Denial, Rationalization, and the Administered Price Thesis

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Abstract

This paper analyzes neoclassical reactions to Gardiner Means's administered price thesis during 1980-2000. It shows that his original idea has been continuously denied by mainstream economists. At the same time, it has been transformed through a multiplicity of rationalization processes into one or another bastardized form. However, their attempts to deny and/or rationalize the thesis are unsuccessful as their sanitized versions of Means's theory turn out to be self-contradictory in the neoclassical framework.

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I. Introduction

A combination of denial and rationalization is among the major defense
mechanisms postulated by Sigmund Freud, in which a person is faced with a fact that is
too uncomfortable to accept. That is, on the one hand, one refuses the truth insisting that
it is not true in spite of overwhelming evidence; on the other hand, one tries to substitute
a safe and reasonable explanation for the true but threatening cause of behavior.[2] This
paper shows that neoclassical reactions to Gardiner Means's administered price thesis are
analogous to these two psychological defense mechanisms, by tracking and analyzing
their theoretical developments during 1980-2000 based mainly on economics journal
articles citing Means's major works.[3]

The most important aspect of the administered price thesis was the coordination
and organization of economic activity through the interplay of administrative control and
the market (Lee and Downward, 1999). This thesis was already posed in Means's PhD
dissertation as follows:

> In an engineering economy prices are fixed by administrative action for periods of
> time. Price is determined before a transaction occurs. In a trading economy prices
> are developed in the process of trading and price is not determined until the
> transaction occurs. In an engineering economy supply and demand never equate
> except by coincidence. (Means 1933: Ch. VI)[4]

As a real-world example, Means showed that the Great Depression in the early 1930s
caused the prices of agricultural products to fall substantially (63%) whereas those of

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[2] Source: "defense mechanism" in Encyclopædia Britannica (2008)
[3] For more detail on the journal articles, see appendix A.
[4] A *trading economy* is one in which prices are discovered through market exchange, whereas an
engineering economy is one in which prices are administratively set in advance by firms or organizations
within modern capitalist systems.

agricultural implements only decreased moderately (6%). That observation triggered follow-up empirical studies on this issue from the neoclassical point of view. Although numerous empirical investigations on the administered price thesis had been put forward since 1930s, mainstream economists did not succeed in rejecting the administered price hypothesis or supporting the Walrasian auctioneer:

> For almost fifty years, the hypothesis of "administered" pricing has exercised economists. During this time, the concept has undergone a variety of interpretations, and has been subjected to numerous empirical tests. Yet the literature presents a patchwork of contradictory findings and is replete with controversy. (Chappell and Addison 1983: 1122)

The inconclusiveness of their studies kept threatening neoclassical price theory, according to which marginal cost and demand conditions determine relative price movements, which led Gordon to admit that full-cost-pricing doctrine associated with Means and Hall-Hitch won wide acceptance although it does not rely on any reasoning about the maximizing behavior of individual economic agents (Gordon 1981: 503). Neoclassical economists had to deal with the fact "that is too uncomfortable to accept" in order to defend themselves whether theoretically, politically, or psychologically.

The remainder of this paper is organized as follows: Section 2 investigates a series of neoclassical studies on measurement errors as a denial defense mechanism, which was initiated by Stigler and Kindahl (1970); Section 3 makes our way through a thicket of theoretical vulgarizations written in the 1980s and 1990s as a rationalization defense mechanism; Section 5 deals with debates over econometric specifications, which can be seen as empirical bastardizations, and Section 6 offers some concluding remarks.

II. The Administered-Price Thesis Denied[5]

There have been repeated attempts to ignore the significant consequence which the administered-price thesis has brought about in terms of the neoclassical relationship between market and price. In the earlier period of 1960s and 1970s, Stigler (1962), Stigler and Kindahl (1970), and Weston et al. (1974) tried to refute the administered-price thesis by showing measurement errors in price data. The dual objectives of Stigler and Kindahl (1970), for instance, were to identify biases in the Bureau of Labor Statistics (BLS) price data compared with the National Bureau of Economic Research (NBER) prices, and to test Stigler's long held conviction that the administered price was a fiction created in the sampling procedures of the BLS price data. They argued that the two series of prices were different in their short-run movements; in particular, the BLS price data changed more erratically than the NBER counterparts, and thus there was little evidence for the administered price thesis.

Shortly thereafter, Means (1972), Bohi and Scully (1975), Weiss (1977), Ross and Krausz (1986) and Carlton (1986) challenged these findings and showed the two series of prices were sufficiently similar in behavior so that one could reject the null hypothesis that each was generated by a different stochastic process. This first measurement error controversy was concluded by Carlton (1986), who admitted that the degree of price rigidity in many industries was significant even using Stigler-Kindahl data. Since this famous controversy is extensively and thoroughly reviewed by Lee (1998, 1999), this section is aimed at showing that despite Stigler's failure, his legacy of the denial-tactic

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[5] The title of this section is named after an article title by Weston, Lustgarten and Grottke(1974), who tried to show that their findings are consistent with neoclassical theory in denying the administered-price thesis.

has been succeeded by their contemporary and descendent mainstream industrial organization economists in one or another form through the 1980s and 1990s.

Not surprisingly, it was not very long before the issue of measurement errors was reignited as a probable cause of the "seemingly" apparent failure of market price to coordinate economic activity over demand fluctuations or business cycles. Garber and Klepper (1986) applied a latent variable model to three cross sections of manufacturing industries, in 1961, 1970, and 1975 - all being recessionary years - in order to analyze the determinants of relative price changes for the three post-war recessions and examine the roles of cost and demand shifts, backlogs of unfilled orders, and unanticipated events. The reason why they emphasized and illustrated the critical importance of measurement errors in the empirical pricing literature stemmed from four observations: first, data are crude measures of the theoretical determinants of price; second, empirical pricing literature is voluminous, yet no consensus emerging; third, previous pricing studies reported many anomalous findings for neoclassical theory; finally, if proxies are used for cost and demand, both of which are difficult to measure, the relationship between the proxies and prices may also be biased. What they try to emphasize is possible measurement errors in other variables than price itself, so that they can indirectly reject empirical evidence against the neoclassical price theory. Based on their finding that conventionally employed measures of price and cost contained very substantial measurement errors, they concluded:

> Substantial additional information seems necessary to discriminate between competitive and alternative theories of pricing. Our results suggest that such information may not be revealing unless the measurement issue is confronted directly. (Garber and Klepper 1986: 187)

What they argue is that there is no problem with the neoclassical price theory

itself, but all sorts of measurement errors prevent any consensus from emerging and leave

empirical evidence unconvincing.

Some pointed out the measurement errors in price data directly as with Stigler.

Garber (1989) suggested that the problem consisted in discriminating empirically

between alternative theories of short-run price determination in the presence of noisy

price data. Here he argued that any attempts to verify the administered price thesis cannot

be successful nor justified if it is based on whatever empirical evidence is provided in the

short run. Moreover, Griliches (1971) and Lichtenberg and Griliches (1989) argued that

price-index failure to virtually adjust for quality change was the reason for serious

measurement errors even in the long run:

> [T]he major source of such errors is unmeasured or imperfectly measured changes
> in product quality." (Lichtenberg and Griliches 1989: 1)

Nordhaus (1996) also remarked in this vein:

> During periods of major technological change, the construction of accurate price
> indexes that capture the impact of new technologies on living standards is beyond
> the practical capability of official statistical agencies. (Nordhaus 1996: 29)

Hence, the official price indexes are not reliable sources for rigorous mainstream

economists regardless of whether or not it is short-run.

Siegel (1994), however, found that although the bias may be severe, "biases in the

data do not appear to have shifted over time, implying that errors of measurement are not

a significant determinant of either the slowdown or recent acceleration in manufacturing productivity." Nevertheless, Georganta (2003) reminded economists again that the price variables included a large measurement error, and argued that a specific econometric technique such as Latent Variable Modeling (LVM) could be applied to observed price data in order to extract the "true" values of price variables. He also criticized the traditional regression model that was applied to previous studies showing the insignificant effect of demand factors on price change, as conflating random errors and systematic inaccuracies in the measurement of price data. Using the estimated "true" values of prices based on LVM, Georganta (2003) argued that the effect of demand fluctuations on industry price change was statistically significant and much larger than previous studies, suggesting a satisfactory reconciliation of the long-drawn-out conflict between empirical results and neoclassical theory. What he means here is that the traditional neoclassical explanation for price movement along with demand change is still viable.

Note that in the above studies, all the economists attempt to deny the administered price thesis by arguing that the thesis is the unfortunate outcome of measurement errors which are found in major economic variables as well as price data - the same argument as Stigler's conviction that the notion of the administered price is predicated on illusions.

III. Theoretical Bastardization of the Administered-Price Thesis

Ostensibly, neoclassical economists can never accept the administered price theory because as George Stigler put it, Means's theory of price rigidity "was primarily an

asserction of an empirical fact, not a practice explicable by ordinary profit-maximizing

theory." (Stigler 1992: 456) Instead, mainstream economists have developed several

neoclassical theories that rely on the maximizing behavior of individual economic agents

rather than ``extraneous assumptions'' in order to explain the seeming failure of prices to

adjust completely and instantaneously to demand shocks.

In 1981, Robert Gordon wrote a survey paper which covered two approaches to

this issue: information barriers with price taking agents (new classical approach) and

price adjustment models in a non-market-clearing setting (fledgling new Keynesian

approach). However, the choice between these two mainstream approaches seemed an

"election between unattractive candidates" (Gordon 1981: 494). Furthermore, Carlton

(1979) admitted that

> Although Means's thesis remains shrouded by doubts as to its validity, his notions
> of rigid prices caught the fancy of economists, not only of his time but also of
> subsequent generations, and attracted the concern of policymakers (Carlton 1979:
> 1036)

Neoclassical orthodoxy really needed more persuasive theories based on

rationality and optimizing behavior - the essence of neoclassicism; at the same time, they

had to have empirical evidence to support their newly-invented theories. Indeed, one can

see overwhelming focus on theoretical developments during 1980s, which was

accompanied or followed by rich empirical literature to test and support them.

Before investigating how neoclassical economists distort the administered price

thesis, it is necessary to review what Gardiner Means means by that term. Means (1935)

originally defined an administered price as "a price which is set by administrative action

and held constant for a period of time", whereas a market price is "one which is made in the market as the result of the interaction of buyers and sellers". As evidence of the existence of an administered price, he said, "we have an administered price when a company maintains a posted price at which it will make sales or simply has its own price at which consumers may purchase or not as they wish." (Means, 1935) That is nothing but a clear, simple statement which separates the demand side per se from business enterprises in terms of price determination. The key element of Means's theory is that price formation or change is determined outside markets and done through strategic decision making processes inside business enterprises within institutional contexts. We can identify four groups of neoclassical alternatives to the institutional determination of prices outside markets. They are investigated in the following four sub-sections.

(1) Administered Price as a Result of Optimization Policy

There had been repeated attempts during 1980s to build neoclassical models to show that price rigidity results from a rational economic agent's solution to the optimization problem. The earliest attempt to reformulate the administered-price thesis within the neoclassical framework was a model of markets characterized by uncertainty and transaction costs, which may create incentives for firms to use both long-term and short-term fixed-price contracts. Barro (1972) suggested that price changes are costly and balance the benefits of price adjustment against the adjustment cost. Wu (1979) proposed consumer search costs and risk aversion factor as the reason of price rigidity. Based on

long-term contracting, Carlton (1979) argued that he could explain a number of empirical facts that had often been described either as evidence of the failure of markets[6]:

> I explain why long-term-contract prices can move by different magnitudes and even in different directions than short-term prices. I explain why reduced-form econometric price equations are likely to be unable to find demand forces mattering. Finally, I explain why "rigid" prices and delivery lags are not necessarily disequilibrium phenomena but, rather, can be perfectly understandable and predictable equilibrium phenomena. Therefore, the paper provides a logically consistent equilibrium explanation of the facts that have been used to support the "administered price thesis" of Gardiner Means (1935) in the voluminous literature on that subject. (Carlton, 1979: 1035)

They all try to show that price inflexibilities are consistent with the conventional microeconomic theory, while they associated Means's administered prices with one or another form of administrative price adjustment cost.

By offering contracts of relatively long period to their customers, what firms really do is to implement price smoothing policy. Mainstream economists started to develop a dynamic framework to show that such a price smoothing policy is optimal one, particularly compared to a conventional optimal policy where price adjusts to demand and supply shocks instantaneously. On the assumption that at each point in time production and sales strategies may differ where inventories play a buffer role, Blinder (1982) and Amihud and Mendelson (1983) suggested that in a dynamic framework price smoothing policy was an optimal solution to maximization problem of a discounted sum of profits over a finite or infinite horizon. The analysis provides an explanation for price rigidity which is consistent with maximizing behavior: prices tend to move slowly in

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[6] Offering contracts of relatively long length to their customers turned out to be one of three ways firms can implement a price smoothing policy, which was developed by Phlips (1980) and Blinder (1982). Later, Hubbard and Weiner (1992) extended Carlton (1979)'s model to stress the role of risk in determining commodity market trading arrangements when insurance and futures markets are incomplete.

industries whose outputs are inventorable, whereas industries with perishable output are more likely to have flexible prices. In such a case, the conventional policy of equating marginal revenue and marginal cost at each point of time turns out to be less profitable. Moreover, there is an attempt to give the flavor of the market concentration as the differentiating factor to the price smoothing model (Encaoua and Geroski, 1986). They argued that more competition means less power to ensure persistency of market positions, which leads to a greater emphasis on current market condition and less competition means more power to ensure stability of market positions, which allows them to place a greater emphasis on long-term returns. That is, the less competitive an industry is, more rigid its price level is.

However, the key implication of a price smoothing strategy is that it provides a rationale for something strongly reminiscent of normal cost pricing:

> Whether it chooses a longer time horizon or offers long-term contracts, a firm which wishes to smooth extensively will calculate a price appropriate to its horizon, and this means that it will smooth out the many transitory fluctuations in costs and demand that occur during the horizon. The extent of such "normalization" depends, inter alia, on the length of the horizon involved. Those firms using a long horizon will normalize extensively, and the normal costs and demand used to compute price will, ceteris paribus, be more weakly related to current costs and demand at any time within the horizon, than would be the case if a shorter horizon were used (Encaoua and Geroski, 1986: 50).

In other words, "the essence of a price smoothing strategy is the more or less complete divorce between current market events and current prices" (Encaoua and Geroski 1986: 51). These theories turn out to support what contemporary heterodox price theory means - normal cost based price determination - which leads to another attempt to sanitize the notion of the administered price.

(2) Administered Price as a Result of Market Structure

Oligopolistic collusion literature interpreted the empirical study by Means (1935) as suggesting that collusion is associated with a greater tendency toward price rigidity. The best known theory is the kinked demand curve theory offered by Sweezy (1939) and Hall and Hitch (1939). Hall and Hitch provided a non-marginalist explanation for the existence of stable prices. To this end they introduced a kinked demand curve for an oligopolist enterprise in which kink occurred at the predetermined full cost price instead of the marginal cost.[7]

Even though Scherer (1970) and Tirole (1988) criticized the kinked demand theory of price rigidity as having important shortcomings, there had been no neoclassical alternatives based on collusion until 2000s - sixty years after the development of the kinked demand curve.[8] Criticizing the kinked demand curve theory but suggesting no alternative theory, neoclassical industrial organization economists have kept the informal view that price rigidity is associated with collusive firms, because a rigid-price collusive scheme prevents the risk of a price war (Athey et al. 2004; Carlton 1989; Connor 2005).

The notion of the degree of industrial concentration followed as an attempt to model the collusion-free market in this regard. There has been vast literature theorizing the administered price thesis in line with neoclassical market concentration. A new development of this kind in the 1980s was to examine the effect of market concentration

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[7] The businessmen would set his price by adding together direct material and labor costs per unit output plus indirect costs determined at expected or standard volume output plus a predetermined profit margin. Hall and Hitch called the resulting price the full cost price.

[8] Interestingly, it was not until 2000s that many of studies on the organization and conduct of formal cartels have been motivated by the discovery of hundreds of international cartels and the corresponding sanctions imposed by antitrust authorities since the mid-1990s and they have suggested other reasons on price rigidity than what the kinked demand curve theory suggested (Connor, 2005).

on inter-industry variation in the response of prices to monetary shocks, which was influenced by the macroeconomics literature, particularly, by theories linking inflation to relative price variability. Cukierman (1979, 1982) and Fischer (1981), among others, developed a theoretical mechanism through which inflation could increase the variability of relative prices within a rational expectation framework. This literature provided another way to look at the administered price issue. That is, when modeling the relationship between inflation and price variability, a statistically stronger effect should be found for the competitive rather than the concentrated industries. The relationship between concentration and inflation-price variability has been tested and validated in some studies. For example, using a model in which the rate of price change is a function of past rates of change in the money supply, Chappell and Addison (1983) tested the hypothesis that concentrated industries would respond less quickly to monetary stimulus than less concentrated industries. Still, the empirical results seemed mixed and inconclusive, which led some neoclassical economists to seek other explanations for the varying degree of price inflexibility than market concentration.

(3) Administered Price as a Result of Product Characteristics

Conlisk et al. (1984) developed a model for the pricing pattern of a durable-good monopolist over time and showed that price remained high for a certain length of time. In most periods, the price is high and only high-valuation consumers purchase, but there are also periodic temporary price reductions targeted at low-valuation customers. As the number of low-valuation consumers in the market rises, the profitability of selling to the low group rises, and each firm thus eventually decreases its price. Tirole (1988) argued

that a durable-good monopolist would be generally better off with sticky prices because the producer needs to signal that price would not drop continuously during a recession to consumers with the ability to arbitrage inter-temporally. What they are trying to do is substitute the durable and nondurable dichotomy for the administered and market price division by Means, which helps them accept the fact that current market price has little to do with current market events or conditions in their framework because the reason for rigid prices lies in product characteristics independently of and outside business enterprises. Even though it seems to be a successful shift of focus, these intertemporal-price-discrimination models are doomed to failure to explain the inflexibility of the regular price for most consumer goods which are non-durable.

Caucutt et al. (1994, 1999) tested this theory and found that product durability was an important factor in explaining variation across industries in relative price dispersion. In addition, they argued that their findings rejected the "traditional administered pricing hypothesis" because they did not find that high seller concentration would lessen the impact of inflation on price variability. This is a false criticism on Gardinar Means's administered price thesis since what they considered as "the traditional administered pricing hypothesis" is not the Means's original version at all. As we will also see in the next section, Means's original thesis has been transformed into conventional neoclassical models, and then it has come under severe criticism predicated on econometric evidence on the vulgarized concepts as if they were Means's own arguments.

A similar approach to the price rigidity issue was to interpret the administered thesis as suggesting that more lagged process of production can increase price stickiness.

The intuition behind this explanation is as follows: individual prices depend not only on wages but also on other input prices, and while each price quickly adjusts to wages and to other input prices, the accumulation of small lags leads to longer lags in some industries. However, this rationalization was also not that satisfactory for neoclassical economists:

> If it takes time to produce goods, output prices may react with input prices with a lag. This proposition rests on theoretically weak grounds, as prices should be based on opportunity costs rather than purchase prices for inputs. It nevertheless may have some empirical validity (Blanchard 1987: 83)

In other words, it is not completely compatible with neoclassicism even though it has some empirical validity and explanatory power, which brought further theoretical development to halt. Moreover, Lai and Pauly (1992) showed in a theoretical model, that price inertia should decrease with the length of the production period. That is, when the production lag extends over more than one period, the flexibility of output adjustment is constrained and business enterprises will adjust prices to deal with demand shocks. Afterward, only empirical studies rather than theoretical arguments were provided in this regard.[9]

(4) Administered Price as a Result of Customer Behavior

The last theoretical attempt is concerned with what we presently call behavioral economics. Transaction-cost based arguments attracted a specific criticism that they ignored the possibility that firms might face indirect costs of changing their prices,

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[9] For instance, Hanes (1999) showed that the difference in price behavior between goods subject to different degrees of processing poses a problem for price comparisons across historical periods. Clark (1999) argued that at early stages of production, a monetary tightening causes input prices to fall more rapidly and by a larger amount than output prices.

related to the effect of a price change on consumer behavior. In this vein, Okun (1981) can be seen as one of its founding fathers because distinguishing between auction and customer markets, he recognized the indirect cost involved in changing prices, which stems from potential harm to customer relationship and company reputation. The fundamental difference between the auction market and the customer market is the implied continuity of the buyer-seller relationship. A price rise in the customer markets which is clearly seen as unfair may lead the customers to search for alternatives; but if the customer acknowledges that the increase in price is the result of rising costs, eventually he or she will accept the increase as fair, which of course takes some time. Prices, therefore, are characterized by some degree of rigidity. In other words, he attributes the observed rigidity of markups throughout the private business sector to customers' attachment to suppliers rather than to industrial characteristics (Goode, 1994). What Okun (1981) did here is to replace Means's administered market with the notion of the customer markets, shifting the focus back to the consumer choice, that is, the neoclassical demand factor. Not surprisingly, Okun's analysis gained much more acceptance in the academic circles:

> Okun's analysis, though it resembles Means's in significant respects, gains by relating inflexible prices to information costs (i.e., shopping costs) and by systematically introducing wage behavior, lags, and certain behavioral norms in accounting for chronic inflation. (Goode 1994: 182)

Likewise, focusing on the importance of company reputation in an uncertain situation, Allen (1988) substituted for Means's administered markets another sanitized one, which is much comfortable to accept:

It can be seen from Table I [Nominal price and production drops in various industries 1929-1933 by Means (1935, p. 8)] that one characteristic of the industries where prices are inflexible is that product quality cannot be easily observed, whereas in those industries where prices are flexible this is more straightforward. [...] This suggests a theory of price adjustment where product quality is unobservable and reputation matters may be consistent with these observations. (Allen 1988: 140)

In particular, when quality is unobservable, the degree of price rigidity depends crucially on the serial correlation of demands. It implies that price flexibility in industries where the producer reputation matters is less than in industries where it does not. Even if the difference between Means's notion of the administered markets and its vulgarized versions above might appear to be immaterial, their theoretical consequences are quite profound because they provide orthodox economists with more comfortable models at the cost of their explanatory power for the real world phenomena.

IV. Empirical Bastardization of the Administered Price Thesis

This section deals with debates over econometric specifications for pseudo administered price hypothesis. Means viewed administered prices as a threshold phenomenon which becomes operative beyond a certain level of inherent market power but does not necessarily increase with every rise in inherent market power. True, there were some neoclassical economists such as Farber (1984) and McRae and Tapon (1979) who recognized that Means's original formulation of administered prices was not simply related to market concentration. However, the vast majority of mainstream economists interpreted the administered price as relating to the degree of market concentration.

Scherer (1970) admitted that there had been a sort of selection process in economics profession, which ended up with investigating what they wanted to see among Means's numerous works.

> Despite Means's objections, investigators have been forced to test not the broad conjecture, "Market power leads to prices rigid downward and flexible upward," but the narrower and more concrete hypothesis, "The more concentrated an industry is, as reflected by its four-firm concentration ratio, the more its prices will tend to be inflexible downward and flexible upward." (Scherer 1970: 294)

Three conventional specifications for econometric tests called as econometric price equations can be distinguished which are related to establishing a monotonic relationship between market structure and administered price thesis. The first, and oldest, tradition has focused on the frequency of price change, ignoring changes in costs and demand (Stigler and Kindahl, 1970; Weston et al., 1974; Weiss, 1977). Shortly, it came under simple criticism by orthodox economists since "more highly concentrated industries may well exhibit a lower frequency of price change because they have a lower rate of time preference, but their prices may also change infrequently simply because they experience a lower frequency of cost and demand shocks." (Encaoua and Geroski 1986: 52)

It led to the second line of work in this regard, which relates price variation to changes in costs and changes in demand, and then adds additional terms reflecting market structure.[10] A great deal of the empirical literature which tested a pseudo administered price thesis has used a methodology based on this second tradition. For example, Aaronovitch and Sawyer (1981) estimated cross-section equations of the form:

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[10] Dalton and Qualls (1979) wrote a survey paper on empirical studies before 1980 which are based on this tradition.

price change = cost change + demand change + measure of industrial concentration in an industry.

Jones and Laudadio (1990) added to this specification export and import ratio to total demand. Such a model considers an additional increment in prices arising from a high level of concentration, which is independent of cost and demand changes. Market structure plays no role on the transmission of cost and demand shocks into prices, but exerts an independent effect on prices along with these effects. Still, it was also criticized and dismissed by other neoclassical scholars because of its lack of theoretical foundation. As Encaoua and Geroski put it,

> [N]o clear evidence had emerged from this empirical work, since there is no theoretical reason why the value of the rate of change of prices would be directly influenced by market structure variables. (Encaoua and Geroski 1986: 52)

The third way out was to examine the effect of market structure on the transmission mechanism (Domberger 1981; Phlips 1980; Weiss, 1993; Shaanan and Feinberg 1995). They interpreted the administered price in terms of the speed of adjustment, which captures not the extent to which changes in costs are transmitted into changes in prices, but how rapidly this happens.

> Increased market concentration is expected to prompt a slower price response to changing market conditions. This prediction was initially proposed by Means (1935); more recently, the argument has been made that concentrated industries can afford a long run perspective and hence feel less compulsion to respond to every change in supply and demand with a price change. (Shaanan and Feinberg 1995: 462)

The traditional "administered price" hypothesis states that prices in concentrated industries are less responsive to exogenous changes. (Weiss 1993: 1176)

However, Means's administered price thesis has nothing to do with the speed or degree of price adjustment. The issue is not to show how quickly prices change, but where prices are determined; it is clear that Means argued that prices are determined inside firms and independently of current market conditions, and administered into the market. Note that in the above quotes, the neoclassical economists argue for the proposition that administered price thesis is a result of a temporary observation since the issue is not whether price is determined through markets but when price responds to exogenous changes. They moved the emphasis from theoretical to empirical issues. Even so, many studies appeared to be in conflict with their expectation (Kawasaki et al. 1983; Domberger 1979). Indeed, the results are inconclusive depending on variables used, model specification, and periods. It led some economists to develop a model to analyze the possibility of an ambiguous, non-monotonic relationship between market concentration and pricing behavior (Bedrossian and Moschos 1988; Worthington 1989; Jackson 1997). They explain every possible outcome by setting up arbitrary ranges of values. That means, however, that there is nothing that they can explain for sure about the direct relationship between industrial concentration and price rigidity.

V. Conclusion

With his administered price thesis, Means developed a non-Keynesian explanation of the Great Depression, and his empirical claims were quickly subjected to

statistical tests during 1930s-1960s (Lee and Downward, 1999). This paper goes through neoclassical reactions to Means's administered price thesis during the 1980-2000 periods. Neoclassical attempts to deny and rationalize the thesis are shown to be unsuccessful since their sanitized versions of Means's theory turn out to be self-contradictory in the neoclassical framework. Their failure finally caused some mainstream economists such as Blinder et al. (1998) and Fabiani et al. (2007) to ask business administrators about how they set prices and why their prices are stable, which is exactly what Post-Keynesian and Institutional economists usually do to build and test theoretical frameworks.

Although even Stigler and Kindahl, who sharply attacked Means's works, admitted, "We reckon him among the most influential of economists in the history of this country" (Stigler and Kindahl 1973: 717), Means's original administered price thesis gained little acceptance in the economics profession; furthermore his thesis has been continuously denied. At the same time, his original thesis has been transformed through a multiplicity of rationalization processes in one or another bastardized form, and then it has come under severe criticism based on these vulgarized concepts as if they were Means's own hypotheses.

The very reason for their denial and rationalization of the administered price thesis is astonishingly simple: it challenged the vested interests of mainstream economists who advocate market superiority based on coordinating price mechanism (Ware 1992; Lee 1998, 1999).

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Appendix A. Research Method

Main sources for the study are Google Scholar citation and JSTOR citation information. JSTOR provides citation information for each journal article only within JSTOR coverage. The advantage of Google citation search is that it allows us to look for journal articles outside of JSTOR literature, which cite a specific document of any kind including paper, book, and Senate Document. Hence I utilized both JSTOR and Google Scholar citation information for Means's major works published in 1935, 1939, and 1972, respectively.

	JSTOR	Google Scholar
Means (1935)	---	109
Means (1939)	---	21
Means (1972)	12	89

<Table A> Number of search results for articles citing Means's works as of October 10, 2010

I reviewed almost all the articles and excluded some of them because they do not have any serious comments on Means's works. As reading selected ones, I kept including some relevant papers which are cited by the articles having Means's works in their reference in order to trace their theoretical developments as long as they are concerned with the relevant topics to the paper.

The followings are 61 journal articles cited in this paper, which have theoretically and/or empirically meaningful comments on the administered price thesis: Aaronovitch and Sawyer (1981), Allen (1988), Amihud and Mendelson (1983), Athey et al. (2004), Barro (1972), Basu (1995), Bedrossian and Moschos (1988), Blanchard (1987), Blinder (1982), Bohi and Scully (1975), Boschen and Grossman (1982), Carlton (1979, 1986,

1989), Clark (1995, 1999), Caucutt et al. (1994, 1999), Chappel and Addison (1983), Conlisk et al. (1984), Connor (2005), Goode (1994), Cukierman (1979, 1982), Dalton and Qualls (1979), Domberger (1979, 1981), Encaoua and Geroski (1986), Farber (1984), Fischer (1981), Garber and Klepper (1986), Garber (1989), Georganta (2003), Gordon (1981), Hanes (1999), Jackson (1997), Jones and Laudadio (1990), Kawasaki et al. (1983), Lai and Pauly (1992), McRae and Tapon (1979), Nordhaus (1996), Lichtenberg and Griliches (1989), Okun (1981), Phlips (1980), Ross and Krausz (1986), Rotemberg and Saloner (1987), Scherer (1970), Shaanan and Feinberg (1995), Siegel (1994), Stigler (1962, 1992), Stigler and Kindahl (1970, 1973), Stiglitz (1984), Strand (1987), Weiss (1977, 1993), Weston et al. (1974), Wolman (2000), Worthington (1989), and Wu (1979).