EARLY DEVELOPMENT OF ECONOMIC THOUGHT ON SPECULATION:
THE CONTRIBUTIONS OF ALFRED MARSHALL AND ARTHUR T. HADLEY

BY
RIKO STEVENS†

Although much has been written on speculation, and even on the history of speculation, minimal attention has been given to treatments of speculation by earlier economists. Indeed, it appears that historians of economic thought have not analysed theories of speculation across different economic traditions. This paper begins to bridge this gap in the literature by examining the theories of speculation advanced by Alfred Marshall and Arthur T. Hadley. These theorists are appealing for such a study given that they were influential contemporaries at a time when speculation was becoming increasingly important within the economy, and correspondingly within economic science. Marshall had a significant influence on John M. Keynes’s thinking on speculation, as Hadley seems to have had on Irving Fisher’s. I find that both Marshall and Hadley developed rather insightful theories of speculation in which both its beneficial and harmful aspects receive a considered treatment. Interestingly, while both theorists treat the economic role of the speculator differently, in some important respects their theories parallel one another. In particular, Marshall and Hadley offer intriguing solutions – solutions based on the notion of informal institutions – to what they saw as undesirable aspects of speculative activity. These insights into how informal institutions might regulate speculative activity have been essentially forgotten by current theorists. This research suggests that the early development of the theory of speculation deserves to be revisited. More specifically, such research with regard to the idea of informal institutions is likely to prove especially fruitful.

I: INTRODUCTION

Many economic theorists have written on the subject of speculation. They have also studied the history of speculation and speculative crises. Very little attention has been given, however, to treatments of speculation within the history of economic thought. Furthermore, to my knowledge, no study has been undertaken that compares theories of speculation across different traditions of economic thought. It may be worthwhile to revisit the contributions of theorists in the early development of thought on speculation, particularly due to the fact that speculation is a subject with which current theorists continue to have great difficulty - not least with regard to the normative implications pertaining to the problematical aspects of speculation.

This paper begins to fill this gap in the literature by way of expositing and comparing the theories of speculation developed by Alfred Marshall (1842-1924) and Arthur Twining Hadley (1856-1930). These economists are appealing for such a study for a number of reasons. First, they both developed their theories of speculation around the turn-of-the-century, at which time it was noted that: 'Speculation has become an increasingly important factor in the economic world without receiving a corresponding place in the economic science.' (Emery, 1896, p. 8; emphasis in original). The theories of these authors were thus some of the first to be developed during a time in which speculation emerged in its modern form. Second, Marshall and Hadley have had considerable influence in the development of economic thought on speculation. Not only was their own work

† University of Auckland. Email correspondence to: r.stevens@auckland.ac.nz. The author is deeply grateful for the guidance on this research project provided by Professor Anthony Endres. The author also wishes to thank the Kelliher Charitable Trust for the funding provided in relation to this research.
on speculation widely read, but their ideas were also taken up in the work of their respective students, namely: John Maynard Keynes and Irving Fisher. While the influence of Marshall on Keynes’s theory of speculation has been well documented, the literature does not appear to have examined in any detail the links between Hadley and Fisher. Third, there is an interesting relationship between these two economists on the theory of speculation. Hadley argued that Marshall’s *Principles* was “incomplete” because it did not take account of some important changing factors of the economy that underpin Hadley’s own theory of speculation.¹

In this paper, I first consider the primary literature, that is, the works of Alfred Marshall and Arthur T. Hadley at source. I then take account of the secondary literature as an aid to interpretation of these primary sources where appropriate and possible.²

I find that Marshall and Hadley present theories of speculation that are detailed and sophisticated. In these theories, both the desirable and undesirable aspects of speculation, and their effects, receive a considered treatment. The balanced approach of these authors was uncharacteristic for theories of speculation at the time (Emery, 1896). Further, they can be considered very modern and still relevant for us today.

Although the theories of speculation developed by Marshall and Hadley had significant influence on the development of economic thinking about speculation, I find the view that the best aspects of their theories have been subsumed into the current literature may be questionable. This is supported by the finding that both Marshall and Hadley offer similar and novel solutions to the problematical aspects of speculation - solutions based on the idea of informal institutions, which have been ignored in the current literature. This points towards the potential for further research in the history of economic thought on speculation. Such research is likely to illustrate that the relegation of the solutions proposed by Marshall and Hadley to the proverbial dustbin of history has been unfortunate.

The structure of the remainder of this paper is as follows. Sections II and III comprise expository essays on the theories of speculation held by Alfred Marshall and Arthur T. Hadley, respectively. Each essay consists of four parts: (i) definition of speculation; (ii) nature of speculation; (iii) influence of speculation on the economy; and (iv) normative implications regarding speculation. Section IV provides a preliminary comparison between the theories of Marshall and Hadley, following the structure of the essays. Concluding remarks are offered in Section V.

## II: ALFRED MARSHALL’S THEORY OF SPECULATION

Alfred Marshall had significant influence on the development of economic thought (Schumpeter, [1954] 1967). He is considered a major contributor to one of several branches of the neoclassical school of economic thought, which came to dominate the discipline for the first half of the twentieth century – namely, that of the Cambridge School (Ekelund & Hebert, 1990). More specifically, the significant influence of Marshall in the development of economic thought on speculation - particularly by way of John M. Keynes - has been well documented.³

¹ At a more general level, Hadley has been considered ‘America’s alternative to Marshall’ (Davidson & Ekelund, 1994, p. 1).
² While much has been written on Marshall, Hadley’s presence in the secondary literature is rather sparse.
³ Lawlor (1994; 2006), for example, provides a detailed treatment of the links between Marshall and Keynes on speculation.
I find that Marshall formulated a detailed theory of speculation, in which both its desirable and undesirable aspects receive a considered treatment. Marshall’s theory of speculation is very modern and, as Bateman (2006, p. 474) highlights, still ‘holds up under scrutiny as a thoughtful reflection on the nature of modern capitalism’. Further, the view that the best aspects of Marshall’s theory have already been subsumed into the current body of economic thought may be unconvincing, particularly given that Marshall’s intriguing solution to the “evil” forms of speculation has been ignored by current theorists.

**Definition of Speculation**

I distil two distinct but related conceptions of speculation within Marshall’s work. Despite the vast literature on Marshall, I am not aware of any other study that has highlighted such a difference, although Dardi and Gallegati (1992) come close to doing so. 4 The first might be considered speculation *lato sensu*, while the second could be considered speculation *stricto sensu*. 5 Speculation *lato sensu* comprises the act of ‘looking into the future’ (Marshall, 1919, p. 252). Citizens and businesses alike often face risks and in assessing such risks they have no choice but to ‘speculate as to their relative advantages and act according to [their own] relative judgement’ (ibid., p. 252). 6 Marshall noted that such activity, however, was rarely recognised as speculation, and thus most people did not recognise how great its influence is on their lives. In his analysis, Marshall focused instead on the common usage of the term which was ‘almost confined to dealings in things the future prices of which are eminently uncertain’ (ibid., p. 252). This is what I refer to as speculation *stricto sensu*. In this conception, speculative agents are those who are exposed to the risks of inherently uncertain future prices, while the act of speculation involves estimating such price changes. I believe that Marshall’s focus on the more practical *stricto sensu* form of speculation results from his methodological foundations of ‘sitting at the feet of business men and learning from them.’ (Marshall, 1907, p. 25).

It should be noted that within speculation *stricto sensu* (henceforth: speculation), Marshall is primarily concerned with the context of organised exchanges, and thus speculative actions and agents largely pertain to this setting. That is not to say that he did not also concern himself with the relationship between speculation and the general price level, as most nineteenth century economists did, but rather his main focus pertained to the setting of stock and commodity exchanges. I infer that for Marshall the existence of speculators and speculation is a necessary concomitant of organised exchanges, at least practically, as speculation was ubiquitous whenever Marshall discussed organised exchanges.

Marshall draws a fundamental distinction between “professional” and “amateur” speculative agents, the importance of which I discuss in the following sections. Dardi and Gallegati (1992) trace this distinction to that of John Stuart Mill’s two types of agents: “specialized dealers” and amateurs who simply take part in the market out of “habit and accident” rather than for professional reasons’ (p. 573). I, however, find a more direct linkage to a similar distinction made

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4 Consider the following comment by George Stigler (1962, pp. 283-284): ‘Of course, no man could live long enough or read fast enough to read everything that has ever been written on Marshall, and no sensible man would want to.’

5 Dequech (2011) also adopts these terms in his analysis of the role that conventions play in Keynes’s theory of speculation, but they have different meanings in that context.

6 Similarly: ‘Almost every important business operation involves a considerable amount of speculation....To be in business is to be faced at every turn by speculative risks.’ (Marshall, 1923, p.94).
by Crump (1887) between “professional” and “non-professional” speculators, whom Marshall actually cites in relation to this.⁷

Another characteristic of the speculator is that he ‘does not as a rule intend to hold for a long time the securities which he buys: and therefore his direct interest in them is confined to changes in their value within a tolerably short time.’ (Marshall, [n.d.] 1992, p. 587). This begs the question as to how long such timeframes are, particularly given that Marshall notes that there is no sharp distinction in between long and short periods in reality (Marshall, 1961). I infer from the discussion surrounding the above quote however that the long-run here refers to decades, so the fact that speculators are short-term focused may not be very consequential (Marshall, [n.d.] 1992).

**NATURE OF SPECULATION**

Dardi and Gallegati (1992) argue that Marshall’s view towards speculation shifted ‘from a typically nineteenth-century vision of speculation as a picturesque and sometimes objectionable, but essentially marginal phenomenon, to a modern view which places speculation at the very centre of the capitalistic engine, as an inseparable component of the workings of the financial markets.’ (p. 572). This argument is based largely upon the content of an unpublished and previously undocumented manuscript of Marshall’s, which mainly considers malignant forms of speculation and their harmful effects.⁸ As Bateman (1996; 2006) notes, however, much of this manuscript also appears in Marshall’s other works, often verbatim.⁹

It is a more correct interpretation to recognise that Marshall appeared to hold a conflicted, and at times contradictory, view about the nature of speculation.¹⁰ Indeed, this tension between the good and evil aspects of speculation is evident throughout his works.¹¹ On the one hand, he had a great appreciation for the “constructive” aspects of speculation which add to the world’s wealth, while, on the other, he had a great concern as to its “manipulative” forms which are a ‘grievous hindrance to progress’ (Marshall, 1961, p. 719).¹² Dardi and Gallegati note that, prior to the fifth edition of the *Principles of Economics*, “wholesome” and “malignant” were used instead of “constructive” and “manipulative”, respectively. Such a change in terminology suggests that Marshall’s concern became focused more heavily on the manipulative forms of speculation than the malignant forms more generally, which excludes the “folly of amateur speculators” and “acting on the opinions of others” that feature so prominently in the unpublished manuscript.

Marshall held that speculation was *constructive* in the sense that it tends to smooth price fluctuations, a view which was typical of many economists of the nineteenth century (Dardi &

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⁷ To wit: ‘A full explanation of the folly of such men [amateur speculators], written many years ago by Crump, *The Theory of Stock Exchange Speculation*, is in the main applicable to present conditions.’ (Marshall, 1919, p. 264n; emphasis in original). Here Marshall is referring to Crump (1886) 1887, pp. 48 et seq.)

⁸ This manuscript is titled “The Folly of Amateur Speculators Makes the Fortunes of Some Professionals: The Wiles of Some Professionals”, and the date it was written is unknown. Reprinted in: Dardi and Gallegati (1992).

⁹ See, for example: (Marshall, 1919, pp. 258; 262); (Marshall, 1923, pp.94-6).

¹⁰ Such inconsistencies are rather minor, however, so it would be unfair to apply Samuelson’s notorious charge of Marshall being ‘fuzzy and confusing - and confused’ (cited in Backhouse, 2011, p.87) in this context.

¹¹ Even in 1885 Marshall had recognised that speculation was a ‘great and growing evil’ (cited in Reisman, 1987, p. 56).

¹² Note that this quote takes the form of an annotation in Marshall’s *Principles of Economics* (1961).
Gallegati, 1992). Alfred Marshall and Mary P. Marshall's *Economics of Industry* ([1879] 1884) contains a passage copied verbatim from J. S. Mill’s *Principles of Political Economy* (1848), in which a description is provided as to how prices are smoothed by the dealings of speculative merchants. Four decades later, Marshall (1919) reformulates this argument in his own words:

... when a man has superior knowledge that the supply of anything is likely to run short in any particular country or in the world generally; and buys it either outright or for future delivery; then, on the assumption that his judgment is right, his action is to be regarded as constructive speculation. Such work adds to the world’s wealth, just as diverting a stream to work a watermill does, for it tends to increase the supply of things where and when they are likely to be most wanted, and to check the supply of things where and when they are likely to be in less urgent demand. This is its most conspicuous service. (p. 253).

While Marshall adds a few caveats to Mill’s argument, such as that the speculator’s forecast is correct, he concludes that, on the whole, speculators tend to ‘lessen the amplitude of price variations from place to place and year to year.’ (Marshall, 1919, p. 262). This argument explicitly rests on a natural selection idea: speculators only gain if they are right and will lose if they are wrong.

As to what Marshall termed the “evil” or malignant side of speculation, there are three main interrelated components: (i) manipulative practices; (ii) the folly of amateur speculators; and (iii) the tendency to act on the opinions of others. The manipulative practices are the main concern for Marshall. The other two aspects, while of some concern in their own right, are mainly a problem because they exacerbate the effects of the manipulative practices.

The chief method of manipulative speculation is for a clique to generate false opinions about the general conditions of supply and demand. The two main ways in which false opinions can be elicited by the clique are by publishing definite false news or by creating false suggestion, in which the former is a special and extreme case of the latter. Marshall notes that publishing definite false news is a less prevalent strategy due to the severe punishments that are associated with it. False suggestion by contrast has so many shades, some of which seem innocuous, that men of reasonably good character can be drawn into condoning or even practicing a form of it. False

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13 John Stuart Mill ([1849] 1904, p. 429) exemplifies this typical nineteenth century vision: ‘The interest, in short, of the speculators as a body, coincides with the interest of the public; and as they can only fail to serve the public interest in proportion as they miss their own, the best way to promote the one is to leave them to pursue the other in perfect freedom.’

14 It must be noted, however, that in *Principles of Economics* (1961) he makes a contradictory statement, in that he differentiates speculation from ‘truly constructive work’ (p. 719). This distinction is present in all eight editions of the *Principles of Economics*, and thus contradicts the following passage in *Industry and Trade* published over the same time period.

15 This passage from *Economics of Industry* ([1879] 1884) is provided here for comparison:

> In modern times ... there is only dearth, where there formerly would have been famine, and sufficiency everywhere where anciently there would have been scarcity in some places and superfluity in others.... This effect is much promoted by the existence of large capitals belonging to what are called speculative merchants, whose business is to buy goods in order to resell them at a profit. These dealers naturally buying things when they are cheapest, and storing them up to be brought again into the market when the price has become unusually high; the tendency of their operations is to equalize price, or at least moderate its inequalities. The prices of things are neither so much depressed at one time, nor so much raised at another, as they would be if speculative dealers did not exist. (p. 159).

16 Fishburn (2004) points out that, although it has almost been written out of modern evolutionary economics, Marshall held that: ‘The Mecca of the economist lies in economic biology rather than in economic dynamics.’ (Marshall, 1898, p. 43).
suggestion entails a clique leading the market to believe that they are expecting a fall in price, while quietly buying on net in anticipation of a rise; and, conversely, leading the market to expect a rise by buying openly, while quietly selling on net in anticipation of a fall.

In the more extreme cases of false suggestion, a clique can end up cornering the market. (Marshall, 1919; 1923). In this situation, Marshall notes it is against their interest to bankrupt the other speculators, and the clique thus unwinds their position at prices that match the ability of the other speculators to bear losses. Another way that such a situation is brought to an end is by a "hostile clique" recognising that the prices are out of sync with the actual underlying factors of supply and demand. Such an opposing clique is assured to make money, provided they are well financed and their interpretation of the underlying market conditions is correct, '[f]or if two teams of nearly equal strength are pulling in opposite directions, that one which is pulling with the slope of the hill must surely prevail.' (Marshall, 1919, p. 263).

The folly of amateur, or ill-informed, speculators is 'a powerful force on the side of evil manipulations of the market' (ibid., p. 264), as such speculators tend to enhance the effects of manipulative practices. If amateur speculators were to act on a random basis, it is expected that, on average, they would only lose what they pay in fees or transaction costs. Yet, while ill-informed speculators believe that they are acting on the most recent news, such news has almost always already been acted upon by well-informed speculators and the content of such news has already affected the market to its proper extent. As a result, amateurs are likely to buy when prices are more likely to fall and sell when prices are more likely to rise; that is, at precisely the wrong times. This would be the case even if the news was not intended to mislead amateur speculators, but the manipulations by a clique tend to enhance this effect. (Marshall, 1919). The result of this is that the professional speculators’ ‘aggregate income is largely derived from his [the amateur speculators’] follies’ (Marshall, [n.d.] 1992, p. 587). There is an inconsistency here between Marshall’s works, however, as in *Industry and Trade* (1919) ‘[t]he fees which he [the amateur speculator] pays help to finance constructive speculation and trade’ (p. 264), while in *Money, Credit and Commerce* (1923) ‘amateur speculators are likely to lose their own fortunes, with no gain to the public.’ (p. 95).

The tendency to act on the opinions of others is the last main cause for concern regarding speculation within Marshall’s theory. This aspect of Marshall’s work, which is often neglected in the literature, demonstrates the modernity of his theory (Caldari, 2012; Dardi & Gallegati, 1992). Marshall explains how price fluctuations result mainly from relative movements in the eagerness of "bulls" and "bears" in the market, with the influence of steady investors being overborne. While such fluctuations may initially be small,

... they are apt to act like a falling stone on a steep hill-side covered with loose snow. The stone gathers a little snow, the snowball gathers more snow; and ultimately there is a big movement, which, under exceptional conditions, becomes an avalanche. (Marshall, 1923, p. 259)

These enhanced movements occur as a result of the fact that speculators, particularly amateurs, may ‘act on the opinions of others’ (Marshall, 1923, p. 259). Similarly, for instance, speculators ‘often govern their action not by their own forecasts of the distant future, but by their forecasts of the forecasts that will be made by less competent people.’ (Marshall, [n.d.] 1992, p. 589).\(^\text{17}\) This

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\(^\text{17}\) Similarly: ‘Sometimes he [the ordinary professional speculator] does not care so much to anticipate coming events, as to coming popular opinion as to coming events’ (Marshall, [n.d.] 1992, p. 592). More on expectations can also be found in the Official Papers of Alfred Marshall (1926).
idea shows up in Keynes's supposedly novel discussion, most notably the so-called "Keynesian Beauty Contest", in which speculators make guesses as to what the average opinion expects the average opinion to be (Keynes, [1936] 1973; Lawlor, 2006). Interestingly, Marshall goes further than Keynes in one respect and recognises that 'shrewd, far-seeing speculators sometimes govern their own action, not so much by the forecasts of the distant future, as by forecasts of the inaccuracy of the forecasts of that future.' (Marshall, 1923, p. 96; emphasis added).

**Influence of Speculation on the Economy**

As discussed above, Marshall saw that speculation adds to the world’s wealth by guiding resources to where and when they are most needed. This is coupled with the benefit of less pronounced fluctuations in prices, or equivalently greater price stability, which enables business to be conducted more efficiently. Conversely, the main effects that the malignant forms of speculation have are increased price fluctuations, and thus a less efficient allocation of resources. On balance, Marshall (1923) saw that the benefits from the desirable forms of speculation are greater than the harm caused by its undesirable forms:

> [S]tock exchanges are necessary auxiliaries of modern industry and commerce; and the services which they render to the public probably outweigh many times the evils which they cause to it. (p. 95).

Marshall explains that an almost as important, but less obvious, service that speculation provides is the ability for businesses to hedge or insure away the speculative risks they face from factors external to their own business, about which they have no specialised knowledge. A commodity exchange can best bear such risks because of the specialised knowledge of those dealing in them. Further, many of the risks that businesses hedge oppose and thus offset one another in aggregate: It is a 'chief function of organised markets to accomplish what is in effect a double insurance of this kind, though its manner is rather that of wagering than of insurance.' (Marshall, 1919, p. 255).

Organised exchanges also confer important benefits by providing liquidity. This eliminates the risk that an investor’s command of capital cannot be recovered in the case that an investment does not yield what he had forecasted it would. The investor can sell his investment at a similar price to what he paid, provided that the value of the investment has not changed; and, even if its value has decreased, the investor can still sell at less of a discount than he would have had to otherwise. Organised markets are thus quite safe relative to unorganised markets as a purchaser is more readily found when desired. Furthermore, liquidity is particularly beneficial for investors who are not especially expert as they are at less risk of paying more than informed investors know something is worth. Investors in railway shares, to indulge Marshall’s example, benefit from the stock exchange as it facilitates trade at generally accepted prices with a narrowed spread between purchase and sale prices. (Marshall, 1923; [n.d.] 1992).

**Normative Implications Regarding Speculation**

Marshall held an open-minded and pragmatic stance to economic policy generally, which is evident with regard to speculation in particular (Reisman, 2006). Marshall explains that a remedy for malignant forms of speculation, while it may never be perfect, ‘is one of those matters in which the rapidly increasing force of economic studies may be expected to render great service to the world in the course of this century.’ (Marshall, 1961, p. 719). The long time horizon given here is of note as ‘[h]asty attempts to control speculation by simple enactments have invariably proved either futile or mischievous’ (ibid, p. 719). That is, for Marshall, too little is known about the nature of speculation for any legislation against it to be effective:
It is true that this beneficent work [speculation] is often marred, and sometimes over-
borne, by evil practices which intensify fluctuations and mislead honest dealers: but, for
the present at least, *that evil has to be taken with the good.* (Marshall, 1919, p. 257;
emphasis added).

Marshall also disagreed with the proposal made by the likes of Walras that stock exchange
speculation should be limited to licensed professionals of a limited number (Reisman, 1987).

For Marshall, a wider understanding of the idea of “economic chivalry” could mitigate the evils
of manipulative speculation. There is a sentence in the *Principles of Economics* that relates a solution
to speculation and the possibilities of economic chivalry, namely: ‘In many other ways evil may
be lessened by a wider understanding of the social possibilities of economic chivalry’ (Marshall,
1961, p. 719). Taken on its own, it is not clear whether the possibilities of economic chivalry to
lessen evil is meant to be inclusive or exclusive of the malignant forms of speculation. However,
this ambiguity is clarified by Marshall’s (1907) article “The Social Possibilities of Economic
Chivalry”, as malignant speculation well matches the “chicanery”, “manufactured news”, and
“fraudulent dealings” which economic chivalry can alleviate. Economic chivalry is a social
institution in which public opinion ‘becomes an informal Court of Honour’ (ibid, p. 26), where it
is recognised that:

… wealth, however large, should be no passport to social success if got by chicanery, by
manufactured news, by fraudulent dealing, or by malignant destruction of rivals; and that
business enterprise which is noble in its aims and in its methods, even if it does not bring
with it a large fortune, may receive its due of public admiration and gratitude, as does that
of the progressive student of science, or literature, or art. (ibid, p. 26).

It is a self-governing institution rather than one of bureaucratic rules. In fact, Marshall describes
how the growth of bureaucracy is hostile to that of economic chivalry, with the former increasing
the need for the latter. (ibid.).

In “Paper to the Industrial Remuneration Conference” (1885), Marshall states that: ‘Legitimate
speculation benefits trade in the long run; but mere gambling in business is a great and growing
evil. Unfortunately, intellectual education, which is a slow but sure cure for drunkenness, is not
so sure a cure for the spirit of gambling; though it may show the folly of playing against loaded
dice.’ (cited in Groenewegen, 1998, pp. 63). As such, Marshall suggests that a better solution for
speculation is to foster ‘the growth of moral feeling against gambling, particularly amongst the
young’ (ibid., p. 63). This could be also considered an economic chivalry type of solution.

III: ARTHUR T. HADLEY’S THEORY OF SPECULATION

Arthur Twining Hadley was an influential economist, ‘perhaps among the greatest builders in
America of a new foundation for further economic study.’ (Dorfman, 1949, p. 258). His treatise,
*Economics: An Account of the Relations between Private Property and Public Welfare* (1896), was
for a time the most popular textbook among American colleges (ibid.). I place Hadley within the
“institutionalist” tradition of economic thought as his work was largely focused on the role of
institutions in the economy, particularly property-rights (Cross & Ekelund, 1981). In addition, he
held that natural selection was an important force in modern economics (Dorfman, 1949).

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18 See also: Groenewegen (1998, pp. 80-81); and Reisman (1987, p. 56).
19 Veblen (1898) also comments on the “unusual reach” of Hadley’s *Economics* (1896).
I find that Hadley developed a sophisticated theory of speculation, in which both its desirable and undesirable aspects receive a detailed treatment. In addition, Hadley's theory is especially interesting in that it places the speculator at the heart of both production and trade. According to Emery (1896), other treatises at the time did not give much attention to the increasingly significant role of speculation in the economy and that Hadley's Economics, in which Hadley offers his most detailed treatment of speculation, made a "new departure" in this regard. In fact, Hadley himself claimed that Marshall's Principles of Economics (1890) was "incomplete" as it failed to take account of certain aspects of the changing nature of the economy that underpinned Hadley's own theory of speculation.20

A significant feature of Hadley's theory of speculation is that it included the concept of "fixed capital", which he recognised was becoming an increasingly important factor within the economy. Hadley saw that the presence of large fixed capitals necessitated a different style of analysis from that of Ricardo's. In this sense, he can be seen to have anticipated much later economists who recognised the role of fixed capital in the economy, such as the so-called new-institutional economics.

Arthur T. Hadley also appears to have had a major influence on the thinking of Irving Fisher with regard to speculation. Davidson and Ekelund (1994, p. 22) suggest: 'We can only wonder at the mutual interactions between Hadley and Fisher on the matter of risk, speculation and uncertainty.' 21 However, I find that there are many similarities between the theories of speculation advanced by Hadley and Fisher that may provide insight into the content of such interactions. For example, Fisher's recognition of the potential for "over-investment" and "over-speculation" can be seen as a continuation of Hadley's work, particularly given the role that borrowed capital plays in both of their formulations. I find that these potential links between Hadley and Fisher have not been well detailed in the literature.

Despite these major contributions to economic studies, Hadley's presence in the secondary literature is, in general, rather sparse. This is not only unfortunate for the purposes of understanding the intellectual development of economic theory, and particularly economic thought on speculation, but also because there are forgotten insights within Hadley's work that may be valuable for current economic thought. In particular, Hadley offers an intriguing solution to what he sees as illegitimate forms of speculation, which is based upon the notion of "commercial ethics".

### Definition of Speculation

Hadley only explicitly defines the concept of speculation in Railroad Transportation ([1885] 1968), where he divides the speculation into three senses, as follows:

> Speculation, in the narrowest sense of the word, is the attempt to make money out of fluctuations in the value of property, as distinct from its earnings.
> In a wider sense, speculative business is that business which involves large risks for the chance of large gains[.]

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20 Hadley makes this criticism in the preface of his treatise Economics: An Account of the Relations between Private Property and Public Welfare (1896).

21 Similarly: 'Hadley devoted an entire chapter to speculation and risk. Irving Fisher's interests were perhaps influenced by Hadley's writings on these topics.' (Davidson & Ekelund, 1994, p. 17).
In a still wider sense, speculative management is the management of property by inside
rings for purposes distinct from the permanent interests of its owners. (p. 48)

Hadley notes that, to a certain extent, each of these notions of speculation occur at any given time.
I reconcile these conceptions with those of his later work, finding that they are present but not
defined. As such, this early definition is useful for clarifying what Hadley means in his later works.

In *Economics* (1896), Hadley divides speculation into two forms: "commercial speculation", and
"industrial speculation" or, equivalently, "speculative production". These two rather unusual
notions are central to Hadley's theory of speculation, and that of the economy more generally, as
the speculator lies at the heart of both industry and trade (Emery, 1896; Mayo-Smith, 1897).
Hadley explains that: 'It is not only in commercial matters, but also in industrial ones that the
speculator exercises a dominant influence. He controls production as well as trade.' (Hadley, 1896,
p. 112).

*Commercial speculation* comprises a trader buying articles in market with a view to selling them
in another market – differentiated by time or place, or both – at a higher price. The price
differential that he obtains from the transaction is his profit, and the trade is speculative due to
the uncertainty regarding the profit that will be realised. This form of speculation is quite closely
related to the narrowest sense outlined above, although with the addition of uncertainty. In his
analysis of *commercial speculation*, Hadley mainly concerns himself with the setting of organised
exchanges. He notes however that '[a] large speculative element is involved in trade of every kind'
(Hadley, 1896, p. 100), and that much of this goes unrecorded. (ibid).

*Industrial speculation* involves a producer advancing capital in the form of wages in order to
produce something in the future at an unknown price, and thus for an unknown profit. This is
precisely what 'the manufacturer is doing when he buys labor in the hope of selling the results of
that labor at a profit.' (Hadley, 1896, p. 112-3). The more remote the result (i.e., the customers, in
time or place) the greater the uncertainty that the producer faces, and consequently the more
speculative the transaction. This conception of the producer or capitalist as a speculator, and the
implications therefrom, lie at the heart of what is novel in Hadley's theory of speculation. 22,23

Although the term *speculative production* is similar to that of *speculative business*, there is little
similarity between the actual concepts. The latter notion given in *Railway Transportation* is based
on large risks, while that of *speculative production* is simply a function of advancement of capital.
There is necessarily an overlap between risks and advancement of capital, however, and thus
these two concepts.

Within Hadley's *Economics* (1896), the concept of *speculative management* appears in the
discussion of agency costs arising from the separation of ownership and control of industrial
corporations, although it is given no analogous term.24 While the term *speculative management*
embraces the idea, identified at least as far back as Adam Smith ([1776] 1904), of 'negligence

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22 At least novel in the sense that the risk-bearing function of capitalists who advance capital, identified by
Turgot, had been largely forgotten by economic theory. On this, see: Rothbard ([1995] 2006, p. 395).
23 In anticipation of Hadley, McCulloch (1833) identified that: 'Every exertion of industry involves a certain
degree of speculation.' (p. 72)
24 This is reflected by the comment of one reviewer of *Economics* that 'perhaps, Professor Hadley has
benefited from the continental use of the term, "speculation" which does not have the bad meaning attached
to it in America.' (Taylor, 1896, p. 479).
and profusion’ (p. 233) in the management of a joint-stock company, it goes further to include such things as the manipulation of accounts (Hadley, 1896).25

It should be noted that Hadley also discusses "speculative periods", in which periods 'speculation develops an unusual and abnormal activity' (Hadley, [1885] 1968, p.48). In the extreme case such periods can develop into manias – for example, the Tulip Mania of Holland or South Sea Bubble of England (Hadley, [1881] 1899). These speculative periods are almost invariably followed by a "more or less severe reaction", which constitutes a crisis. (Hadley, [1885] 1968; [1881] 1899).

**NATURE OF SPECULATION**

Hadley divides both the commercial and industrial forms of speculation into two types: "legitimate" and "illegitimate". Speculation is said to be legitimate if it 'involves anticipation of the needs of the market and a power to assume risks in making contracts to meet these needs.' (Hadley, 1896, pp. 110-111). On the contrary, speculation is said to be illegitimate if it is of a gambling nature. Hadley explains that it is extremely difficult to distinguish legitimate and illegitimate speculation as: 'The difference between legitimate speculation and gambling lies neither in the subject-matter nor in the form of the transaction, but in its intent and purpose.' (ibid., p. 110).26

As Hadley's analysis of speculation is built up around a proposed solution to its problematical aspects, it is necessary to delve into the normative aspects of his work at this juncture.27 The proposed solution in question is that speculators are restricted to the use of their own capital in undertaking speculative transactions. Hadley viewed that the assignment of property rights in such a way affects the nature of speculation for two reasons. First, there are different incentive structures in place for speculators to undertake legitimate or illegitimate transactions depending on whether or not they are speculating with their own capital. Second, the realisation of a natural selection process which increases the efficiency of speculative transactions depends on whether or not speculators are required to speculate with their own capital (Hadley, [1881] 1899; 1896).28

With regard to *commercial speculation* in particular, speculation is legitimate if it entails 'anticipating movements of supply and demand and taking fair risks' (Hadley, 1896, p. 106). Hadley explains that, due to the rise of modern technology, '[o]ur trouble is now not in having goods at the right place but having them at the right time – in withdrawing them from some market in which they are not needed, in order to place them at the disposal of that or some other market when they are needed.' (Hadley, [1907] 1912, p. 50). Such speculation has the effect of smoothing both the supply and price of resources across time. This is so because: 'The more fully traders seek to take advantage of differences in price, the narrower is the margin they can realize for themselves.' (Hadley, 1896, pp. 102-103).

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25 Elsewhere, Hadley (1886) states: 'Where a man is handling property of his own, he may be trusted to pursue a more conservative policy; where he is handling property of other men, to whom he feels little or no direct responsibility, his policy will often be speculative *in the worse sense of the word*.' (p. 222; emphasis added).

26 Similarly: 'It is the fundamental purpose of the transaction, not its outward form, that makes it good or bad.' (Hadley, [1907] 1912, p. 53).

27 Consider the observations of: (i) Taylor (1896) that '[t]he book [Economics (1896)] has rather a political than an economic aspect.' (p. 470); and (ii) Schumpeter ([1954] 1967) who described Hadley's *Economics* (1896) as containing 'plenty of policies and politics' (p. 866).

28 Veblen (1898) recognised that Hadley 'avowed some penchant for the evolutionary point of view' (p. 376).
It is the much-abused speculator who, by buying what he does not want in the expectation of having it available when it is wanted, or by selling supplies which he does not control on the well-founded belief that he is going to be able to get them, keeps us from those wild fluctuations of trade and grave crises in business whose evils form the counterpart in the twentieth century to the evils of famine in ancient days. (Hadley, [1907] 1912, p. 50).

When speculators are required to speculate with their own capital, a natural selection process results. Speculators who fail to anticipate the needs of the market correctly lose their capital, and are thus unable to partake in future speculative transactions. Meanwhile, speculators who are successful accumulate capital, and are thus able to exert a greater influence in future speculative transactions. That is, 'there is a progressive elimination of the unfit and selection of the competent.' (Hadley, 1896, p. 112). The probability that the wants of the market will be anticipated - and thus the probability that prices and supplies of commodities will be smoothed as a result - is greater the longer this process is carried out (Hadley, 1896).

The illegitimate forms of commercial speculation are of concern due to their inherent nature as gambling transactions. However, they are of even greater concern than pure gambling transactions because of both their abundance and the larger sums involved. This is due to the fact that illegitimate speculative transactions appear to be of the form of legitimate investment. Thus, men who would not normally gamble are enticed into such speculation more or less unconsciously. These men then become easy prey for the wiles of professional speculators, who have a greater incentive to manipulate the markets in which they are dealing if they can profit from such "mis-guided gamblers". (Hadley, [1907] 1912).

The ability to speculate with the capital of others also causes problems as it provides an incentive to undertake illegitimate speculation. Hadley presents a "moral hazard" type problem in which speculators are incentivised to gamble because they increase their own capital if they win, but face no loss if they fail. The same is true for speculators who have the ability to trade on margin because it increases their stakes. While such an incentive on gambling transactions is of no small concern on its own, the greater problem lies in the fact that "high stakes constitute a temptation to unfair play." (Hadley, 1896, p. 107).

In the context of commercial speculation, by unfair play Hadley means manipulation of the markets, which can be done either by eliciting false reports or by creating factitious scarcity. Hadley explains that the type of manipulative behaviour will differ based on the means available to the speculator: 'If he works on a small scale, it may be by the circulation of false rumors or the show of false appearances, perhaps even by securing false management of the property; if he works on a large scale, it may be by securing a corner.' (Hadley, [1881] 1899).

Industrial speculation is perhaps of more interest for Hadley and is what is novel about his treatment of speculation. His theory is built upon a recognition of the fact that: 'The time which elapses between the rendering of labor and the utilization of the products of labor is now so long that the work of the speculator has a far greater importance than it did a generation ago.' (Hadley, 1896, p. iii). Furthermore: 'The industrial development of the last three or four hundred years, rightly interpreted, is an account of the reasons which have led society to put the control of its industry into the hands of a body of speculative investors.' (ibid, p. 113). It seems to me that a continuation of this idea - a body of speculative investors who control industry - can be found in Fisher's notion of 'captains of industry' (Fisher [1906] 1923, p. 298; 1932, p. 71).

Much of the nature of industrial speculation has clear analogues in Hadley's analysis of commercial speculation. The incentives that are present to speculate in a gambling fashion, rather than
speculate legitimately, are also present at the industrial level when speculators have access to borrowed capital. As above, when speculators have access to other peoples’ money there are incentives to undertake manipulative practices. (Hadley, 1896). At the industrial level such practices usually involve directors of companies expropriating wealth from stock-holders by way of falsely stating accounts or the like, that is, by speculative management (Hadley, [1885] 1968).

There are however also characteristics of industrial speculation which have no counterpart in commercial speculation, most notably the concept of “fixed capital”. Fixed capital is an investment that, once made, cannot be contracted or adapted to any other purpose (Hadley, 1885; 1896). According to Hadley, fixed capital requires a different analysis from that of the “freely circulating” capital on which Ricardo’s political economy is supposedly focused (Hadley, 1885, p. 41). Fisher et al. (1930) comment that ‘Dr. Hadley recognized that the rapid growth of corporations with large fixed capital investments would necessitate radical changes in many of the accepted economic theories.’ (p. 366). In a similar vein, Perelman (1996, p. 72) states that:

... since large, fixed-capital investments invalidate the assumptions of conventional economics, Hadley was far ahead of his time. Only recently have modern economists, such as the so-called new institutional economics, made a serious attempt to analyze the role of fixed capital (see Klein, Crawford and Alchian 1978). Hadley’s discussion about the this [sic] subject clearly anticipated their analysis.

Hadley recognised the phenomenon of permanent investments of this sort in connection with railroads, and generalised this notion to other industries that also had fixed capitals (Perelman, 1996). It is this concept which is the most fundamental feature of his work that was different from other treatments, with the idea of industrial speculation following from this.

INFLUENCE OF SPECULATION ON THE ECONOMY

Legitimate commercial speculation renders ‘a service which has an effect on the public wealth far greater than can be measured by any of its effects on the private wealth of individuals.’ (Hadley, 1896, p. 103). Legitimate speculation enhances “industrial efficiency” as it provides stability in a similar fashion to insurance, and this stability facilitates greater consumption and production. Industrial efficiency is enhanced because producers are able to secure the inputs that they need at given prices while not needing to hold idle capital. (Hadley, 1896). A continuation of this idea of speculation decreasing the need to carry idle stock can also be found in Fisher’s work. Further, Fisher cites Hadley’s Economics (p. 106), with regard to this idea, which implies that, at least in this instance, Fisher’s theory of speculation was directly influenced by that of Hadley’s.

By contrast, illegitimate commercial speculation constitutes a public evil, due to the scale on which it is practiced. Hadley explains that: ‘The sales of certain commercial staples, such as wheat, cotton, or petroleum, in the New York market are in some years fifty times as great as the actual deliveries. Of the transactions in stocks, perhaps an equally small portion represent purchases for

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29 ‘The railroad may serve as a type of modern business. Wherever there are large permanent investments of capital we see the same causes at work in the same way.’ (Hadley, [1885] 1968, p. 72)
30 See Fisher ([1906] 1923, p. 299):

… a woolen manufacturer need not carry so large a stock of wool if he can make a contract by which someone will sell short, or agree to supply the wool at fixed prices and at certain dates. He can afford to use up his present stock fearlessly, with the certainty that when it is gone he can obtain a new supply. Without such a contract, he would be under the necessity of carrying a large and idle stock.
The reason that such proportions constitute a public evil are because the effects of the *bona fide* transactions become obscured. (Hadley, [1881] 1899).

Illegitimate speculative transactions are also of concern in the capacity that they are associated with speculative periods, where ‘a speculative mania is often developed which can only end in a crisis.’ (Hadley, [1881] 1899). ‘This alternation between unhealthy activity and depression, this ebb and flow of the industrial life, constitutes one of the most serious problems with which the political economist has to deal. The moral evils of the period of speculation, and the material evils of the crisis, are alike fraught with danger to the community.’ (Hadley, [1885] 1968, p. 48-9).

In addition, the manipulation of markets associated with illegitimate speculation affects the economy as the effects are not limited to those other speculators who partake voluntarily in the transaction, but also producers and consumers more generally. For this reason: ‘The man who thus attempts to manipulate the market, lowering prices by false reports or raising them by factitious scarcity, is doing the same kind of business as a man who “pulls” horses or stacks cards. In fact, he is doing worse’ (Hadley, 1896, p. 108).

Hadley defines a monopoly as a “combination” of sellers to keep up prices, and thus he is able to treat “corners” as being fundamentally no different from monopolies (Taylor, 1896, p. 478): ‘In its principles a corner does not differ from any other monopoly. An individual or a ring who once secure the whole or nearly the whole marketable stock of a commodity, have, of course, the power to fix the price as long as that state of things continues.’ (Hadley, [1881] 1899). While a corner on the stock market does not directly affect the general public, a produce corner constitutes a great public evil. A member of the general public can easily do without a particular stock, but he cannot survive, even for a short time, without food. Furthermore, produce corners exert a greater influence on the economy as they exceed stock corners in frequency. (ibid.).

Hadley viewed that *industrial speculation* involves experiments of a market sort: ‘Scientific experts cannot predict the success or failure of a commercial enterprise; it requires the test of actual experience.’ (Hadley, 1896, p. 114). If such an experiment is successful, the economy as a whole benefits. In contrast, if it is unsuccessful the capital advanced is wasted.

Whether the effects of *industrial speculation* on the economy are beneficial or detrimental depends not only upon whether a speculator is “foreseeing consumption”, but also whether a speculator is using his own capital. This is because if anyone were able to speculate the result would be that the mistakes of speculators would frequently result in commercial crises. Furthermore, Hadley states that if capital was made available to anyone with which to experiment

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31 Hadley contradicts this point a few pages later, however, by stating that ‘[i]f a man, instead of anticipating the needs of the market, attempts to manipulate that market by combinations and corners, any gain that he makes is usually at the expense of the public’ (Hadley, 1896, p. 111).
there would likely result a shortage of food supplies over the long term, due to the lost capital that was advanced by speculators. (Hadley, 1896).

In addition, commercial crises may not result from mistaken experiments per se, but rather from a tendency to "over-invest" in fixed capital. The institutions of limited-liability, and the incentives to invest associated with them, mean that in 'modern times we are quite apt to find an excess in the saving and investment of capital as to find a deficiency.' (Hadley, 1896, p. 147). Hadley argues that the economy has reached a point where there is an "over-accumulation" of capital and that this over-accumulation is equivalent to mistaken investment, proving a loss to both the speculator and to society. Hadley (1896) explains that:

The modern civilized world is in perpetual danger of under-consumption. Too many of its members use their supplies of products, not to purchase the consumable products of others, but to duplicate machinery and other permanent investments. Under the operation of the credit system the danger of this process remains unseen, until masses of such machinery come into use; then its comparative worthlessness becomes apparent. The men who own it find themselves poor instead of rich. The laborers who have been trained to produce it are thrown out of employment, and the community is plunged into a commercial crisis. (p. 148)

Due to the nature of fixed capital, 'over-investment means lasting over-production' (Hadley, 1885 1968, p. 54). As such, commercial crises can be of considerable length as the mistaken investments take time to be adapted to other uses, if they can be at all. (Hadley, 1896).

If speculators are required to speculate with their own capital, contrariwise, enough experiments can be encouraged to secure progress without destroying the accumulated capital of the economy. There are three reasons why industrial progress is likely to be best achieved under the condition that speculators use their own capital. First, there is a large accumulation of capital as men acquire property as a result of ambition, a desire to control the industrial actions of other men. Second, a natural selection process occurs such that the speculators who have demonstrated an ability to foresee future consumption best are enabled to experiment again, while those whose forecasts have proved incorrect are unable to waste more capital. (Hadley, 1896). Third, contra the popular view that more competitors in a market means greater competition, Hadley pointed out that smaller numbers of competitors can result in greater competition: 'in actual experience there is no competition in the world so intense as that which prevails between two highly organized bodies that stand opposed to one another.' (Hadley, 1896, p. 117).

Significantly, a continuation of this idea is evident in Fisher's "The Debt-Deflation Theory of Great Depressions" (1933), in which 'over-investment and over-speculation are often important; but they would have far less serious results were they not conducted with borrowed money. That is, over-indebtedness may lend importance to over-investment or to over-speculation.' (p. 341).

**Normative Implications Regarding Speculation**

When it comes to policy, Hadley held a position somewhere between the alternatives of socialism and unfettered capitalism (Perelman, 1996). Although he claimed to be 'one of those who look with serious distrust on each extension of political activity' (Hadley, 1907, p. 133), Hadley

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32 Hadley explains that 'the possession of property gives a man not merely enjoyment but power in the control of industry – in other words, ... capital in its individual sense becomes a directing force in the progress of the nation.' (Hadley, 1894, p. 89). Cf. Fisher's "Captains of Industry".
recognised that ‘[t]o enjoy industrial liberty, it will be necessary to resign the claim to industrial lawlessness: the alternative is socialism.’ (Hadley, 1886, p. 225).  

Hadley pointed out that prohibitive legislation would have to be such that illegitimate speculation would be prevented while legitimate speculation was allowed to continue. This is a problem because is ‘extremely difficult to make this distinction by law.’ (Hadley, 1896, p. 108), due to the fact that the difference between them lies in the intent of the speculator. Furthermore, Hadley outlines futile attempts that have been made to prohibit speculation based on the type of the transaction or the underlying article.

Therefore, rather than legislating against illegitimate speculative activity directly, Hadley offers two interrelated solutions that pertain to the institutions behind speculation. The first of these, which I have already mentioned, is the requirement that speculators have to risk their own capital. The second solution comprises a change in "public sentiment" or "business ethics". Hadley notes that while the former is an insufficient solution without the latter, if the latter were adopted there may in fact be little or no need for the former. (Hadley, [1881] 1899; 1896).

Instead of treating speculation on borrowed capital as a fraud on the community and denouncing it as such, we offer mild criticism in the case of failure and unqualified admiration in the case of success. There is no more serious danger to the present commercial system than that which arises from the easy-going tolerance of abuses like this. As long as this state of mind continues no law to check the abuses of speculation can be made effective. With a reform in public sentiment, little or no law would be needed. (Hadley, 1896, p. 112).

The policy prescription that speculators are required to use their own funds, by changing the incentive structure that speculative agents face, gets behind the difficulty of separating legitimate and illegitimate speculation. In the case of commercial speculation, it is clear what Hadley means by the restriction that a speculator uses his own capital. Namely, a speculator is unable to borrow or use "margins" in speculative dealings. At the level of industrial speculation, however, there is some ambiguity.

It follows logically from Hadley’s analysis that both the ability to speculate via a joint-stock limited-liability arrangement should be prohibited, as from practical perspective this is no different from using borrowed funds. It is unclear, however, to what extent Hadley believes this policy should be implemented in practice. On the face of the matter it would seem that he is very much for the implementation of such a policy at the industrial level, yet a little further analysis gives cause for hesitation. In relation to the railroads, Hadley states that ‘there can be no doubt: that it is desirable to limit the facilities for constructing railroads with other people’s money. Yet even here the practical enforcement of any law is more difficult than would at first sight appear.’

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33 Hadley (1886) stated that:

As long as political economy is occupied with defining [the limits of legislative activity] it can maintain its claim to the position of an authoritative science. It says to this legislator, 'Thus far thou shalt go, and no farther.' It does not say, 'Such and such legislation will produce the best results; ['sic'] but it says, 'Beyond certain limits, all legislation fails.' This is the natural relation of a science to an art. (pp. 47-48)

34 Although Hadley does not note that the manipulation of the markets associated with illegitimate speculation could be mitigated by a stricter enforcement of regulations regarding conspiracy. (Hadley, 1896).

35 The requirement that a speculator must use their own funds could be considered a change in the institutional environment within the “Economics of Institutions” framework of Williamson (2000).

36 These notions could be considered as similar to embeddedness within the "Economics of Institutions" framework of Williamson (2000).
Furthermore, Hadley describes how ‘[t]he fact that the present organization of capital is the result of historical development, and that the present forms have survived while others have failed, is the strongest proof of their vitality.’ (Hadley, 1896, p. 150). Unfortunately, this tension between the impracticality of prohibiting use of the capital of others for the purposes of industrial speculation is never resolved by Hadley.

Hadley’s second solution to the problem of ille gitimate speculation is to encourage a reform in the informal institution of the “public sentiment of the business community” or “business ethics”. Hadley explains that one of the key issues in dealing with speculation is that there is popular ignorance as to what the problems regarding speculation really are and that this ignorance often finds its way into legislation in the form of public prejudice. (Hadley, [1881] 1899). Fostering commercial ethics is a way to constrain businessmen and their speculative actions, a way which enables the problems of using legislation to mitigate the harmful aspects of speculation to be bypassed. Interestingly, Hadley viewed that this informal constraint was a means against the need for formal constraint in the form of socialism, which he saw was a danger if businessmen were unwilling to adopt such ethics. Furthermore, legislative measures against speculation would be of little or no avail without an associated change in the public sentiment of the business community. (Hadley, 1886; 1896).

IV: MARSHALL AND HADLEY ON SPECULATION: A PRELIMINARY COMPARISON

The much wider function that Arthur T. Hadley ascribes to the speculator means that his theory is applicable to a wider range of economic phenomena than is Alfred Marshall’s theory, including general issues of industrial progress. Furthermore, Hadley’s explanation of production based on speculative experiments seems much closer to reality than that of Marshall’s equilibrium optimisation approach. Nevertheless, I refrain from making any comprehensive, comparative appraisal of the two theories given the limited scope of this study.37 What I can conclude, however, is that Hadley’s theory provides a vastly different way of thinking about the economy than does Marshall’s theory.

A preliminary comparison is provided below under the four sections used in each of the preceding essays.

DEFINITION OF SPECULATION

Both Marshall and Hadley recognised that an essential feature of speculation is dealing with uncertainty, and consequently there is an element of speculation in trade of any kind. Marshall’s concept of speculation lato sensu, however, is more general than any of Hadley’s, encompassing any act of forecasting the future. This is surprising given that Hadley places a much greater emphasis on the speculative function within the economy. I find that both theorists concern themselves largely with the context of organised exchanges, presumably given that the operations of these were of great and growing concern at the time (Emery, 1896).

Only Hadley seems to have a well-defined concept of “speculative periods”, which generally end in crises. This is striking because Hadley, unlike Marshall, has no explanation of how such

37 I am particularly mindful, for example, that an attempt at such an appraisal here would likely invoke one or more of the errors in theory appraisal outlined by Machlup’s famous article ‘Theories of the Firm: Marginalist, Behavioral, Managerial’ (1967).
speculative periods might arise, as he has no appreciation for the tendency of speculators to act on the opinions of others. Although Marshall did recognise the possibility of "overtrading", for him this was more in connection with business cycles than speculation in particular. Thus, in this regard the theories of Hadley and Marshall can be considered complementary.

**Nature of Speculation**

Marshall and Hadley both recognised that there were desirable and undesirable forms of speculation, which receive relatively balanced treatments within their theories. This is in contrast to most other theories of speculation at the time, which Emery (1896) criticised as being one-sided and thus unable to offer 'any claim to furnishing a ground of ultimate judgment on the system as a whole.' (p. 12). Both held that the desirable forms tend to smooth prices over time, while the undesirable do not. For Marshall, whether speculation was of the first form is a function of whether the speculator had correct judgment, while for Hadley it is a function of proper intentions and an ability to bear risks. In addition, Marshall requires that speculators have superior knowledge whereas Hadley views speculation as an experiment in which the outcome is necessarily uncertain. Interestingly, both hold that a natural selection process occurs by which the less competent speculators are eliminated, leaving the more competent. For Hadley, however, the realisation of this process is conditional upon the requirement that speculators use their own capital.

As to the less desirable forms of speculation, both theorists recognised that speculators can manipulate the markets. The idea of market corners are a type of such manipulation which features prominently within their analyses. Marshall focuses more on how a corner is created, while Hadley focuses more on the effects of a corner. Thus, their views can be seen as complementary in this respect as well.

The tendency of speculators to act on the opinions of others is only a feature of Marshall’s theory of speculation. It explains why gambling-type transactions may come to move prices away from representing the underlying fundamentals. Although Hadley suggests that gambling tends to decrease the efficiency of the economic process, he does not have the benefit of an explanation as to how such inefficiencies might be generated.

In contrast, only Hadley discusses the role of property rights and their associated incentives on the nature of speculative activities that are carried out. This enables Hadley to explain what motivates speculators to gamble rather than forecast the wants of the market as well as what incites manipulative practices. That is, Hadley provides an explanation of why speculators may not perform the kind of activity that adds to the world’s wealth - in addition to the point both theorists make that individuals may be drawn into engaging in undesirable forms of speculation unknowingly. Marshall does not discuss this motivation to malignant forms of speculation, so here Hadley can be seen to extend upon Marshall’s analysis.

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38 As Bateman (2006) points out, Marshall copies verbatim a passage from Lord Overstone (1837, p. 44) with regard to this in *Money, Credit and Commerce* and all eight editions of the *Principles of Economics*:

We find it [the "state of trade"] subject to various conditions which are periodically returning; it revolves apparently in an established cycle. First we find a state of quiescence – next, improvement, - growing confidence, - prosperity, - excitement, - overtrading, - convulsion, - pressure, - stagnation, - distress, ending again in quiescence.'

39 For the purposes of a more sophisticated theory appraisal, Metcalfe (2006) points out: 'Marshall is never clear as to how equilibrium and evolution are to be reconciled' (p. 655).
INFLUENCE OF SPECULATION ON THE ECONOMY

Both Marshall and Hadley saw that speculation, when of the right sort, has a tendency to smooth the supply and prices of goods in space and time. This confers benefits of no small significance on the rest of the economy, through increased economic efficiency. They also both recognised the risk-bearing function speculators provide, of an insurance-type nature.

Marshall recognised that a benefit of organised exchanges, which implies speculation, is that they provide liquidity. This enables an investor to recover their investment, at a discount if necessary, when an investment does not yield what he had forecasted it would. In addition, organised exchanges provide safety for investors who are not especially expert, as they can trade at generally accepted prices. Hadley does not seem to view this as a notable benefit of exchanges, arguably due to his conception of fixed capital. That is, Hadley may have recognised to some extent, in anticipation of Keynes, that in reality, while investments may be liquid for individuals, they are necessarily illiquid for the community overall (Keynes, [1936] 1973).

NORMATIVE ASPECTS REGARDING SPECULATION

Marshall and Hadley held different views on the ability of legislation to mitigate the undesirable effects of speculation. Although Hadley held a great distrust toward the extension of legislation in general, he proposed a legislative policy to deal with the problems of speculation – namely, that speculators be required to use their own capital only. Marshall, by contrast, argued that too little was known about the nature of speculation for any legislation against it to be effective. However, both held that legislation alone would be an ineffective remedy for harmful aspects of speculation.

Furthermore, both Marshall and Hadley claimed that a solution based on informal institutions would be necessary in mitigating the undesirable aspects of speculation, regardless of whether it was accompanied by legislation or not. Marshall’s solution was to enhance “economic chivalry”, while Hadley’s equivalent was to rely on “commercial ethics” or, equivalently, the “public sentiment of the business community”. This idea of informal institutions, or customs, that regulate behaviour is not new, and can be traced back to at least Adam Smith’s The Theory of Moral Sentiments (1759). These notions of economic chivalry and commercial ethics can both be considered “informal constraints” under the definition of institutions provided by North (1991):

> Institutions are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights). (p. 97).

It should also be noted that Marshall held that the growth of bureaucracy was hostile to economic chivalry. Hadley, on the other hand, saw informal institutions as the only viable alternative to further bureaucracy, by which he means socialism: ‘If business men are not controlled by commercial ethics ... they must expect to be controlled by something else.’ (Hadley, 1896, p. 120).

Irrespective of whether their respective solutions based on informal institutions were implemented, both economists recognised that on balance the benefits of speculation outweigh the costs. For Marshall: ‘on the balance freedom to speculate is greatly to the public interest’

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40 Smith, for instance, states that ‘[w]hen custom and fashion coincide with the natural principles of right and wrong, they heighten the delicacy of our sentiments, and increase our abhorrence for everything which approaches to evil.’ (Smith, [1759] 1976, p. 200).
(Marshall, 1923, p. 94). Similarly, Hadley makes the point that: ‘Whatever else the speculative system may do or fail to do, it gives us industrial progress.’ (Hadley, 1896, p. 118).

V: CONCLUDING REMARKS

Although Alfred Marshall and Arthur Twining Hadley formulated their theories of speculation a century ago, they did so by contemplating similar questions that we do today. I have shown that they formulated theories that are rich and detailed, in which both the desirable and undesirable aspects of speculation, and their effects, receive a considered treatment. Both economists recognised the major benefits that the desirable forms of speculation confer on the economy, while holding that the undesirable were of great concern; both recognised the difficulty of regulating the problematical forms using legislation. As such, these theories of speculation can be considered very modern and still relevant for us today.

While the theories of speculation developed by Marshall and Hadley had significant influence on the development of economic thinking about speculation, I find that the view that the best aspects of their theories have been subsumed into the current literature may be incorrect. In particular, Marshall and Hadley offer similar intriguing solutions to the problematical aspects of speculation based on the notion of informal institutions – solutions that have been relegated to the proverbial dustbin of history. As such, Marshall and Hadley can be considered as deserving of a place – at least when it comes to speculation – within the “extended present” of our discipline.41

My findings suggest that there is potential for further research in the history of economic thought on speculation. Not only is there value in such research for the purpose of understanding how the current economic theories of speculation were developed, but there may also be insights in past thinkers that can inform current thought.

The details of Hadley’s influence on Fisher’s theory of speculation has received very minimal attention in the literature. In this paper, I have found that there are some significant similarities between the theories of speculation advanced by the two theorists. This suggests that a more thorough investigation may show that Hadley did provide a direct influence on Fisher’s theory of speculation, and just what these influences were, which could in turn be useful for interpreting Fisher’s work on speculation.

This paper has also shown that the intriguing solutions offered by Marshall and Hadley to what they saw as the undesirable forms of speculation, have been ignored by current theorists. Further research on the early development of thought on speculation with focus on informal institutions is likely to demonstrate that it is unfortunate the novel solutions to less desirable forms of speculation proposed by Marshall and Hadley have been forgotten. Given the similarity of their theories, a search for precursors on the topic of speculation might prove fruitful. Specifically, it may be worthwhile to consider possible mutual influences on Marshall and Hadley in earlier literature. European literature could be an instructive place to look, given that Hadley studied for his PhD in Germany and Marshall was well aware of developments in German economic thought in the nineteenth century.42

41 This is Kenneth Boulding’s concept. See: “After Samuelson, Who Needs Adam Smith?” (1971).
42 Grimmer-Solem (2015) notes that ‘in the late nineteenth century, it was very common for aspiring American academics to complete PhDs in Germany. Before the First World War many of the leading
REFERENCES


economists studied in Germany, including ... Arthur T. Hadley’ (p. 93). We know from Dorfman (1949) that it was Adolph Wagner under whom Hadley studied at the University of Berlin.


