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A joint publication of the  
**University of the Philippines**  
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and the **Philippine Economic Society**





# The Philippine Review of Economics

A joint publication of the UP School of Economics (UPSE)  
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**Publication Information:** The PRE (ISSN 1655-1516) is a peer-reviewed journal published every June and December of each year. A searchable database of published articles and their abstracts is available at the PRE website (<http://pre.econ.upd.edu.ph>).

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**Acknowledgements:** The PRE gratefully acknowledges the financial support towards its publication provided by the Philippine Center for Economic Development (PCED). The Review nonetheless follows an independent editorial policy. The articles published reflect solely the editorial judgement of the editors and the views of their respective authors.

# The Philippine Review of Economics

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Vol. LVI Nos. 1 and 2  
June and December 2019

ISSN 1655-1516  
DOI: 10.37907/ERP9102JD

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## Festschrift for Raul V. Fabella

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This special edition of the *Philippine Review of Economics* honors Dr. Raul V. Fabella in his 70th year and recognizes his invaluable contribution to the economics discipline and profession. This edition comprises 13 articles from his colleagues and several generations of former students inspired or mentored by Dr. Fabella who are themselves making their mark in economics. The broad spectrum of topics covered—agricultural economics, competition policy, contract theory, game theory, history of economic thought, international economics, issues in productivity, growth and development, monetary policy, political economy and rent-seeking, public economics, and the theory of teams—are issues that Dr. Fabella himself has written on or taught his students during

his long, productive years as a Professor of Economics at the UP School of Economics, nurturing an “oasis of excellence” in his spheres of influence, as well as advocated as a roving academic in his later years, endeavoring to engage policymakers and the public in general, in pursuit of welfare-improving changes for a better Philippines.

The wide gamut of topics in this issue is a testament to Dr. Fabella’s eclectic intellectual interests yet unwavering devotion to upholding a high standard of academic excellence. As his biographical sketch at the National Academy of Science and Technology summarizes:

Fabella’s very development as a scholar and intellectual leader presents numerous paradoxes: a classicist turned mathematical economist; a rational-choice theorist who derives material and metaphor from both history and physics; a solitary thinker who agonizes over pedagogy; a pure theorist immersed in policy-debate; an inherently shy, private man who must deal with crowds. His career displays to the fullest the range of issues – from the mathematical to the moral – that economists can and must confront if they are to attain to that “cool head and warm heart” that was Marshall’s ideal. A classicist, however, might simply recall Terentius: *Homo sum: humani nil a me alienum puto.*

Indeed, to Dr. Fabella, nothing related to human behavior is outside his interest. At 70 years of age, National Scientist of the National Academy of Science and Technology (Philippines) and Professor Emeritus at the University of the Philippines, he is yet to reach the zenith of his intellectual verve: Fabella the economist is transfiguring into Fabella the social scientist – one to whom *homo economicus* is no longer the norm, but the exception in the vast complexity of human interactions in society. It is thus unlikely that this will be the last festschrift in his honor.

Sarah Lynne S. Daway-Ducanes  
Emmanuel S. de Dios

## What the new institutional economics owes Marx

Emmanuel S. de Dios\*

University of the Philippines

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The bicentennial of Marx's birth (2018) and the earlier sesquicentennial of *Capital's* publication (2017) are opportunities to examine aspects of new institutional economics and incentive theory with an affinity to or origin in concepts first put forward by Marx. A major idea pertains to industrial organization and the theory of the firm. We compare Marxian and new-institutional insights and conversely attempt to interpret some of Marx's ideas from a new-institutional viewpoint.

**JEL Codes:** B14, B25, B52, D23

**Keywords:** institutions, Marxian economics, new institutional economics, employment relationship, transactions costs, theory of the firm

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### 1. Introduction

The deep influence exerted by the new institutional economics (NIE) on the course of mainstream economic theory is beyond doubt. This is evident even at the most superficial level in the Nobel Memorial Prize recognition given to Ronald Coase, Douglass North, Oliver Williamson, and Elinor Ostrom<sup>1</sup>, whose efforts have transformed entire fields of economic theory, most especially industrial organization, economic history, and development economics.

It is remarkable—and still insufficiently appreciated—however how many of NIE's fundamental insights were anticipated in a major way in the work of Karl Marx. Not less remarkable (and paradoxical) is how mainstream economists' appreciation of Marxian economics for most of the 20<sup>th</sup> century neglected these institutional aspects with attention focused instead on the abstract-formal (and

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<sup>1</sup> Coase, North, and Williamson with Ostrom received the Nobel Memorial Prize in economics in the years 1991, 1993, and 2009, respectively. Of these four, it is North who openly acknowledged a Marxian orientation early in his career. Bylund [2014] has suggested that Coase's 1937 essay was influenced by the "socialist planning" debate of the 1940s, in which Abba P. Lerner, a classmate, played an major part.

ultimately sterile) aspects of Marx's work, as exemplified by the arcana of the "transformation problem".<sup>2</sup> The question may certainly be raised whether the late-20<sup>th</sup> century rediscovery of some of Marx's fundamental institutional insights<sup>3</sup> does not qualify as a species of what Myrdal called "unnecessary originality", or at least interrupted development. The following discusses one aspect of Marx's work that anticipates a prominent theme in NIE, namely the nature of the firm and the evolution of institutions.

## 2. Markets versus firms

Adam Smith's pin-factory in the *Wealth of nations* remains the iconic example of how the division of labor serves as the most important factor in raising labor productivity and ultimately per-capita income. Smith [1976(1776): 15] points out, however, that this example from a "trifling" manufacture serves only as a vivid illustration to facilitate observation. In more general terms, he asserts the very same principle is at work "[i]n every other art and manufacture" and uses this to explain the specialization of trades and occupations:

The separation of different trades and employments from one another, seems to have taken place, in consequence of this advantage. This separation too is generally carried furthest in those countries which enjoy the highest degree of industry and improvement; what is the work of one man in a rude state of society, being generally that of several in an improved one. In every improved society, the farmer is generally nothing but a farmer; the manufacturer, nothing but manufacturer. The labour too which is necessary to produce any one complete manufacture, is almost always divided among a great number of hands. How many different trades are employed in each branch of the linen and woolen manufactures, from the growers of the flax and the wool, to the bleachers and smoothers of the linen, or to the dyers and dressers of the cloth! [Smith 1976(1776): 15-16].

Smith thus adduces the same principle (i.e., higher productivity due to specialization) to explain both the distribution of tasks in his pin factory and the differentiation of trades and the allocation of people among various specialty occupations, distinguishing only between "trifling" and "great" manufactures.

Marx was the first to note and criticize Smith's conflation of what (in Marx's terms) was the "division of labor in society", on the one hand, and on the other, the "division of labor within manufacture", i.e., within a capitalist firm or workshop:

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<sup>2</sup> Pasinetti [1979] and Morishima [1978] provide some of the most rigorous and comprehensive examples of this strand of scholarship.

<sup>3</sup> Seventy years separate the publication of Marx's *Capital* and Coase's article on the nature of the firm. A further three or four decades more would pass before Coase's own article would find fuller appreciation. (See, e.g., the assessment by Coase [1988b].)



[I]n spite of the numerous analogies and links connecting them, division of labour in the interior of a society, and that in the interior of a workshop, differ not only in degree, but also in kind. The analogy appears most indisputable where there is an invisible bond uniting the various branches of trade. For instance the cattle-breeder produces hides, the tanner makes the hides into leather, and the shoemaker, the leather into boots. Here the thing produced by each of them is but a step towards the final form, which is the product of all their labours combined. There are, besides, all the various industries that supply the cattle-breeder, the tanner, and the shoemaker with the means of production. Now it is quite possible to imagine, with Adam Smith, that the difference between the above social division of labour, and the division in manufacture, is merely subjective, exists merely for the observer, who, in a manufacture, can see with one glance, all the numerous operations being performed on one spot, while in the instance given above, the spreading out of the work over great areas, and the great number of people employed in each branch of labour, obscure the connexion [Marx 1965(1867): 246].

Marx notes the difference in the nature of the coordination that governs each:

[W]hat is it that forms the bond between the independent labours of the cattle-breeder, the tanner, and the shoemaker? It is the fact that their respective products are commodities. What, on the other hand, characterises division of labour in manufactures? The fact that the detail labourer produces no commodities. It is only the common product of all the detail labourers that becomes a commodity. Division of labour in society is brought about by the purchase and sale of the products of different branches of industry, while the connexion between the detail operations in a workshop, is due to the sale of the labour-power of several workmen to one capitalist, who applies it as combined labour-power. The division of labour in the workshop implies concentration of the means of production in the hands of one capitalist; the division of labour in society implies their dispersion among many independent producers of commodities... *Division of labour within the workshop implies the undisputed authority of the capitalist over men, that are but parts of a mechanism that belongs to him. The division of labour within the society brings into contact independent commodity-producers, who acknowledge no other authority but that of competition, of the coercion exerted by the pressure of their mutual interests...*[Marx 1965(1867): 247]. (Emphasis supplied.)

In short—and this is a point Marx repeats elsewhere with more or less elegant variation—it is *markets and prices* that allocate resources among more or less autonomous producers in the social division of labor; on the other hand, the division of labor within a firm is governed by the capitalist employer's *authority*.

The distinction between markets and firms—i.e., between exchange and authority—was central to Marx's analysis of capitalism. In the sphere of market exchange where goods produced by independent producers are traded at competitive prices, Marx contended no systematic profits could arise—a sphere

he sardonically described as one where “alone rule Freedom, Equality, Property, and Bentham” [Marx 1965(1867): 123]. In particular, Marx characterized the contract for the sale of labor<sup>4</sup> itself as an exchange of equivalents, where the capitalist paid the worker a wage exactly equal to the going or competitive price for labor (which in classical economics was always the subsistence wage). Since in principle again no profits could arise from such an exchange of equivalents, it was ultimately within the firm, where the capital-owner directed the worker’s activity, where profit (“surplus value”) was produced:

[T]he labourer works under the control of the capitalist to whom his labour belongs; the capitalist taking good care that the work is done in a proper manner, and that the means of production are used with intelligence, so that there is no unnecessary waste of raw material, and no wear and tear of the implements beyond what is necessarily caused by the work [Marx, *ibid.*: 131].

This insight into the market-versus-firm dichotomy coincides remarkably with Coase’s observations seventy years later:

[I]n economic theory we find that the allocation of factors of production between different uses is determined by the price mechanism. The price of factor A becomes higher in X than in Y. As a result, A moves from Y to X until the difference between the prices in X and Y, except in so far as it compensates for other differential advantages, disappears. Yet in the real world, we find that there are many areas where this does not apply. *If a workman moves from department Y to department X, he does not go because of a change in relative prices, but because he is ordered to do so* [Coase 1937: 387-388]. (Emphasis supplied.)

...

Outside the firm, price movements direct production, which is co-ordinated through a series of exchange transactions on the market. Within a firm, these market transactions are eliminated and in place of the complicated market structure with exchange transactions is substituted the entrepreneur-coordinator who directs production [Coase *ibid.*: 388].

...

It can, I think, be assumed that the distinguishing mark of the firm is *the supersession of the price mechanism* [Coase *ibid.*: 389]. (Emphasis supplied.)

Coase described the authority relation in the employment contract<sup>5</sup> as one:

...whereby the factor, for a certain remuneration (which may be fixed or fluctuating), agrees to obey the directions of an entrepreneur *within certain*

<sup>4</sup> “Labor-power” in Marx’s terminology.

<sup>5</sup> Simon [1954: 294] gives a more structured definition, i.e., the contract is one where the worker agrees for a consideration to allow the employer to select a specific action (in a set of possible tasks contained in an “area of acceptance”) for him to perform. Despite the similarity in the questions asked, Simon did not refer to Coase’s earlier article.

*limits*. The essence of the contract is that it should only state the limits to the powers of the entrepreneur. Within these limits, he can therefore direct the other factors of production [Coase *ibid.*: 391]. (Original emphasis.)

Coase, as is well known, saw the advantage of the firm over markets in the former's ability to evade or save on transactions costs<sup>6</sup>—which at the time he originally termed “marketing costs” or the “costs of using the price mechanism”. He specifically refers to the costs entailed by price discovery (“discovering what the relevant prices are” [*ibid.*: 390]) and the trouble of writing several or a series of contracts (“the costs of negotiating and concluding a separate contract for each exchange transaction”)<sup>7</sup>. In his later article on social cost, Coase [1960] elaborates on these costs as follows:

In order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on. These operations are often extremely costly, sufficiently costly at any rate to prevent many transactions that would be carried out in a world in which the pricing system worked without cost [Coase 1960: 16].

By contrast,

A factor of production (or the owner thereof) does not have to make a series of contracts with the factors with whom he is co-operating within the firm, as would be necessary, of course, if this cooperation were as a direct result of the working of the price mechanism. For this series of contracts is substituted one [Coase 1937: 391].

Coase also notes how uncertainty makes it infeasible or undesirable for entrepreneurs to enter into long-term sales or service-contracts committing them to highly specific actions. Preserving entrepreneurial discretion and flexibility of action in an uncertain environment is another factor favoring the authority implicit in the employment contract over market transactions.

Decades later, Williamson [1971:113] reinforced Coase's argument by citing the advantages of authority (*fiat*) in the firm especially when disputes or disagreements arise over the assessment of contracted performance:

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<sup>6</sup> Allen [1999] attributes the first use of the specific term “transaction costs” to Demsetz [1964], who defines it as “the cost of exchanging ownership titles”.

<sup>7</sup> Coase did not then explicitly mention costs associated with post-contractual issues, such as the enforcement costs or the resort to adjudication when market contracts are not fulfilled or are imperfectly executed. His account of the origins of his 1937 article [Coase 1988a: 13] makes it clear however that he also considered the avoidance of the “hold-up” problem in the case of asset-specificity as one of the forces for internalizing market transactions.

Perhaps the most distinctive advantage of the firm, however, is the wider variety and greater sensitivity of control instruments that are available for enforcing intrafirm in comparison with interfirm activities. Not only does the firm have the constitutional authority and low-cost access to the requisite data which permit it to perform more precise own-performance evaluations (of both a contemporaneous and ex post variety) than can a buyer, but its reward and penalty instruments (which include selective use of employment, promotion, remuneration, and internal resource allocation processes) are more refined. Especially relevant in this connection is that, when conflicts develop, the firm possesses a comparatively efficient conflict resolution machinery. To illustrate, fiat is frequently a more efficient way to settle minor conflicts (say differences of interpretation) than is haggling or litigation. Interorganizational conflict can be settled by fiat only rarely, if at all. For one thing, it would require the parties to agree on an impartial arbitrator, which agreement itself may be costly to secure. It would also require that rules of evidence and procedure be established. If, moreover, the occasion for such interorganizational settlements were to be common, the form of organization converges in effect to vertical integration, with the arbiter becoming a manager in fact if not in name. By contrast, intraorganizational settlements by fiat are common.

This is not the place to discuss all the subsequent developments of Coase's basic insight of transaction-cost differentials between firms and markets. (The reader is pointed instead to the survey by Allen [1999] or the volume on incentives by Laffont and Martimort [2002].) It is important, however, to refer to the particular elaboration of the problem by Cheung [1969], Williamson [1971], Newbery and Stiglitz [1977], and Holmstrom [1979] among others, who examined the problem of costs associated with the employment relationship itself. This literature effectively balanced out Coase's earlier one-sided analysis, which identified only the costs of market transactions but neglected the costs associated with the employment relation. Mitigating the problem of opportunism or moral hazard in the wage relation, for example, may entail costly monitoring of the worker's actions. More generally, such costs involve resolving the question of whether the compensation scheme is sufficient to induce the worker to enter the contract (i.e., the participation constraint), and second, of whether the worker is sufficiently motivated to perform the work required by the employer (i.e., the incentive constraint).<sup>8</sup>

<sup>8</sup> Using a simple version of Holmstrom [1979], the employer's gross profit before labor costs can be written as a function  $G(x)$  of output  $x$ . Let  $s(x)$  be the employee's compensation and the worker's utility be  $H(s(x), a)$ , where  $a$  is the worker's action or effort affecting output  $x(a)$ , with  $H_1 > 0$  and  $H_2 < 0$ . The employer then maximizes  $G(x) - s(x)$  by selecting the function  $s^*(\cdot)$  and the optimal action  $a^*$  such that given  $s^*(\cdot)$ , (i) the worker's utility does not fall below her reservation level  $H^0$  and (ii) her maximization of  $H$  results in her selecting  $a^*$  given the chosen function  $s^*(\cdot)$ . Conditions (i) and (ii) are the participation constraint and incentive-compatibility constraints, respectively. In particular, a wage relationship sets  $s(x) = w$ , a constant, while a share-tenancy contract involves  $s(x) = hx$ ,  $0 < h < 1$ . A leasehold or rental contract is represented by setting the employer's income to a fixed  $L$  and letting  $s(x) = G(x) - L$ .

Especially relevant to our interest is how such extensions of Coase's insight led to an examination of other arrangements between proprietors and workers aside from the wage relationship. In particular, beginning with Cheung [1969], the literature focused on efficiency conditions for the persistence of share-tenancy or sharecropping in agriculture—an iconic representation of pre-capitalist (i.e., feudal) forms of employment in history as well as in some of today's developing economies. This represents a bridge to Marx's own concern (i.e., his "materialist conception of history"<sup>9</sup>) to explain how capitalist property relations came to supplant earlier relations, particularly those in medieval and early capitalist Europe.

### 3. Differences in method and starting point

Despite their common observation of the distinction between authority and markets under capitalism, Marx and Coase differed in their methodological approach and starting points. Coase in his article posited no linear or progressive development and supposed that various contractual forms—e.g., spot transactions, contracted prices, and employment relations—were equally eligible in principle and at any point in time, to be selected by each entrepreneur based on the characteristics of actual exchange that give rise to specific transaction costs. Adopting the "marginal principle", Coase imagined the process of firm-formation, expansion, or contraction as a timeless one where the entrepreneur perennially confronts a succession of make-or-buy decisions for every relevant transaction, comparing the cost of contracting it out to outside parties versus internalising it within the firm.

Marx in contrast proceeded from the historical view that the spread of production under capitalist authority was a consequence of specific developments in industrial technology and property relations (i.e., "the forces of production" shaping the "relations of production") [Marx 1977(1859)]. For him, the ultimate basis of the rise of the wage-relation stemmed from the historically specific fact that the capitalist owned the means of production (i.e., equipment and inputs) while the worker owned nothing but his capacity for labor, rendering the latter dependent on the former's direction. Whence comes the famous Marxian aphorism<sup>10</sup>:

*[C]apital is not a thing, but rather a definite social production relation, belonging to a definite historical formation of society, which is manifested in a thing and lends this thing a specific social character...It is the means of production monopolised by a certain section of society, confronting living labour-power as products and working conditions rendered independent of this very labour-power, which are personified through this antithesis in capital [Marx 1894: 590]. (Emphasis supplied.)*

<sup>9</sup> As outlined broadly in Marx [1977(1859)].

<sup>10</sup> Marx also employed this phrase in volume 1 of *Capital* [Marx 1965(1867): 545].

Marx's eschatological view of history made him less sensitive to the possibility that there might be obstacles to the spread of the wage-relation stemming from problems or costs associated with that relationship itself. In his lifetime Marx never seriously confronted the problem of the long-term persistence of pre-capitalist relations and their coexistence with capitalist forms. Especially in their earlier years (see, e.g. in the *Communist manifesto*) he and Engels tended to assume that capitalism would sooner or later diffuse throughout the world and that the bourgeoisie would "create a world after its own image". The issue of "uneven development" especially in underdeveloped countries and colonies, however, would preoccupy later Marxist writers and political leaders from Luxemburg to Lenin to Mao.<sup>11</sup>

Subsequent institutional and mainstream developments however have contributed some unexpected insight into the issue. Newbery and Stiglitz's [1977] well-known result, for example, shows that with imperfect information about how output is related to effort, there is little reason for sharecropping to exist—versus straightforward wage or fixed-lease contracts or some combination of the two—if not for considerations of risk-sharing between asset-owner and farmer and the costs of monitoring labor. From a Marxian perspective, this result can be interpreted as suggesting that sharecropping will persist and dominate the wage-relationship where the labor process is technologically still largely controlled by the worker's autonomous actions and therefore opaque to the landowner's monitoring efforts. (More on this below.) The tenant-farmer's share in output then serves as an efficiency wage<sup>12</sup> motivating an effort level that favors higher output (see, e.g., Laffont and Martimort [2002: 175-176]).

The worker's motivation under the wage-relation however was an issue Marx discussed only in the starkest negative terms, i.e., by idealizing the worker's actions when working in her own behalf—say as an independent craftsman or farmer—and contrasting it unfavorably with the "alienation"<sup>13</sup> experienced when she enters into a wage contract and works for the capitalist. Marx never regarded the question of the degree of the worker's compliance and performance under a wage contract as a major issue. This contrasts with the subsequent new-institutional literature (see, e.g. Williamson [1971] and Williamson Wachter, and

<sup>11</sup> In the Philippines until around the 1980s, an intense theoretical and political debate ensued among Marxist scholars and activists over whether observed agricultural relations (including regular and seasonal wage-work, the activities of trader-lenders, and so on) constituted sufficient indications of a "capitalist mode of production"—a question thought to influence the strategy and tactics of the political revolution itself. A flavor of the debate is provided in Ferrer [1984]. Abinales [2000], from a critical viewpoint, discusses the political context and stakes involved.

<sup>12</sup> Since efficiency wages typically favor the agent or laborer, the above may appear to fly in the face of the reality of poverty among many sharecroppers. Even in theory, however, the agent may be reduced to her reservation level of utility through the combination of the share with a fixed fee. Real share contracts, for example, can sometimes involve the farmer making shared contributions to costs.

<sup>13</sup> That is, the alienation (*Entfremdung*) in the sense of: (i) not being able to appropriate the product of one's own labor; (ii) not being in control of one's own actions; and (iii) having to convert purposeful activity from being the distinctive end of human existence into a mere means. See, e.g., Marx [1959(1844): XXIII-XXIV].

Harris [1975]) which posits moral hazard (a.k.a. shirking or opportunism) as a central problem that both plagues and underpins the wage-relation.

Marx's historical approach however may have justified his inattention to the problem of moral hazard, which he tended to subsume under what he considered the overriding historical fact that favored the spread of capitalist wage relations—namely, the dispossession of the worker and her dependence on the capitalist for subsistence. The classic historical example of this process was the eviction of the peasantry from the land in England in the 15<sup>th</sup>-16<sup>th</sup> centuries to make way for “sheep-walks” under the stimulus of the rising Flemish wool industry [Marx 1965(1867):510]. It was this “surplus” agricultural population which then migrated to the towns and formed a nascent proletariat. Weber [2003(1927): 164] concedes the narrow point, calling England “the classical land of peasant eviction” and determining that “The labor force thus thrown on the market made possible the development first of the domestic small master system and later of the industrial or factory system”. The subsistence-level conditions of workers in the towns are implicit in the poor laws enacted during the period. Sombart [1987(1916): 792ff], on the other hand, adduced what he considered to be more significant secular factors in the rise of the proletariat, including a significant rise in population, the immiserization of independent farmers, business ruin among crafts producers, market stagnation, the abolition of serfdom, wars, and onerous taxes (e.g., in France).<sup>14</sup>

Regardless of actual historical events and processes, the point remains that Marx conceptually regarded the worker's poverty and dependence—the unavailability of the means or option of independent production—as a sufficient condition for her to enter the wage contract and to perform according to the employer's orders. A natural experiment for this hypothesis was the colonies—specifically America, where by contrast labor was in perennial short supply owing to “[t]his constant transformation of the wage-laborers into independent producers, who work for themselves instead of for capital, and enrich themselves instead of the capitalist gentry” [Marx 1965(1867): 545]:

It is otherwise in the colonies. There the capitalist regime everywhere comes into collision with the resistance of the producer, who, as owner of his own conditions of labour, employs that labour to enrich himself, instead of the capitalist [Marx 1965(1867): 543].

[T]he development of the social productive power of labour, co-operation, division of labour, use of machinery on a large scale, &c., are impossible without the expropriation of the labourers, and the corresponding transformation of their means of production into capital [Marx *ibid.*].

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<sup>14</sup> Sombart regarded Marx's construed explanation of immiserization as being due to forcible expropriation (e.g., the enclosure movement and the suppression of monasteries) as too England-centric and not borne out by statistics in terms of the scale of their occurrence.

In short, where the possibility of self-employment was open owing to the availability of land, the wage relation encountered difficulty in establishing itself, thus indirectly supporting Marx's point that worker-dispossession was a necessary condition for the establishment of the wage relation. Parenthetically, it is somewhat surprising that armed with this insight, Marx failed to advance the corollary—ultimately associated with Domar [1970]—that a natural means of relieving this labor shortage, given the high ratio of free land to free labor, was to devise artificial social institutions that tied labor to the soil. Hence the emergence and persistence of slavery and other forms of bonded labor.

Nonetheless, it is significant that Marx's historical argument does not run afoul of what subsequent theory has suggested. A standard result in the theory of incentives is that when effort is verifiable and shirking can be punished, the optimal payoff scheme involves a constant payment to the worker regardless of the state of nature<sup>15</sup>, that is, a fixed wage that represents the minimum compensation for the worker's disutility. "Indeed, *only the agent's participation constraint matters for the principal*, because the agent can be forced to exert a positive level of effort" [Laffont and Martimort 2002: 151]. (Emphasis supplied.) Marx's emphasis on the worker's expropriation and the lack of options for independent production is therefore not misplaced: it is effectively an argument that such a participation constraint is most likely to be met. The remaining condition necessary for the simple wage-argument to hold—i.e., that effort should be observable or monitoring costs low—was a phenomenon Marx also believed to be evident in historical developments, as seen in the standardization and simplification of work, the use of what would later be known as Fordist-Taylorist methods, and the employment of machinery. This forms the subject of the next section.

#### 4. Monitoring costs: "formal subsumption" of labor

Partly arising from the difference in approach (i.e., historical versus axiomatic), a second main difference between Marx's and Coase's explanation for the firm's existence is that the latter treats "transactions costs" as *parametric*, whereas Marx considered them *endogenous* to the entrepreneur's decision. The parametric nature of Coase's treatment is to be seen in his adoption of the Marshallian metaphor of "substitution at the margin" to explain the entrepreneur's make or buy decision:

At the margin, the costs of organising within the firm will be equal either to the costs of organising in another firm or the costs involved in leaving the transaction to be "organised" by the price mechanism. Business men will be constantly experimenting, controlling more or less, and in this way, equilibrium will be maintained [Coase 1937: 404].

<sup>15</sup> That is, high effort raises the likelihood of high output (though the output is still uncertain).



Here, the picture presented is that of an entrepreneur on the margin of deciding on something as trivial as whether to contract out, say, the firm's plumbing needs or to hire an in-house plumber. At the other extreme, it could also involve a decision as significant as whether an automobile company should contract out its body works to another company or to buy it and integrate it into its own operations.<sup>16</sup> It is significant that Coase's entrepreneur-coordinator really worries only about contracting costs.

The scenario evoked by Coase is approximated by historical examples of what Marx in his early drafts of *Capital* (i.e., Marx [1993(1861-1863)] and Marx [1993(1864)]) called the "formal subsumption" of labor under capital. This refers to the situation where it is simply the relation of ownership—which, as we saw underpins the relationship of authority—that changes:

Historically, in fact, at the start of its formation, we see capital take under its control (subsume under itself) not only the labour process in general but the specific actual labour processes as it finds them available in the existing technology, and in the form in which they have developed on the basis of non-capitalist relations of production. It finds in existence the actual production process—the particular mode of production—and at the beginning it only subsumes it *formally*, without making any changes in its specific technological character [Marx (1861-1863): 92-93]. (Original emphasis.)

This formal subsumption of the labour process, the assumption of control over it by capital, consists in the worker's subjection as worker to the supervision and therefore to the command of capital or the capitalist [Marx *ibid.*: 92].

When the peasant who previously produced independently for himself becomes a day labourer working for a farmer; when the hierarchical structure valid for the mode of production of the guild type disappears, to be replaced by the simple antithesis between the capitalist and the handicraftsman who is set to work for him as a wage labourer; when the man who was previously a slaveholder employs his former slaves as wage labourers, etc., production processes with a different social determination are thereby converted into the production process of capital [Marx 1993(1864): 470].

The key point for Marx was that in instances of formal subsumption, apart from a greater intensity and continuity of work and a larger scale of output, nothing substantially changes in the purely technological aspects of the worker's production activity compared to when she was an autonomous craftworker or independent farmer:

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<sup>16</sup> Coase [1988a:13] was intrigued by the question whether and why General Motors should have bought the Fisher Body company.

The *labour process*, seen from the *technological point of view*, continues exactly as it did before, except that now it is a labour process *subordinated* to capital. Nevertheless, there develops within the production process itself, as previously demonstrated, 1) an *economic* relation of domination and subordination, in that the consumption of labour capacity is done by the capitalist, and is therefore supervised and directed by him; and 2) a great continuity and intensity of labour and a greater economy in the employment of the conditions of labour, in that every effort is made to ensure that the product only represents socially necessary labour time (or rather, less than that) [Marx *ibid.*: 473]. (Original emphasis.)

The transition to wage work is suggested by the development of the domestic industry (the “putting-out” or *Verlag* system) of the 16<sup>th</sup>-17<sup>th</sup> centuries, in which formerly independent craft producers (notably in linen textiles and small iron products), became employed by merchants who at first supplied them with the equipment and raw materials for production and carried off their products for further processing and ultimate sale. This was a transitional form to the extent that the merchant *Verleger* or “putters-out” generally did not directly employ the craft workers (whose products were still formally bought from them) but effectively subsumed the latter’s productive activity by controlling their supply of inputs and marketing. In certain instances, such merchant-factors ultimately came to employ spinners, weavers, etc. under wage arrangements.<sup>17</sup> Other instances of this transition to wage-employment included the morphing of guild masters into capitalists and of journeymen and apprentices into wage workers, or the transformation of formerly independent peasants into wage-workers for richer farmers.<sup>18</sup>

Marx’s description of the formal subsumption of labor underscored his contention that in such cases, workers still exercised a greater or lesser control over their conditions of work. Relative to the workers’ earlier situation, formal subsumption entails at most a change in the purpose, appropriation, scale, and

<sup>17</sup> Marx did not consider the putting-out system per se as a case of formal subsumption because it did not principally involve the sale of labor power. He regarded it instead a pre-industrial form of capitalism, i.e., merchant capital. Sombart [1987a(1916): 819ff], on the other hand, considered the putting-out system one of the two “roots” of the modern labor contract. A useful enumeration of how stages in the *Verlagssystem* approached wage employment is provided by Weber [2003(1927): 159-160], namely: (1) a de facto buying monopoly by the merchant (factor) vis-à-vis the craft worker; (2) provision of the raw material to the craft worker by the factor; (3) control of the production process; (4) provision of the tools to the worker; and finally though not frequently (5) integration of several stages of production and payment of wages to the worker.

<sup>18</sup> The parallel is obvious between this and the “trader-lender” phenomenon or “credit-output interlinkage” observed in Philippine agriculture. See, for example, Fabella [1993], Esguerra and Fabella [1991], and Floro and Yotopoulos [1991]. Consistent with Marx’s insight, such arrangements are found to be means of enforcing labor contracts where, for various reasons, information on the quality of agents and their production behavior is imperfect.

regularity of the workers' activity, a change however that Marx regarded as superficial or at best incipient. The cases described however essentially correspond to a condition where effort is difficult to verify. From the viewpoint of modern incentive theory therefore—and Marx would only have agreed—the optimality of a fixed-wage contract in such conditions would have been difficult to establish.

## 5. Technology and “real subsumption”

Marx did not regard capitalist relations as coming into their own until the “real subsumption” of the labor process was completed. While formal subsumption still allowed the direct producer some degree of autonomy over effort or left the conditions of production unchanged, real subsumption involved the direct intervention of the capitalist-entrepreneur in materially altering the production process, i.e., significantly changing the technology and organization of productive activity from that which previously existed.

In the case of the real subsumption of labour under capital, all the *changes* in the labour process itself, analysed by us previously, actually take effect. *Labour's social powers of production* are developed, and with labour on a large scale the application of science and machinery to direct production takes place. On the one hand, the *capitalist mode of production*, which now takes shape as a mode of production *sui generis*, changes the shape of material production. On the other hand, this alteration of production's material shape forms the basis for the development of the capital-relation, which in its adequate shape therefore corresponds to a specific level of development of the productive powers of labour [Marx *ibid*: 478]. (Original emphasis.)

Again using historical examples and his observation of developments, Marx argues that the real subsumption of labor—i.e., the “specifically capitalist mode of production”—first occurs with the emergence of manufacture and subsequently with the use of modern machinery. “Manufacture”, in Marx's narrow use of the term, refers to work in conditions where workers are assembled, supervised, and disciplined to perform certain tasks but without the use of mechanical power. Its principal features are the workshop division of labor and the detail laborer—the same type of worker found in Smith's pin factory—whose actions are reduced to more or less repetitive motions reminiscent of those of a machine:

...[A] labourer who all his life performs one and the same simple operation, converts his whole body into the *automatic specialized implement of that operation* [Marx 1965(1867): 238].

The collective labourer, formed by the combination of a number of detail labourers, is *the machinery specially characteristic of the manufacturing period* [Marx *ibid*.: 243].

The habit of doing only one thing converts him [i.e., the detail labourer] into *a never failing instrument*, while his connexion with the whole mechanism compels him to *work with the regularity of the parts of a machine* [Marx *ibid.*: 243].

[M]anufacture thoroughly revolutionizes it [i.e., the mode of working by the individual – E.S.D.] and seizes labour-power by its very roots. It converts the labourer into a crippled monstrosity, by *forcing his detail dexterity* as the expense of a world of productive capabilities and instincts...[Marx *ibid.*: 249-250]. (All emphases supplied.)

Marx's language shows that he regarded the organization of the work process in manufacture, particularly the workshop division of labor, as being highly controlled and monitored, with the worker almost akin to an automaton in her actions.

Marx viewed the manufacturing workshop as resolving some though not all the problems of control over the work process.<sup>19</sup> A further development is the rise of the "factory" proper<sup>20</sup>, where, the internal division of labor found in manufacture is superseded by the division of tasks among a system of machines driven by an inanimate power source (e.g., steam, petroleum, or electricity). The laborer's role then becomes merely auxiliary to that of the machine and reduced to that of "machine actuation, workfeeding, patrolling, and inspecting" [Braverman 1975:217]. It is the introduction of machinery then that completes the undermining of the worker's autonomy and control over the labor process:

In the first place, in the form of machinery, *the implements of labour become automatic, things moving and working independent of the workman*. They are thenceforth an industrial *perpetuum mobile*, that would go on producing forever, did it not meet with certain natural obstructions in the weak bodies and the strong wills of its human attendants. The automaton, as capital, and because it is capital, is endowed, in the person of the capitalist, with intelligence and will; it is therefore animated by the longing to reduce to a minimum the resistance offered by that repellent yet elastic natural barrier, man. [Marx 1965(1867): 276] (Emphasis supplied.)

<sup>19</sup> "Since handicraft skill is the foundation of manufacture, and since the mechanism of manufacture as a whole possesses no framework, apart from the labourers themselves, capital is constantly compelled to wrestle with the insubordination of the workmen. ... Hence throughout the whole manufacturing period there runs the complaint of want of discipline among the workmen" [Marx 1969(1867): 251].

<sup>20</sup> Weber [2003(1927): 162] discounts Marx's distinction between "manufactory" and "factory" (the difference lying only in the latter's use of mechanical power), calling it "casuistical and of doubtful value". The more important common element underlying both for Weber was the presence of and accounting for any form of fixed capital. On the other hand, Sombart [1987b(1927): 767ff] found the differentiation relevant even in the period of "late" capitalism.

The separation of the intellectual powers of production from the manual labour, and the conversion of those powers into the might of capital over labour, is, as we have already shown, finally completed by modern industry erected on the foundation of machinery. *The special skill of each individual insignificant factory operative vanishes as an infinitesimal quantity before the science, the gigantic physical forces, and the mass of labour that are embodied in the factory mechanism* and, together with that mechanism, constitute the power of the “master.”

.....

The technical *subordination of the workman to the uniform motion of the instruments of labour*, and the peculiar composition of the body of workpeople, consisting as it does of individuals of both sexes and of all ages, *give rise to a barrack discipline*, which is elaborated into a complete system in the factory, and which fully develops the before mentioned labour of overlooking, thereby dividing the workpeople into operatives and overlookers, into private soldiers and sergeants of an industrial army. [Marx 1965(1867): 286] (Emphasis supplied.)

The common element in both manufacture and machine industry, therefore, is the worker’s loss of autonomy in the work process since the production process has now been technologically transformed by the capitalist. In manufacture, the change involved was the organization of work according to a minute division of labor, the simplification of the worker’s actions (“deskilling”), and the introduction of a supervisory hierarchy. In machine industry, it was the replacement of human skill and subjective judgement by automatic machine action. Both cases minimize the problem of moral hazard because effort is observable or monitoring costs are low.

Parenthetically, even as we refer to Marx’s historical *approach*, we need not fully accept the historical *accuracy* of his account. In particular, Marx purports to document a progressive erosion of worker autonomy in the seemingly inexorable succession from independent craftsman, to contractor under the putting-out system, to detail worker in manufacturing, and finally to the mere attendant under machine industry. Sombart [1987a(1916): 731] however calls this one of Marx’s “most serious and disastrous errors”, since this supposed succession of stages was selective and one-sidedly based on the spinning and weaving industries alone. In fact, Marx’s “manufacture” and “machine industry” co-existed in Europe throughout the 16<sup>th</sup> to the 18<sup>th</sup> centuries. Moreover the time-and-motion studies of F. Taylor breathed new life into detail labor, and Marx did not live to witness how the epitome of 20<sup>th</sup>-century mass production, the moving assembly line pioneered by H. Ford [1916], was a hybrid of machine industry (i.e., an externally powered conveyor dictating the pace of production) and manufacture by detail workers (i.e., performing the required assembly).<sup>21</sup>

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<sup>21</sup> Braverman’s work [1975] is still one of the best accounts of the development of Taylor’s “scientific management” and its subsequent influence.

Historical details aside, however, when considered from the perspective of incentives theory, both the division of labor in the firm and machine industry are technological innovations that produce the same result: lower monitoring costs that make the laborer's effort easier to verify. Together with the easy fulfillment of the participation constraint discussed earlier, the fixed-wage relationship then becomes the dominant solution as both as specified by orthodox theory and the historical conditions Marx described.

## 6. Broader implications

Marx's description of the technological changes involved in the transition to a wage-relationship points up an apparent difference in emphasis between his view and Coase's. The rationale for the firm, according to Coase is to avoid the "cost of using the price mechanism" (i.e., the costs of information or discovery, of contracting, and of enforcement). Stated in this manner, Coase is notably silent about whether the technology employed outside the firm remains the same or has changed after market transactions have been internalized.

From Marx's historical perspective, therefore, it would seem as if Coase assumes that the firm merely takes over the pre-existing technology, say, employing weavers as wage-workers rather than buying their previously independently produced output. As argued previously, however, such a condition cannot provide a stable foundation for the wage relationship: real labor subsumption entails resolving the monitoring problem through a technological change (i.e., workplace division of labor or the employment of machinery) that makes effort transparent—which yields a superior productivity<sup>22</sup> that then establishes the superiority of the wage relation over market transactions.

But part of this apparent divergence is simply due to a difference in reference point. The new-institutional insistence that technological reasons play little or no role is actually based on an atemporal thought-experiment about the difficulty of deploying a new technology using market mechanisms. Williamson, Wachter, and Harris [1975:255], for example, imagine how division of labor in Smith's pin factory might be reproduced by contract:

In principle, each of these activities could be performed by an independent specialist and work passed from station to station by contract. Autonomous contracting would be facilitated, moreover, by introducing buffer inventories at each station, since coordination requirements and hence contractual complexity

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<sup>22</sup> Our reading—that Marx conceded superior productivity under the wage relation—obviously contradicts Marglin's [1974] argument that changes in the work process such as the minute division of labor were introduced only to perpetuate capitalist authority and justify the capitalist's appropriation of a share of output. Indeed, one can argue that Marx, like Smith, assumed that such within-firm technological changes yielded economies of scale.

would thereby be reduced. Each worker could then proceed at his own pace, subject only to the condition that he maintain his buffer inventory at some minimum level. A series of independent entrepreneurs rather than a group of employees, each subject to an authority relation, could thus perform the tasks in question. ... *Transactions costs militate against such an organization of tasks, however.* (Emphasis supplied.)

Therefore, while Marx asks the question: “What conditions will allow hitherto independent craftsmen to become wage workers?” (Answer: division of labor); Coase and Williamson ask the question: “What prevents the division of labor from being adopted among independent craftsmen?” (Answer: transactions costs). Marx describes how new technology allows transactions costs to be overcome via the firm; Coase shows how transactions costs prevent new technology from being adopted, except within the firm. Marx proceeds from historical order and example, Coase and Williamson argue from a hypothetical possibility. The conceptual relationships are the same, but the result emphasized by one forms the premise of the other.

These considerations regarding the theory of the firm ramify into the larger issue of the relationship between technology, production organization, and property distribution that form the basis of Marx’s theory of history. We shall not dwell on this general issue at length but rather only attempt a sketch as illustrated by the theory of the firm. (For a treatment of the broader issues, the reader is referred to North’s [1986] essay on Marx and the critique by Milonakis and Fine [2007].)

An implication of the NIE theory of the firm is that the adoption of some technologies will be better suited to some types of organization owing to the lower transactions costs they entail (e.g., division of labor being easily implemented in a firm but not among independent craftsmen). In Marx’s world, however, transactions costs are associated with certain distributions of property rights. If, for example, weavers owned their own implements of production or possessed tacit knowledge or skills otherwise unavailable to the entrepreneur-coordinator, then contracting costs for the division of labor would obviously be higher. In such conditions, depending on relative scarcities, pressures may build up for a different set of property relations—with correspondingly different transaction costs—that might better accommodate that productivity-enhancing technology.

This relationship between property rights, transactions costs, and production technology was stated most clearly by Douglass North, the new-institutionalist who had the greatest familiarity with Marxian theory<sup>23</sup>:

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<sup>23</sup> North freely acknowledged being a “semi-Marxist” in his early days [North 2009].

...[A]s Marx clearly recognized, there are transactions costs; and indeed *they can prevent a society from being able to efficiently capture the gains from specialization and division of labor, that is the gains from the productive forces.* The costs of transacting are all those costs associated with capturing the gains from trade: the costs of negotiating and enforcing contracts and agreements of all types; the costs associated with devising efficient instruments that enable one to capture the gains from specialization, including market organization, banking, finance, insurance, wholesale and resale trade, etc. *Transaction costs form a very large part of the total costs of production in any society, particularly in societies that are specialized. Ultimately, they are a function of the efficiency of a property-rights structure, since it is the property-rights structure that defines the relations of production, which in turn are reflected in the costs of transacting.* [North 1986: 60-61] (Emphasis supplied.)

To overcome [the constraints to the second industrial revolution – E.S.D.] *entails the creation of institutions that so structure the rules and their enforcement as to alter the pay-offs to induce cooperative solutions.*...Karl Marx long ago pointed out that the tension between the organizational imperatives of a technology and the existing property rights was a fundamental source of conflict and change [North 1993:22]. (Emphasis supplied.)

North in the foregoing has effectively translated Marx's materialist conception of history into NIE terms: technology ("productive forces"), such as cooperation, the division of labor, or industrial machinery, can be mapped onto various possible production arrangements ("relations of production"), such as authority within a firm versus service- or price-contracting, for each of which corresponding transactions costs can be determined. Transactions costs, however, are conditioned by the underlying property-rights system and distribution of property (e.g., disperse absolute ownership of and access to implements among workers versus concentrated capital ownership). The continuing importance of property-rights systems in a modern context for industrial organization may be appreciated, for example, in the question of what can or cannot be owned as intellectual property<sup>24</sup> (and for how long).

For both Marx and NIE, there exists the possibility that the current property system results in relative transactions costs that favor production arrangements which cannot accommodate superior technology and are therefore suboptimal in a sense. (See Appendix for a brief sketch.) From this of course follows Marx's well-known assertion (which North did not share) that ineluctable forces would emerge to radically overhaul the existing property rights-structure, particularly that of capitalism. North, in contrast, believed that markets and the private-ownership economy under capitalism, though not perfect, were flexible enough to accommodate the emergence of ever-more progressive technological innovations.

<sup>24</sup> One treatment of the consequences from a Marxian viewpoint is given by Pagano [2014].



## 7. Envoi

Despite dissimilar starting points, terminology, and eschatologies, what becomes evident upon a careful reading and mapping is a remarkable similarity in the issues studied and a correspondence of concepts between Marxian and new-institutional economics. This correspondence holds from the microcosm of the analysis of the firm and the wage-relation to the extensions of those concepts to the theory of history and of development. It is in that sense that, to quote North finally [1981:63] “It is worth making sense of Marx.”

*Acknowledgements:* This essay is offered to Raul Fabella, friend and co-worker.

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## Appendix

The following is a sketch to represent the usefulness of NIE concepts in clarifying parts of the familiar Marxian conception of history.<sup>25</sup>

Let  $h$  and  $H$  be two *technologies* respectively representing low and high labor productivity:  $H$ , for example, may represent the workshop division of labor, while  $h$  may represent artisanal production, where a worker finishes a product from start to finish. Then also suppose there are two *productive arrangements* (“relations of production”), say, individual output-contracting ( $A$ ) and the wage-relation ( $W$ ). It is important that either technology may in principle be employed with either  $A$  or  $W$ . The pair  $(H, W)$  is obvious;  $(H, A)$  on the other hand might involve, say, paying workers an output-rate for that part of the product they produced. (As Williamson, Wachter, and Harris [1975] suggest, creating buffer stocks for each stage would still allow division of labor with workers being paid independently.)

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<sup>25</sup> I hesitate to call this part original. I recall a manuscript by a colleague, R.D. Ferrer in the late 1980s that undertook a project of reconciling Marxism and NIE drawing on transactions cost concepts, among others. That manuscript was unfortunately never published and is now lost, so I have no opportunity to check how much of the above is another case “unnecessary originality”.

*Property-rights systems*, on the other hand, are complexes of rules referring to the types of resources that can be owned, how they may be owned (e.g., fee simple, usufruct, etc.), and by whom. To simplify, denote by  $Q$  a property-rights system involving disperse individual ownership of means of production, while  $P$  denotes a system of high concentration of ownership of capital (“capitalism” for short). Certain transactions costs  $c(\cdot)$ , are peculiar to the use of technologies under certain labor arrangements and property-rights systems, i.e.,  $c: \{W, A\} \times \{h, H\} \times \{Q, P\} \rightarrow \mathfrak{R}^+$ .

Marx’s assertion may be reinterpreted as saying that for any property system, say  $Q$ , some mechanism exists for society to find a pairing of technology and production arrangements  $(x^0, y^0)$  that minimizes transaction costs, i.e.,  $C(Q) = \min\{c(x, y | Q), x \in \{h, H\}, y \in \{W, A\}\}$ . Using our particular example,  $C(Q) = c(h, A | Q)$ , which implies that independent artisanal production predominates when property is diffuse. Similarly, under a capitalist property-rights system  $P$ , one might assert that  $C(P) = c(H, W | P)$ , implying that division of labor under wage relations is likely to be the most practised and observed. The thought-experiment by Williamson, Wachter, and Harris [1975] is essentially a sub-statement demonstrating that  $c(H, W | P) < c(H, A | P)$ , a fact already implied by the “min”-operator. But note each such comparison is made within the same property-rights system, or what Williamson [2000] calls “governance play”, “Level 3”, or “second-order economizing”.

More contentious are questions at Williamson’s Level 2 (or “first-order economizing”), which in our convention deals with comparisons of  $P$  and  $Q$ . An example of this is what, if anything, should occur if an available superior technology like  $H$  is dominated under the existing property-rights system  $Q$  but better accommodated under  $P$ . That is, say,  $C(Q) = c(h, A | Q) < c(H, A | Q)$ , but  $C(P) = c(H, W | P) < c(H, A | P)$ . Is one allowed to compare and say, for example,  $C(P) < C(Q)$ ? Marx and Engels famously pointed to the possibility that “at a certain stage”, the property rights in  $Q$  would come to represent “fetters” to the productive forces  $H$  and would need to be “burst asunder” and replaced by  $P$ . But exactly why, when, or how is not exactly clear.



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