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**DO ECONOMISTS LEAD OR LAG?  
SOME EVIDENCE FROM CITATIONS TO THE CALCULATION DEBATE**

*Keith Jakee*

*and*

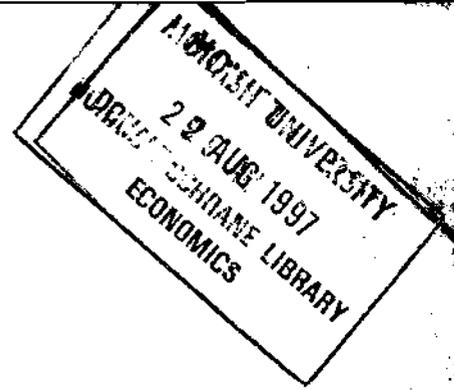
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**Do Economists Lead or Lag?  
Some Evidence from Citations to the Calculation Debate**

**Keith Jakee and Martin Kennelly\***

**May 1997**

**Please Note: This is a preliminary draft and any reference should include such.**

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## Do Economists Lead or Lag? Some Evidence from Citations to the Calculation Debate

Keith Jakee and Martin Kenneally

From the point of view of economists, perhaps the most significant lesson is that a command economy ... can perform well over long periods of time (Samuelson and Nordhaus, 1985:771).

Fifty years ago it was felt that Lange had decisively won the argument for socialist planning. ... It turns out, of course, that Mises was right (Heilbroner, 1990a).

**Abstract:** Historians of economic thought have argued for decades over whether the “environment” determines the development and dissemination of economic theories. A related question naturally focuses on whether it should. The issue, known as the “environmental debate”, runs to the heart of traditional notions of the scientific process. Do economists, for example, merely *supply* the answers which are *demanded* of them? Are our theories limited to explaining phenomena which are largely historical, without having much to offer in the way of elucidating unanticipated events? To take a specific example, should we expect that the degree of academic advocacy for *central planning* versus *free market* theories will depend not only on the underlying scientific rigour of the respective models, but also the *observed* performances of both types of economies, and perhaps even on the *political preferences* of the observer? The “calculation debate” provides a fascinating example of two competing theories which have purported to explain underlying economic processes and which, in turn, have made predictions about economic outcomes. We examine the relative frequency of citations to two different sets of seminal works: those in support of and those against central planning over a 40 year period as an index of academic support in the debate; we then investigate the sensitivity of the index to academic, political and economic influences. We find citation frequency is independent of these environmental influences. We also perform Granger-causality tests for citation patterns across different journal sets (ie., economics, non-economics, Top-20 economics journals, non-Top-20 economics journals) in an attempt to document intellectual influence between academic groups.

### Introduction

The incongruity of the two opening quotes illustrates a general divergence of views held within the economics profession regarding the efficiency and, by implication, survival prospects of command economies. In fact, the short time which separates the quotes raises a perplexing issue concerning economic thinking: on what basis do economists come to maintain their views and theories? Is it purely logical—or what some may call “scientific” reasoning—or is it that economic theories are simply dressed-up versions of popular conceptions of economic processes? In the case at hand, what accounts for the apparent change in economists’ position concerning the workability of central

planning? Is it likely that the current equilibrium in economic thinking, which appears to involve a certain disdain for command economy theorising, would have obtained in the absence of the Soviet fall? We might also ask whether economists in some way “led” the collapse in their espousal of more free-market-oriented theories, or whether the predominance of these same theories “lagged” the cataclysmic events dating from the late 1980s.

Many of these very issues have historical antecedents in a related controversy which has smouldered for decades in history of thought circles, known as the “environmental” debate. This discussion has focused on whether—or to what extent—economists work independently of their environment. Much of the flavour of the debate has centred on economics’ scientific credentials: the common assumption being, “the more independent, the more scientific.” Our first contribution to this literature is to broadly link the environmental debate to more recent work in the philosophy of science which will suggest that drawing a strong dichotomy between environmental influence and “scientificness” is likely to be misleading.

Second, we attempt to untangle several strands of the environmental argument by distinguishing between the *supply* of economic theory and the *demand* for it. We then attempt to empirically test whether economists, in choosing among competing economic theories, act independently of their environment. To do this we revisit the famous *calculation debate* which pitted the proponents of central economic planning against the critics in the decade or so preceding WWII. Taking the works generated in that debate as the “supply” of economic theory on the question of the feasibility of planning, we econometrically test whether the level of demand for theories propounding the feasibility of central planning—as measured by the incidence of citations to the *calculation debate* in professional journals—was conditioned by the following environmental influences: comparative market versus centrally-planned economic growth and the dominant political sentiment of the day.

A particularly noteworthy contribution of this paper is a rudimentary attempt to trace the direction of the influence of ideas across different sets of journals on the feasibility of central planning. Thus, in addition to testing for the influence of economic and political environmental variables, we also test for the influence of professional academic variables, both inside and outside of economics. By breaking the journal sets into *Top 20* economics journals, *Other* economics journals (i.e., non-*Top 20*), and *Non-Economics* journals, we attempt to trace the flow and influence of ideas between these different sets of journals. This exercise raises yet more questions about the nature of economic research: are the *Top 20* economics journals the fount of creation, or protected monopolists of ideas

gone-by? Does the surge of new journals in the last 30 years represent the entrance of innovators competing away the monopolies of the older and more prestigious journals, or simply lower "value-added"? Breton and Wintrobe make the rather contentious claim, for example, that the "regulation" of ideas in scientific communities takes the form of "paradigms" and is, furthermore, efficiency enhancing (1992). And how do the non-economic disciplines play into the flow of ideas? In sum, do innovations flow into, or out of, the top economic journals and even into, or out of, economics as whole? Curiously, despite the considerable importance attached to the ranking of journals, we know of no previous empirical attempts to measure the significance of journals in this manner.<sup>1</sup>

The outline of the paper is as follows. First, we briefly review the issues surrounding the environmental debate. We then revisit the calculation debate and narrow the field to a few key players who we will track throughout our citation analysis. We construct and estimate our model in the following section and discuss our results. We also set out and consider the results of the Granger causality tests on the direction of influence between the various sets of journals and discuss the implications. We finish with some concluding remarks.

### **Independent versus Environmentally Determined Economics**

The environmental hypothesis suggests that economists are conditioned by the environment, which might include not only economic phenomena, but social and political ones as well. The implications may be far-reaching. If the process of theoretical advance is one of uncovering or refining our understanding of immutable "laws of behaviour" and if this process is, moreover, independent of contemporary environmental conditions then we should expect that theory will provide an explanation of, and in some measure anticipate, future economic events. If, on the other hand, economic theory is strongly environmentally determined, per force the generality of that theory is put into doubt. Likewise, we would expect theory to lag environmental events.<sup>2</sup>

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<sup>1</sup> See, for example, Palmer and Liebowitz (1984), Laband (1986), and Ellis and Durden (1991) for an attempt to rank the importance of journals according to various measures of citations.

<sup>2</sup> Such methodological issues should elicit questions about, for example, whether Keynes' *General Theory* was environmentally determined by the Great Depression and the events surrounding it. If so, the theory is likely to be much less *general* than he and generations of economists have maintained.

Proponents of the independence side of the debate have typically associated the discovery and transmission of laws with an academic process that is free—or independent—of day-to-day influences: the “subject” of study is thus dictated by the “unfolding course of scientific developments” (Stigler, 1960:39). As a consequence, only a minor role is given to the environment in the development of economic theory since it has become a professional discipline. For example,

marginal utility theory owed nothing to the immediate policy problems, nor did the marginal productivity theory, the theory of capital, the theory of imperfect competition, game theory, etc. ... [M]ajor wars, basic technological advances such as the railroad and great depressions ... leave economic theory essentially unaffected (Stigler, 1960: 41,43).

The ultimate concern of independence proponents has been with the discipline’s maturity and scientific credentials, especially *vis à vis* its competitors, psychology and sociology. Stigler’s early writings on the subject attest to a certain anxiety over the matter. He asserts that unless it were independent, “economics would not be a discipline; it would be a temporary collection of subjects. It could have no specialists ... nor any accumulated theoretical corpus, for its theory would change with each new ... external development” (Stigler, 1960:45).<sup>3</sup>

On the “environmental” side of the argument, the task has largely been to search for the relationships—often hidden—between the environment and the development of a particular economic theory. They proceed from the assumption that economists, themselves members of the *set homo economicus*, are neither exempt from, nor independent of, its laws. They are, in other words, subject to the environment. Wesley Mitchell finds, “the leitmotif of Smith in the emergence of individualism, of Ricardo in the Napoleonic Wars, of Marx in the growth of an urban proletariat ...” (1949, quoted in Stigler, 1960:37). Tollison reviews the discovery of various well-known economic concepts of Keynes, Marshall, Mill, and Smith and proceeds to trace these developments to commonly accepted economic principles, such as opportunity cost, the availability and cost of inputs, and specialisation being dependent upon the extent of the market for ideas (1986). Goff et al., offer an econometric test of the incentives to cite and conclude that the variables tested, such as macroeconomic conditions and property rights laws, significantly affect the nature of citations (1987).<sup>4</sup>

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<sup>3</sup> After all, Stigler suggests: “leading theoretical chemists are not working on detergents or headache remedies” (1960:38).

<sup>4</sup> Tollison and Goff (1986) find that incentives to cite are correlated with particular academic editorial practices: the stricter the *ex ante* editorial control on acceptance rates, the higher the incentive to cite “authorities”. Stigler and

Ironically, 17 years after first writing on the subject, Stigler seems to have switched camps. In direct opposition to his 1960 view (and without any reference to his earlier position), he asserts that the economist is of all things a "customer's man", largely following the laws of demand (1976). He notes that while "economists do not relish an explanation of their own scientific behaviour in ordinary terms ... it would be astonishing if they did not cultivate those views which had the largest audience. ... economists [therefore] exert a minor and scarcely detectable influence on the societies in which they live" (1976:349, 351).<sup>5</sup>

Thus, we can see that the environmental issue has been closely tied to questions about whether economists are influential, or whether they matter at all. While such conclusions may now appear exaggerated, it must be pointed out that a considerable amount of the environmental debate preceded the dramatic shifts in the philosophy and sociology of science in the last 30 years. Much of this latter work has weakened the strongly maintained view that science is a purely "rational" process which leads inevitably to the uncovering of immutable laws (cf. Kuhn, 1970). Rather, these more recent developments emphasise how day-to-day scientific work is overwhelmingly consistent with the "paradigms" within which it is carried out. In so doing, the importance of the *rules* of, and even *power* within, scientific communities is accentuated. In consequence, scientific developments might be thought of as "quasi-rational". This revised view does not in any way diminish the "importance" of science, but merely suggests that the process is, in reality, different from the traditional idealisation: the environmental context may, indeed, play a significant role in any scientific progress.

Our own approach to narrowing the scope of these issues is to draw a logical distinction between whether economic practitioners are "important", and whether economists can be said to lead or lag events. We do not treat the former problem, but obviously wish to test the latter. A few words are in order concerning the rationale of our test.

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Freidland (1975) found that economics graduates cite those associated with their graduate institutions more heavily than others.

<sup>5</sup> We might speculate on the reason for Stigler's change of heart. Curiously, a significant component of his future theoretical work was anticipated by examples given in his 1960 paper of empirical observations which had not affected economic theory up to that date. He points out in 1960, for example, that the United States had been regulating railroads for 72 years, "but neither this instance nor a hundred others of governmental regulations have brought forth even the rudiments of a theory of regulation" (42). Of course, within a dozen years Stigler had launched one of the seminal works in the theory of regulation. The switch might also be the result of Stigler's development as a historian of thought, as the shift appears to be proximate to the many changes occurring in the history and philosophy of science.

First, one can reduce much of the essence of the environmental debate to a familiar economic concept: the production function—in this case for the output of economists. In concentrating on whether “development” of various theories was independent of environmental influences, the focus of the debate has largely been on the output side of production. Upon closer inspection, however, it becomes clear that the “output” of economists is not terribly amenable to rigorous testing. Output *might* be the development of new theory, or it might be only very marginal extensions of existing theory. In either case, both can be thought of as the *supply* of economic theory. On the other hand, there is much in terms of economists’ output that would clearly not be considered new theory, such as empirical tests, and clearly a considerable amount of output would be difficult to classify altogether.

By its very nature, trying to model this side of “production” will be largely confined to anecdotal and qualitative assessment since numerous difficulties arise in how to categorise the “output” of economists. The principal difficulty, of course, is that theorising is obviously a subtle real-time *process*, not a discrete event. Attempting to trace environmental events to the genesis of a theory explaining or modeling those events will obviously not admit an easy empirical resolution since an agreed empirical dating of “theory” and “environment” with which to establish lead-lag patterns is not likely to emerge. We therefore turn our attentions away from the supply of theory.

Focusing on the input side of the production process allows us to bypass the difficulties associated with identifying economists’ output. Among other things, one input into economic output is existing economic theory. Existing theories are thus a derived demand in the production of new economic work, regardless of whether that new work is theoretical, empirical, or “other”. The professional *demand* for competing theories is, moreover, amenable to direct empirical analysis. A measure of the relative demand for competing theories is the relative frequency of supporting published journal articles in the professional literature. One way to test such support is to *qualitatively* classify existing articles as “supportive” of a particular theory, but naturally this would be extremely cumbersome and is likely to still involve considerable subjective judgment. The other manner is to analyse the frequency of citations to a particular theory. While it is true that not all citations are favourable, it is our assumption that more popular theories are cited more often, which does not appear to be particularly controversial.

Returning to the issue of environmental influence, we will essentially want to ask whether support for a particular theory—as measured by the relative frequency of citations to it—is conditional upon environmental criteria, i.e., economic, political, or outside intellectual trends. To sum, in focusing on the right-hand side of the production function we will be implicitly testing whether, and to what extent, the environment influences the inputs into the output of economists. It may be that with regard to the output of economists, the best we can do is make inferences from what we determine concerning inputs.

### The Supply of Economic Theory: The Calculation Debate

As suggested in the previous section, it is useful both conceptually and for the purpose of our empirical test to distinguish between the supply and demand for economic theory. While our analysis, below, concentrates on whether the demand for theory is independent of environmental factors, for the moment we turn to a discussion of which theories economists have had at their disposal on issues concerning the viability of central planning. In other words, we briefly turn our attention to a description of the supply of economic theories on central planning. Once reviewed, we treat the development of these theories as exogenous for the purposes of our test.

Abstracting from details and variations, the available supply of theory can roughly be dichotomised into pro-planning and anti-planning factions, the origins of which can be found in the *calculation debate*, one of the most hotly contested economic controversies this century. The calculation debate, itself, centred on the theoretical feasibility of centralised socialist planning and was fought out from the 1920s to the mid-1940s between some of the most well-known economists of the day.<sup>11</sup> Henry Dickinson, Maurice Dobb, Evan Durbin, Carl Landauer, Karl Polanyi, Lionel Robbins, Alan Sweezy and Fred Taylor, were among the participants.<sup>12</sup> However, by far the most active participants in the debate were Oscar Lange and Abba Lerner in support of planning, countered by Frederick von Hayek and Ludwig von Mises who argued against.

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<sup>11</sup> See Lavoie (1985), Murrell (1983), Steele (1992) and Vaughn (1980) for various treatments of the calculation debate.

<sup>12</sup> Of the names listed, here, only Robbins argued against planning. Enrico Barone, Friedrich von Wieser and Vifredo Pareto had earlier in the century used the Walrasian apparatus to describe and investigate the properties of a centrally directed economy, but cannot be described as taking part, explicitly, in the calculation debate (Vaughn, 1980:538).

Those in favour of planning contended that major potential advantages would be more smoothly running economies which would eliminate inefficiencies associated with production and forecasting uncertainties, private monopolies and slow adjustment mechanisms; deliberate planning would also eliminate the social injustices associated with the market system (cf., Lavoie, 1985:17-18). Integral to this theory was that bureaucrats would mimic the behaviour of private managers under carefully constructed constraints. In so doing, prices which reflect the true underlying marginal conditions would obtain.

Mises, and especially Hayek, foreshadowing developments in the information costs literature considerably later, maintained that the general equilibrium framework which undergirded the claims of superior-functioning socialist planning, did not even distantly reflect the manner in which prices were actually formed in an economy. Such equilibrium theorising completely ignored the ubiquitous problem of conveying tacit information through the economy as well as individual incentives which were likely to diverge radically from those of the planners.

Both the short- and the long-term outcome of the calculation debate is crucial to our empirical analysis of the environmental debate. By the end of the 1930s and throughout the next three to four decades, it is clear that the planning side had won (Blaug, 1993; Heilbroner, 1990; Lavoie, 1985; Murrell, 1983; Steele, 1992; Vaughn 1980). As Blaug has suggested, most economists thought "Mises was just confused ... [but] since about 1980 or thereabouts, this consensus has been completely reversed and now the difficulty is to understand how anyone could have read Lange as seriously proposing to price resources under socialism, not to mention pricing them efficiently (1993:1570-71).

Hence we return to our question, raised throughout the paper: what accounts for this dramatic shift in economic thinking from the 1980s onward? Is this shift the result of theory which evolved independently of the events of the day such as general political sentiment and observations regarding the viability of the USSR? Or, was the shift in economists' use of increasingly market-oriented, anti-planning, tools simply a function of other "environmental" trends which cast increasing doubt on the effectiveness of state-oriented controls, as well as the Soviets' ability to maintain their system? Moreover, to the extent that intellectual trends exist, are economists leaders (i.e., suppliers) of such

trends, or are they laggards (i.e., demanders)? It is these questions to which we turn, next, in our empirical section.

### The Test

The general logic of our empirical test is as follows. We assume that the *supply* of economic theory on the question of systemic economic planning can be reduced to the two sides of the calculation debate. We use citations to each side of that debate as proxies for economists' *demand* for theories regarding the viability of central planning. These citations are then regressed on various proxies for "environmental" factors to determine their independence.

Specifically, we assume that academic preference for the feasibility of central planning is reflected in the relative frequency of citations to Lange and Lerner *vis-à-vis* Hayek and Mises.<sup>14</sup> The relevant referenced works of the four authors were chosen *a priori*, the primary criterion being that the work was predominantly devoted to issues of economic planning. In counting citations to each article, we obviously wished to avoid citations for intellectual debts other than those relating to the planning debate.<sup>15</sup> As noted, other authors contributed to the debate, but their work was of lesser importance to it and was, in some measure, absorbed into the works of these four authors. Also, as we suggested above, while it may be true every citation necessarily reflects a favourable disposition towards the view expressed in that work, we do assume that, in aggregate, as one view becomes more predominant, it will be cited more frequently.

The sample period is annual from 1956 to 1990. The dependent variable is the relative frequency of Hayek plus Mises versus Lange plus Lerner (H&M/L&L) citations in all economics journals (*All Econ*) listed in the various years in the *Social Science Citation Index*. The frequency of H&M versus L&L citations in *All Econ* during the sample period is provided in Figure 1. (Citations to H&M and L&L in the *Top 20* economics journals are found in Figure 2). L&L's general influence in

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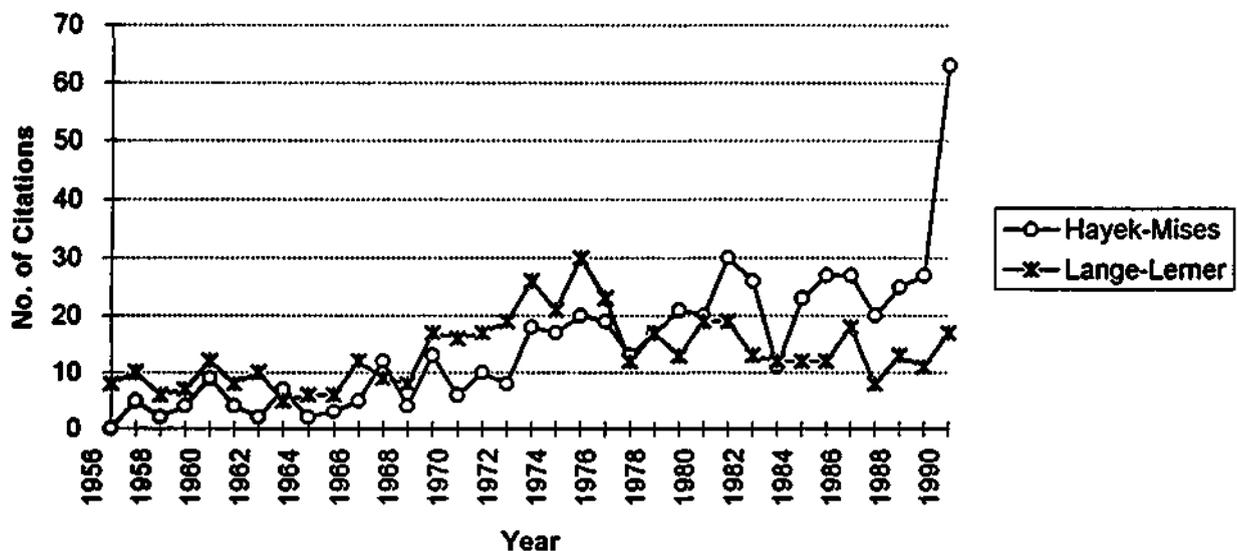
<sup>13</sup>

<sup>14</sup> On the Lange-Lerner side, we used Oscar Lange (1934, 1938). The Abba Lerner publications used were (1934, 1944). We used Hayek (1935, 1937, 1940, 1945, 1948). The von Mises' works used (1920, 1922). We would like to acknowledge the use of Lavoie (1985), for a comprehensive list of authors and works pertaining to the debate.

<sup>15</sup> We chose 1948 as the last year for admissible pieces by one of the four economists in order to avoid an endogeneity problem. Otherwise, later pieces might be products of later debates, or attempts by any of the four authors to revive old issues raised in the earlier calculation debate. Our results therefore presuppose that those writing either in favour of

economics, as proxied by absolute frequency of citations in *All Econ*, reached its zenith in 1975 approximately doubling in the early 1970s relative to the average in the preceding decade and a half. Since then, citations to their work have waned dramatically, while H&M citations have increased dramatically. This observation corresponds to the earlier noted general impression that free-market theories have dominated planning-oriented ones from at least the early 1980s. In sum, the dependent variable (H&M/L&L) trends upward over the sample period with the absolute frequency of H&M citations overtaking L&L in the mid- to late-1970s, a feature which might plausibly reflect the award of the Nobel Prize to Hayek in 1974.<sup>16</sup>

Figure 1: H&M vs. L&L (All Economics Journals)



It is noteworthy that citations to either camp increased at all considering the length of time which had passed since the publication of the works under study. One relatively robust finding of other citation analyses is an inverse relationship between the number of citations to a work and that

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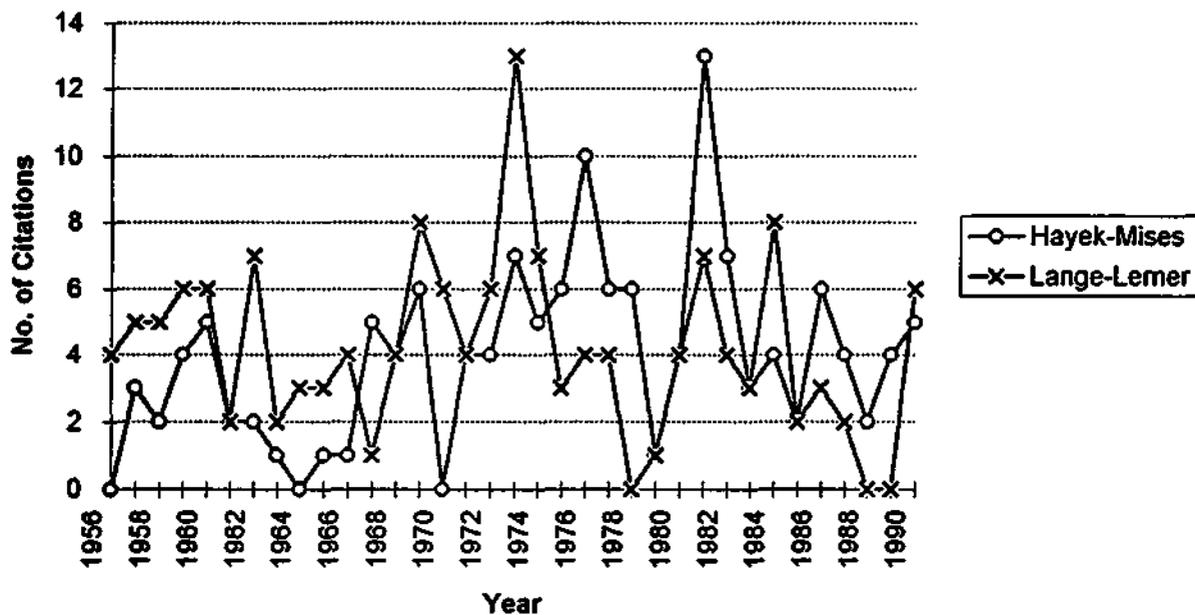
planning, or against it, would have to reference one of the seminal works written by one of these four economists prior to 1949. Republished works were considered valid, as long as they appeared under the same name.

<sup>16</sup> There appears to be a causative link between Nobel status and rates of citation in physics (Cole and Cole, 1973, quoted in Stigler and Freidland, 1979). However, it is curious that the greatest number of citations to L&L in *All Econ* was between 1973 and 1975—precisely the time when Hayek was awarded the Nobel Prize (late in 1974). Considering that it was probably not the absolute (or even relative) frequency of citations to Hayek which swayed the decision, it is interesting to speculate on the Nobel Committee's decision to award the Prize to him.

work's age, thought to occur because "successful" scholarly work becomes absorbed into the mainstream of the discipline (Stigler and Freidland, 1979:20), and unsuccessful work, of course, is forgotten. The fact that citations have continued to increase throughout the sample period for H&M (and up through the mid-1970s for L&L), we believe, vindicates our assumption that later scholars writing on the feasibility of central planning have, to some degree, cited the original authors.

In terms of explanatory variables, we allow, first, for momentum or inertia in citations by including lagged dependent variables (i.e.,  $HM/LL_{t-1}$ , and  $HM/LL_{t-2}$ ). We also include two separate "environmental" variables. The first attempts to capture the measured, or at least *perceived*, comparative growth performance of the "market" economies and former planned economies.<sup>17</sup> The

Figure 2: H&M vs. L&L ("Top 20" Economics Journals)



<sup>17</sup> The comparative growth variable is actually an amalgam of comparative GDP and industrial production figures, since no single series exists for the time period under question. It is compiled in the following manner: from 1955 to 1964 it is the difference in industrial production between the USSR plus East Germany (averaged) and the United States and West Germany (averaged); from 1965 to 1968 it is the difference in GDP between the United States and the USSR plus Eastern Europe (averaged); and from 1969 until 1986 it is the difference in GDP between the "market" economies and the "CPEs". The source for the data is the *Statistical Yearbook of the UN*, various years. Five year moving averages were used throughout.

second environmental variable is the aggregate "Liberal Quotient" (LQ) of the US Senate compiled by the *Americans for Democratic Action Association* (ADA).<sup>18</sup> The latter should reflect broad political sentiment in the USA, the source country for the vast bulk of relevant citations over the period. The model follows:

$$HM/LL_t = a_0 + a_1 HM/LL_{t-1} + a_2 HM/LL_{t-2} + a_3 G_t + a_4 LQ_t + a_5 D + U_t \quad \text{where;}$$

HM/LL = Ratio of citations to Hayek plus Mises over Lange plus Lerner in *All Econ*

G = Difference in annual economic growth measures between "market" and CPEs

LQ = Annual "Liberal Quotient" of the US Senate as compiled by the ADA.

D = Nobel Dummy Variable; D = 0 from 1958–1973,  
D = 1 from 1974–1990.

U<sub>t</sub> = White noise error term.

A priori, we expect the signs on the two environmental variables (G, LQ) to be negative if an environmental influence exists on economists' demand for theory with an anti-planning bent. The dummy variable coefficient should be positive if the award of the Nobel prize to Hayek in 1974 had a positive influence on the rate of citations to Hayek and Mises' work on the theory of centrally planned economies.

### Results

The model was estimated using Microfit on annual data over the sample period 1956 to 1990. The model estimations are:

$$HM/LL_t = .255 + .334HM/LL_{t-1} + .694HM/LL_{t-2} - 0.196G_t - 0.005LQ_t + .227D$$

(42) (2.3) (4.3) (0.198) (0.426) (1.40)

$$R^2 = 0.89 \quad (\text{t-ratios are given in parentheses})$$

As the Nobel dummy proved insignificant, it was dropped and the model re-estimated to yield the following results:

$$HM/LL_t = .466 + .402HM/LL_{t-1} + .728HM/LL_{t-2} - 0.271G_t - 0.010LQ_t$$

(78) (2.87) (4.51) (0.269) (0.794)

$$R^2 = 0.89$$

The explanatory power of the regression model as reflected in the reported  $R^2$  is quite high for studies of this type.<sup>19</sup> Diagnostic tests of the model specification were carried out. A LaGrange multiplier test failed to detect residual serial correlation in either the LM or F versions. Similarly, Ramsey's RESET test of the residuals did not reveal mis-specification in the model's functional form. The Jarque-Bera (skewness-kurtosis) test of the residuals revealed them to be consistent with the normal distribution assumed, and a regression of the estimated residuals on squared fitted values did not reveal any evidence of heteroscedasticity. Test details are given beneath:

Test Statistics	LM Version	F Version
Serial Correlation	CHI-SQ (1) = 1.64	F(1,27) = 1.41
Functional Form	CHI-SQ (1) = 2.51	F(1,27) = 2.22
Normality	CHI-SQ (2) = 2.12	Not Applicable
Heteroscedasticity	CHI-SQ (1) = 0.675	F(1,31) = .647

Our results imply that the "environmental" variables—the measured comparative performance of the principal centrally planned versus free-market economies, and measured political liberal-conservative sentiment in the US—did not significantly impact on comparative frequency of citations in favour of the seminal works of the free-market versus centrally planned schools of thought. This conclusion runs counter to earlier studies, based on citation analyses, which suggested that incentives to cite were indeed environmentally determined (Goff et. al., 1987; Stigler and Friedland, 1975 and 1979, Tollison and Goff, 1986).

Of course, the evidence is suggestive rather than conclusive. Official estimates of Soviet economic growth over the period are suspect and comparability with counterpart US data is difficult. Ofer discusses these issues in detail and notes additionally that the high proportion of Soviet economic output devoted to defence may well have diluted the actual benefits to Soviet consumers—and by implication the *perceived* benefits of Centrally Planned systems to non-Soviet economic researchers (1987). Despite such *ex post* analyses, however, the fact is that Soviet statistics *were* used by

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<sup>19</sup> Compare our  $R^2$  to Goff et. al's., similar analysis of citations and the influences acting on them, which reported an  $R^2$  of .51 (1987:472).

Sovietologists both outside and inside economics for decades, as our opening quote from Samuelson and Nordhaus suggests.<sup>20</sup>

An additional problem with the proxies is that the ADA's *Liberal Quotients* for US senators undoubtedly provide a better *cross-sectional* guide to liberal sentiment across senators and states *at a point in time* than they do to Senate-wide swings in liberal sentiment *over time*. In any given year all senators are scored for liberalism by the ADA on a fixed set of Senate votes; however, the *set* of votes, itself, changes in character from year to year and, therefore, may not be strictly comparable over time.<sup>21</sup> Nonetheless, the failure of either of the "environmental" variables to make a remotely credible showing is strongly suggestive of the conclusion that academic support for competing economic theories is, in this instance at least, not significantly affected by environmental influence.

### *Leaders, Laggards and Paradigms as Regulated Monopolies for Ideas*

As we suggested at the outset, an ancillary issue concerns the interplay between intellectual trends in economics and those outside economics: that is, is it possible to discern whether one trend *leads* the other? A related question is: are the top-ranked economics journals responsible for new trends and ideas, or do they cautiously guard the *status quo*? Breton and Wintrobe have argued that scientific paradigms effectively act as regulatory barriers in markets for ideas and therefore any given paradigm will not be a perfectly competitive environment for ideas. Rather, it will exhibit some monopolistic characteristics (1992).

What is noteworthy for our purposes is that Breton and Wintrobe assert that markets for ideas will be less efficient under conditions of *unregulated* freedom of speech than under paradigmatic "quasi-monopoly" conditions. Our empirical study may shed light on this claim: one interpretation of the causality tests we perform next is whether "monopolistic paradigms" generate change and useful tools for understanding real-world forces. Breton and Wintrobe's assertion that regulatory

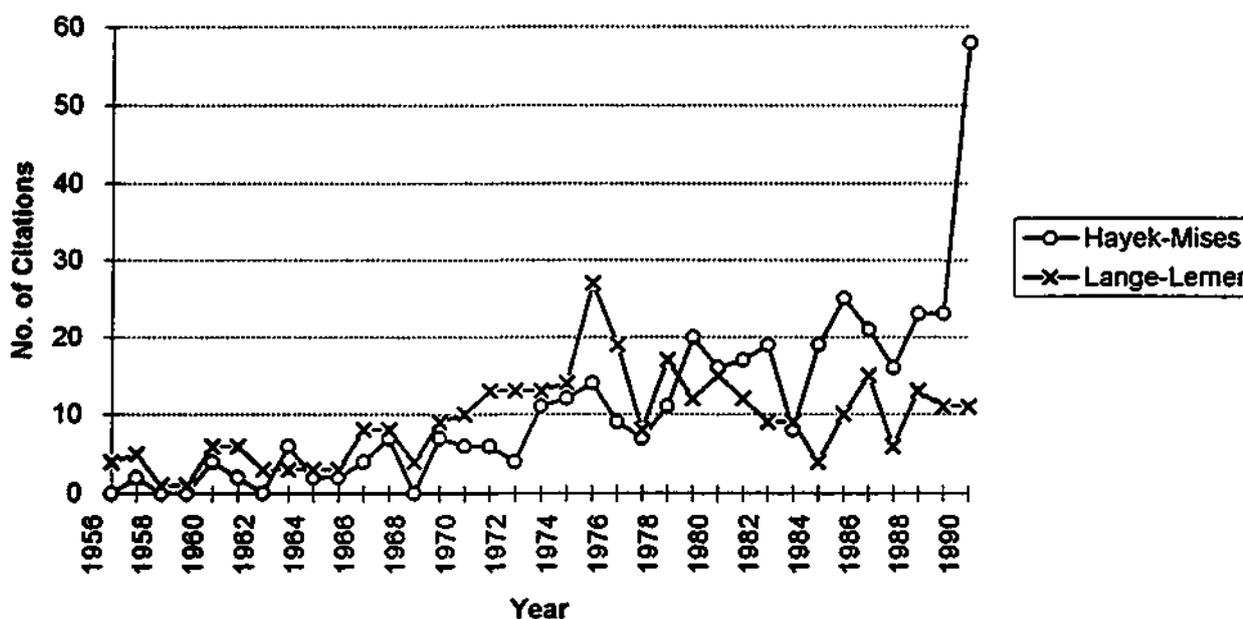
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<sup>20</sup> See Levy for an analysis of the incentives to fabricate aggregate economic statistics, especially in the former USSR (1993).

<sup>21</sup> For example, on economic issues during the early sample years, certain Southern states appear quite "liberal", as understood in the American sense of "left"-oriented. In our model, we would obviously associate this left-orientation with a stronger demand for theories which suggest central planning is feasible. By the late 1960s, these same states were rated much less "liberal" because of their stance on racial issues. Hence, their shift in "liberality" may have been because liberal sentiment truly diminished in those states, or it may be the case that it shifted only because the measure for liberality had changed when racial issues began to be included in the ADA's *Liberal Quotient*.

paradigms efficiently promote the advancement of scientific ideas may be offset by the well-known tendency for monopolies to protect their rents, which implies the potential for regulatory *inefficiency*. The power inherent in scientific paradigms might therefore be exploited by those whose interests are best served by maintaining barriers to new, and perhaps radical, ideas. With regard to the demand for theories on central-planning, is the increasing trend in H&M citations relative to L&L towards the end of the sample period the result of citations in *new* journals which were more receptive to unorthodox ideas than the more highly "regulated" *Top 20*? If Breton and Wintrobe are correct in their assertion that the regulation of scientific ideas is "efficient", we should expect that the *Top 20* economics journals to lead trends. The same questions can be asked regarding the lead-lag patterns between economics journals and other academic (non-economics) journals.

Figure 3: H&M vs. L&L ("Other" Economics Journals)

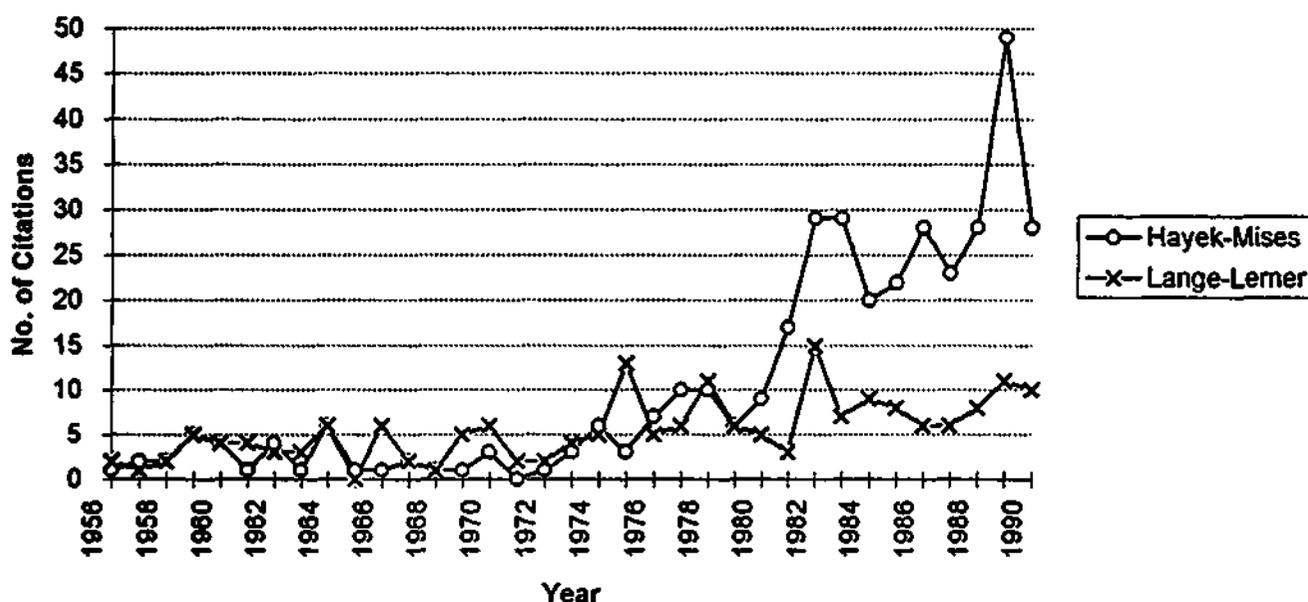


We examine the lead-lag patterns across the *Top 20* economic journals, the non-*Top 20* economic journals (*Other Econ*), and "non-economic" (*Non-Econ*) journals.<sup>22</sup> (See Figures 3 and 4,

<sup>22</sup> The *Top 20* rankings are based on Ellis and Durden (1991) and are as follows: 1. *American Economic Review* 2. *Journal of Political Economy* 3. *Econometrica* 4. *JASA* 5. *Journal of Finance* 6. *Journal of Economic Theory* 7. *Quarterly Journal of Economics* 8. *Review of Economics and Statistics* 9. *Review of Economic Studies* 10. *Journal of Economic Literature* 11. *Economic Journal* 12. *Bell Journal of Economics* 13. *Journal of Business* 14. *Economica* 15.

respectively, for the simple frequency of citations to H&M versus L&L over the sample period.) To this end we studied the pairwise temporal ordering of movements in the frequency of citations of H&M and L&L, jointly and separately, in each set of journals. We wish to determine if emerging academic preferences in a given set of journals Granger-causes frequency in either of the remaining

Figure 4: H&M vs. L&L (Non-Economics Journals)



sets of journals. *A priori*, we are undecided as to which set of journals might lead or lag others.

Granger causality tests were conducted as follows. Total citations to H&M and L&L combined were calculated for each set of journals. Total citations in the *Top 20* journals was regressed on itself lagged four times and total citations in *Other Econ* journals lagged four times. Variable deletion tests were conducted by estimating a restricted version of the same equation which

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*Journal of Financial and Quantitative Analysis* 16. *Journal of Money, Credit and Banking* 17. *International Economic Review* 18. *Journal of Law and Economics* 19. *Journal of Economic History* 20. *Oxford Economic Papers*. The Ellis and Durden rankings are an updating of the more well-known Liebowitz and Palmer study (1984). We chose to use Ellis and Durden because of a slightly more sophisticated attempt to rank journals which included controlling for past reputations of journals, which the Liebowitz and Palmer study did not. Laband also recalculated journal rankings by citation counts controlling for the relatively few "hit parade" articles (1986). Fourteen of Ellis and Durden's Top 20 rankings are found in Laband's Top 20 and 11 out of Ellis and Durden's Top 20 are found in Liebowitz and Palmer's Top 20. *Non-Econ* journals were those not classified as "economics" by the *Social Science Citation Index*. These were predominantly journals in law, political science, sociology, and the general "social sciences".

excluded citations in *Other Econ* journals. The estimations were undertaken on Microfit and three variable deletion test statistics were calculated: a LaGrange Multiplier test, a Likelihood ratio test, and an F test. The exercise was then repeated seriatim for all remaining permutations of the journal sets. The whole procedure was then repeated twice using citations to H&M and L&L separately.

The test verdicts for *All Citations* are summarised in Table 1.

**Table 1. Granger-Causality Test Results: All Citations**

	Top 20 Economics	Other Economic	Non-Economic
Top 20 Economics		No	Inconclusive
Other Economic	No		Yes
Non-Economic	No	No	

\* Rejected at the 5% significance level.

The (off-diagonal) cell entry  $a_{ij}$  provides the test verdicts on whether citations in the journal set in row  $i$  Granger-caused citations in the journal set in column  $j$ . Thus citations in the *Non-Econ* journals did not Granger-cause citations in either set of the economics journals but were themselves Granger-caused by citations in *Other Econ* journals. Test results on the effect of citations in the *Top 20 Economics* journals on citations in the *Non-Econ* journals is inconclusive: the LaGrange multiplier and Likelihood Ratio tests are marginally significant at the 5% level; the F test is not. These latter results are also lag sensitive.

**Table 2. Granger-Causality Test Results: L&L Citations Only**

	Top 20 Economics	Other Economic	Non-Economic
Top 20 Economics		No*	No
Other Economic	No		No
Non-Economic	No	No	

\* Rejected at the 5% but not at the 10% significance level.

The causality pattern of citations to L&L only, given in Table 2, suggests a high degree of

independence across the sets of journals. The hypothesis that citations in the *Top 20* economics journals Granger-caused citations in *Other Econ* journals is, however, only marginally rejected.

The results in respect of citations to H&M only are given in Table 3. The hypothesis that citations in the *Top 20* Granger-causes citations in *Other Econ* is again marginally rejected. The hypothesis that citations in the *Top 20* journals Granger-causes citations in *Non-Econ* journals is marginally accepted. Citations in *Other Econ* journals clearly Granger-causes citations in the *Non-Econ* journals.

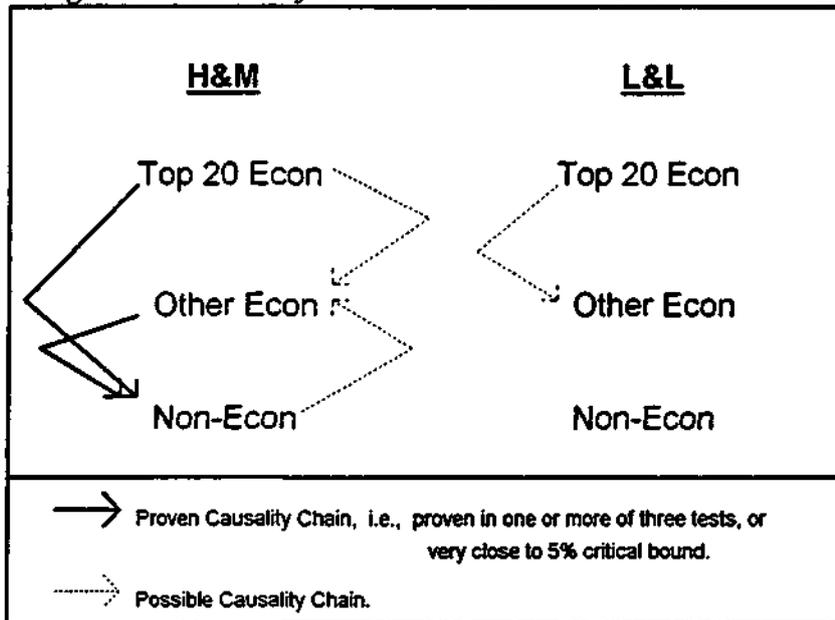
**Table 3. Granger-Causality Test Results: H&M Citations Only**

	Top 20 Economics	Other Economic	Non-Economic
Top 20 Economics		No*	Yes**
Other Economic	No		Yes
Non-Economic	No	No*	

\* Rejected at the 5% but not at the 10% significance level.

\*\* Accepted at the 5% but not at the 1% significance level.

*Top 20* citations may have Granger-caused both L&L and H&M *Other Econ* citations; if so, however, the link is weak. While there is no clear evidence of causality running from the *Top 20* to *Other Econ* to *Non-Econ* journals in respect of L&L citations, there is clear evidence linking *Other Econ* H&M citations to *Non-Econ* H&M citations. There is also a weak link from the *Top 20* H&M citations, both directly and indirectly via *Other Econ* H&M citations, to *Non-Econ* H&M citations. The causality chains are illustrated in Diagram 1, below, for ease of interpretation.

**Diagram 1: Causality Chains in Calculation Debate Citations**

Our results are, of course, tentative. While little can be conclusively said concerning causation in the case of Lange and Lerner, the influence of Hayek and Mises does appear to have filtered from the *Top 20* and *Other Econ* to the *Non-Econ*. If we accept the assumption that idea-restricting paradigms describe the process of academic development in economics, then we cannot reject the argument that paradigms are efficient in the sense that the *Top 20* potentially cause the acceptance of ideas in areas outside of economics, as opposed to being a recipient of them—in the case of Hayek and Mises, at least.

On the other hand, if the *Other Econ* journal set represents developments outside of the mainstream “paradigm”, which in the case of Hayek and Mises also influences *Non-Econ*, then empirical support for the efficient regulation hypothesis is correspondingly weakened. We conclude that there exists *weakly significant* causal links from *Top 20* to *Other Econ*, but they are hardly definitive; *Other Econ* may have just as important an influence on *Non-Econ* as the more “highly regulated” *Top 20*.

Our findings also suggest that the work of Hayek and Mises and their adherents is more fully integrated and networked from the more hard-core analytical economic through to the non-economics journals than is the case for Lange and Lerner. One interpretation is that the causal filtering of Hayek-Mises citations from the *Top 20* and *Other Econ* journals through to the *Non-Econ* journals may have set the final stage for the ascendancy for that school of thought over that of

Lange and Lerner. A possible explanation for Lange and Lerner's contributions not affecting trends outside economics might be that the more technical nature of their work effectively acted as a barrier which could not be penetrated by non-economists. By contrast, the barriers surrounding the contributions of Hayek and Mises were more permeable and allowed their work to seep through more easily to a broader professional recognition and consciousness. Another possible explanation for the lack of causality in the L&L set is simply that there existed fewer *Other Econ* and even *Non Econ* journals when they were ascendant.

## Conclusion

Empirical analysis of the teleology of economic knowledge has remained an underdeveloped area of study within the discipline. Following in the tradition of other citation studies, we attempted to narrow the gaps that exist in this field. First, we argued that "scientific" method in economics can and should be disentangled from the concept of "independence" from environmental factors: the scientific basis of economics is not necessarily a function of its distance from day-to-day events. However, whether economics is independent from the environment should help us understand the nature of our work and the direction of influence of our ideas.

We measured academic preference for the competing theories in the calculation debate by their comparative frequency of citation in three sets of journals. While historians of thought are often critical of attempts to "count" citations, such counts remain the only quantifiable proxy for recent intellectual and academic trends. We found that citation frequency was independent of the "environmental" influences of political sentiment and recorded comparative macroeconomic performance of free market compared to centrally planned economies. We also found that citations in the *Top 20* economic journals are independent of citations in the remaining sets of journals. Citations in the *Top 20* may, however, lead citations in *Other Econ* journals. The causality chain stopped there, however, for the central planning advocates whereas it continued both directly from the *Top 20* through to the *Non-Econ* journals and indirectly through *Other Econ* journals for the free-market adherents with some reverse feedback from the *Non-Econ* journals to *Other Econ* journals. We do not conclude, however, that development and acceptance of economic theory is completely independent of the forces which economists, themselves, assert guide others' behaviour. For example, the assertion that economists adhere to disciplinary rules and paradigmatic constraints in the development of economics is perfectly consistent with established economic principles.

That is, self-interested, rational, economic behaviour—within paradigms—might be either independent of, or dependent on, environmental forces. In any case, the important role *ideas* play both inside scientific communities and outside them underscores our results. Our results, counter to some earlier citation analyses, suggest that ideas run independently of readily definable environmental influences, but of course it is possible that environmental influence is considerably more subtle than we have allowed.

We are fully aware of the tentative nature of these results, but uncertainties notwithstanding, we are confident of the approach adopted and the insights gained. We hope that any empirical shortcomings will stimulate future work that will hone both the technique and proxies and raise the level of interest in the nature of economists' own marginal product.

## Bibliography

- Blaug, Mark. 1993. Book Review of David Ramsey Steele (*From Marx to Mises: Post-Capitalist Society and the Challenge of Economic Calculation*). *The Economic Journal* (Nov.): 1570-1571.
- Breton, Albert and Ronald Wintrobe. 1992. Freedom of Speech versus Efficient Regulation in Markets for Ideas. *Journal of Economic Behaviour and Organization* 17: 217-239.
- Cole, Jonathan and Stephen Cole. 1973. *Social Stratification in Science*. Chicago: University of Chicago Press.
- Ellis, Larry V. and Garey C. Durden. 1991. Why Economists Rank Their Journals the Way They Do. *Journal of Economics and Business* 43: 265-270.
- Goff, Brian, William Shughart, Robert Tollison, and Stephen Pociask. 1987. The Incentive to Cite. *Journal of Institutional and Theoretical Economics* 143: 467-476.
- Hayek, Friedrich. 1935. *Collectivist Economic Planning: Critical Studies on the Possibilities of Socialism*. London: Routledge & Sons.
- Hayek, Friedrich. 1937. Economics and Knowledge. *Economica* 4: 33-54. Reprinted in Hayek, *Individualism and Economic Order*. 33-56.
- Hayek, Friedrich. 1940. The Competitive Solution. *Economica* 7: 125-49. Reprinted in Hayek, *Individualism and Economic Order*. 181-208.
- Hayek, Friedrich. 1945. The Use of Knowledge in Society. *American Economic Review* 35: 519-30. Reprinted in Hayek, *Individualism and Economic Order*. 77-91.
- Hayek, Friedrich. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Heilbroner, Robert L. 1990. After Communism. *The New Yorker* 66 (Sept.): 91-100.
- Keynes, John M. 1936. *The General Theory of Employment, Interest and Money*. New York: Harcourt Brace Jovanovich.
- Kuhn, Thomas. 1970. *The Structure of Scientific Revolutions (2nd Ed.)*. Chicago: University of Chicago.
- Kuran, Timur. The East European Revolution of 1989: Is it Surprising that We Were Surprised? *American Economic Review Papers and Proceedings*, 81 (2): 121-125.
- Laband, David. 1986. Article Popularity. *Economic Inquiry* 24 (Jan): 173-180.
- Lange, Oscar. 1934. Marxian Economics and Modern Economic Theory. *Review of Economic Studies* 2: 189-201.
- Lange, Oscar. [1938] 1964. On the Economic Theory of Socialism (first published in 1936). In Lippincott: 55-143.
- Lavoie, Don. 1985. *Rivalry and Central Planning: The Socialist Calculation Debate Reconsidered*. New York: Cambridge University Press.

- Lerner, Abba. 1934. Economic Theory and Socialist Economy. *Review of Economic Studies* 2: 51-61.
- Lerner, Abba. 1944. *The Economics of Control: Principles of Welfare Economics*. New York: MacMillan.
- Levy, David. 1993. A Public Choice Aspect of Data Provision. *Accountability in Research* 3: 157-163.
- Liebowitz, S. and J. Palmer. 1984. Assessing the Relative Impacts of Economics Journals. *Journal of Economic Literature* 22 (Mar.): 77-88.
- Mises, Ludwig von. [1920] 1935. Die Wirtschaftsrechnung im Sozialistischen Gemeinwesen. *Archiv für Sozialwissenschaft und Sozialpolitik* 47: 86-121. Translated as "Economic Calculation in the Socialist Commonwealth" and reprinted in Hayek, *Individualism and Economic Order*: 87-103.
- Mises, Ludwig von. [1922] 1936. *Die Gemeinwirtschaft*. Jena: G. Fischer. Translated as *Socialism: An Economic and Sociological Analysis*. London: Jonathan Cape.
- Mitchell, Wesley C. 1949. *Lecture Notes on Types of Economic Theory*. New York: A.M. Kelley.
- Murrell, Peter. 1983. Did the Theory of Market Socialism Answer the Challenge of Ludwig von Mises? A Reinterpretation of the Socialist controversy. *History of Political Economy* 15: 92-105.
- Ofer, Gur. 1987. Soviet Economic Growth: 1928-1985. *Journal of Economic Literature* 25: 1767-1833.
- Samuelson, Paul and William D. Nordhaus. 1985. *Economics*, 12th ed. New York: McGraw-Hill.
- Social Science Citation Index*. Various Years. Philadelphia.
- Steele, David Ramsey. 1992. *From Marx to Mises: Post-Capitalist Society and the Challenge of Economic Calculation*. La Salle: Open Court Publishing.
- Stigler, George. 1960. The Influence of Events and Policies on Economic Theory. *American Economic Review* 50 (2): 36-54.
- Stigler, George. 1976. Do Economists Matter? *Southern Economic Journal* 42 (3): 347-354.
- Stigler, George and Claire Freidland. 1975. The Citation Practices of Doctorates in Economics. *Journal of Political Economy* (June): XXXXXX.
- Tollison, Robert. 1986. Economists as the Subject of Economic Inquiry. *Southern Economic Journal* 52 (4): 909-922.
- Tollison, Robert and Brian Goff. 1986. Citation Practices in Economics and Physics. *Journal of Institutional and Theoretical Economics* 142: 581-587.
- United Nations. various. *Statistical Yearbook*. New York: United Nations.
- Vaughn, Karen. 1980. Economic Calculation under Socialism: the Austrian Contribution. *Economic Inquiry* 18:535-554.

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