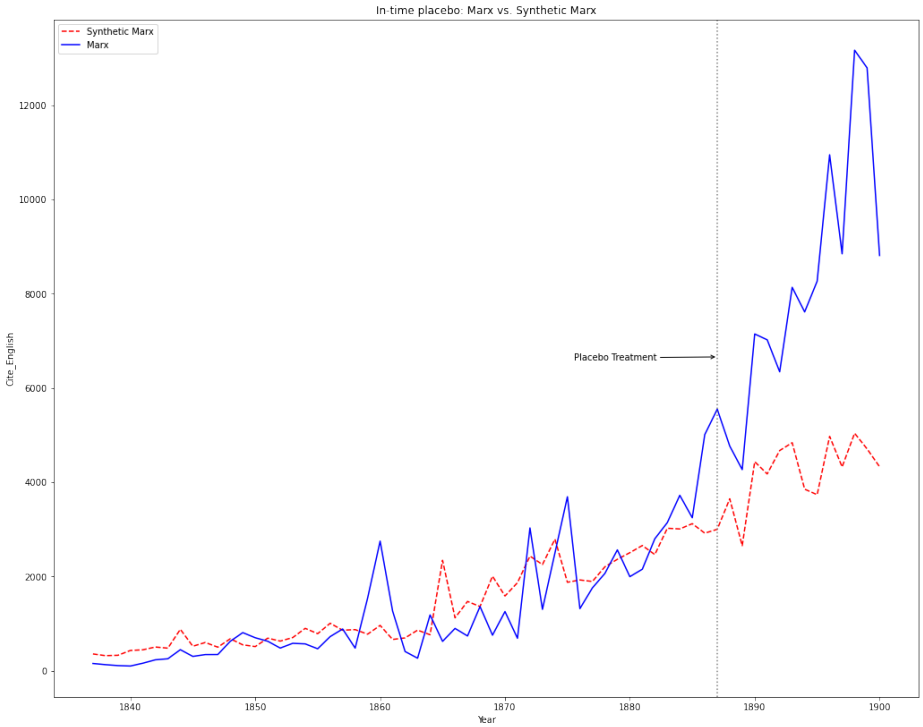

Figure 6: This figure shows the results of the in time placebo test, where the treatment is considered to be the 1887 as Willis suggested

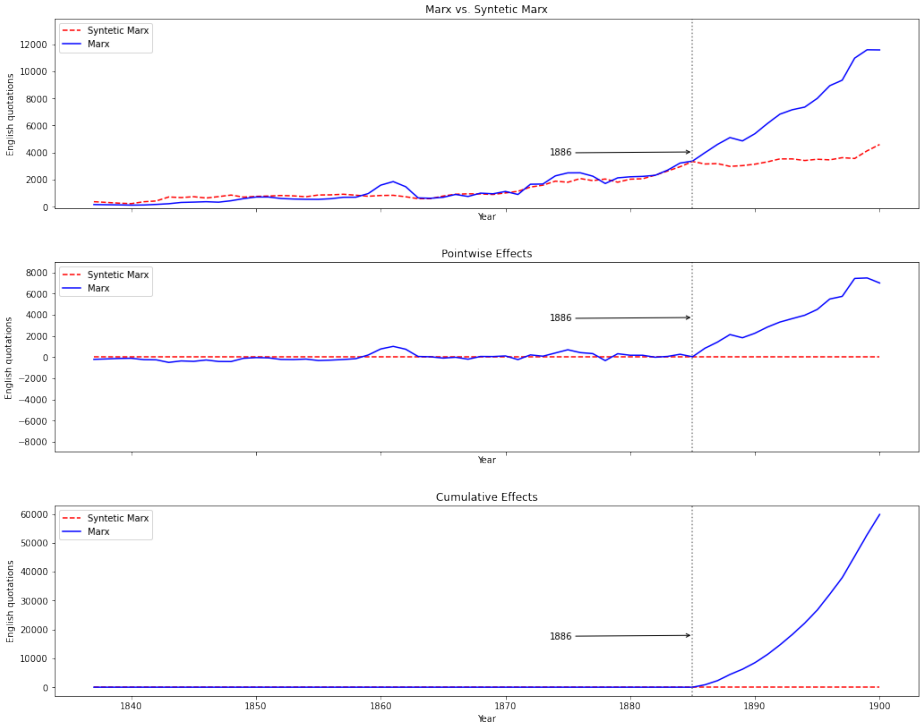

Figure 7: Differenced synthetic control

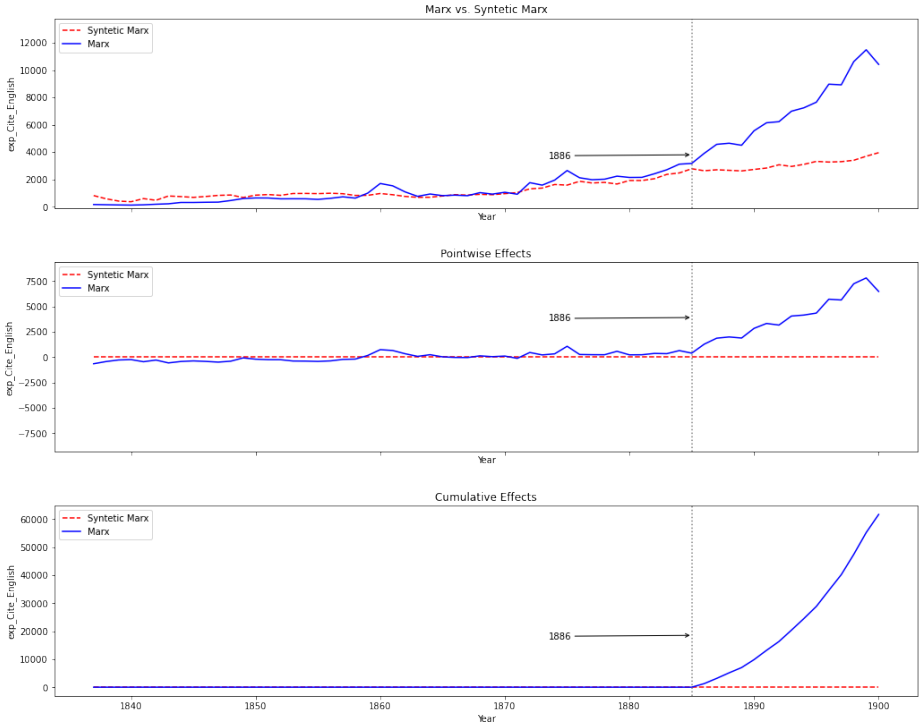

Figure 8: Synthetic control with smoothed outcome variable

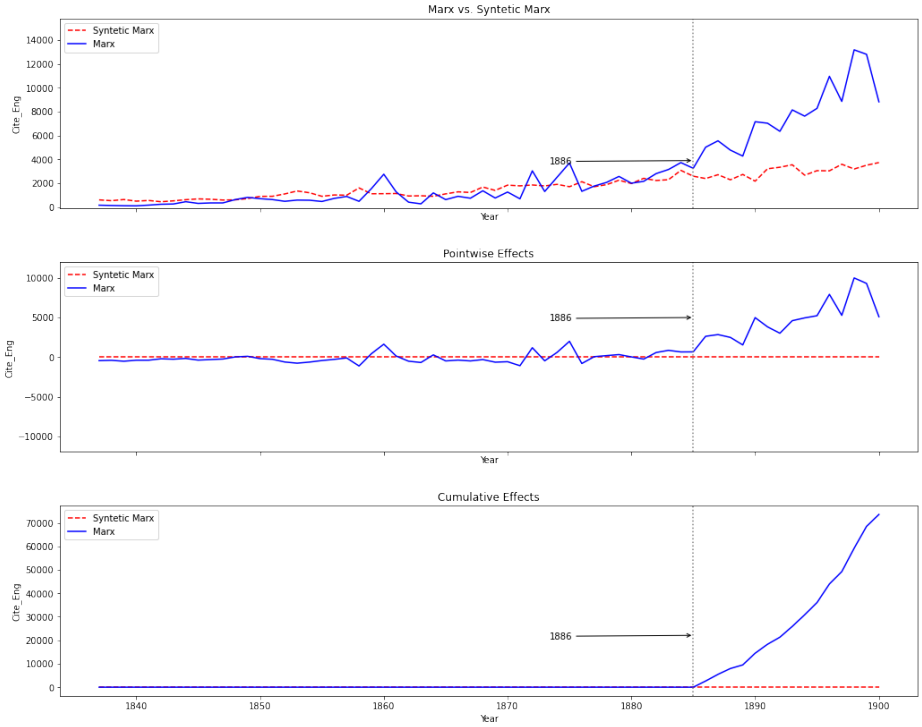

Figure 9: Synthetic control with 103 authors

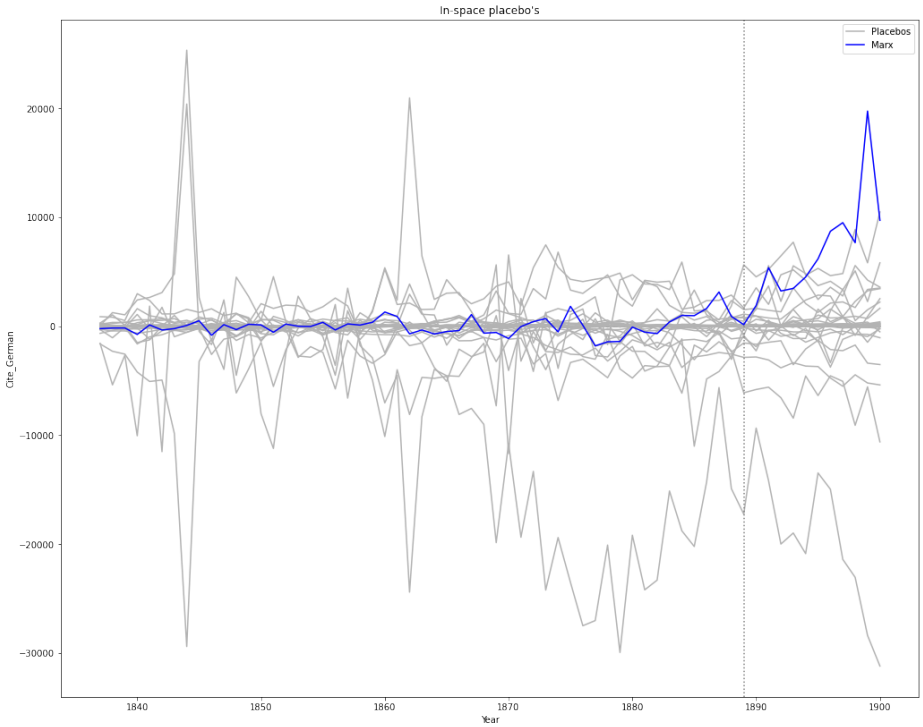

Figure 10: In space placebo. The impact of the german edition of 'Das Kapital' (1890) supervised by Engels on the german quotations of 'Marx'

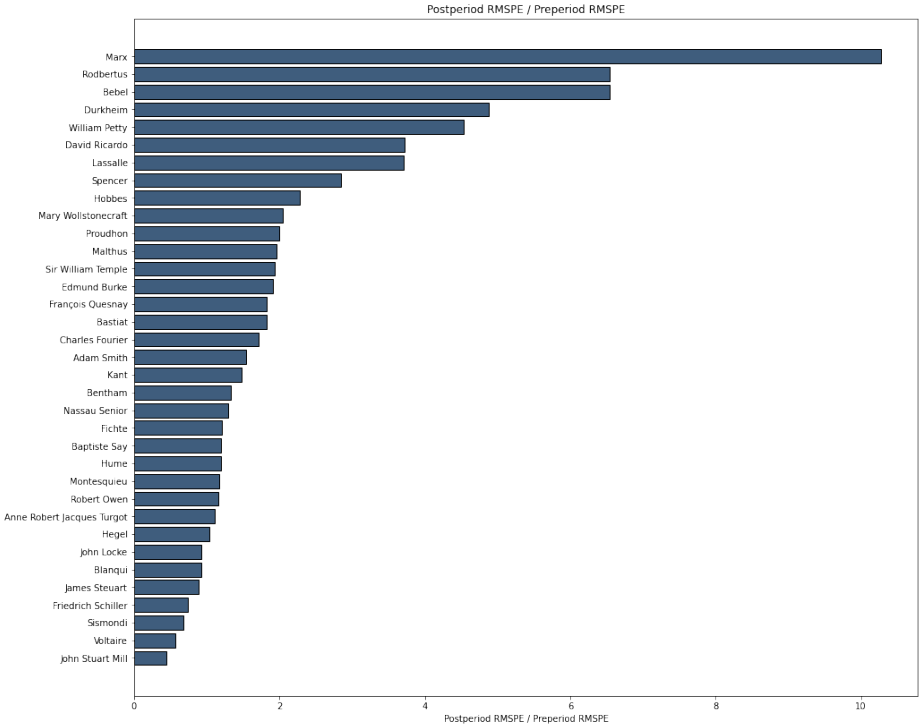

Figure 11: The RMSPE of the permutation test in the German case