

A Reappraisal of Jevons's Thought on Labour*

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Abstract:

This paper re-examines W. S. Jevons's thought on labour and elucidates its uniqueness and limitations.

Jevons's subjectivist approach penetrated his theory of labour, and he regarded pain as the measure of labour. In the first edition of *The Theory of Political Economy*, Jevons provided insights that could lead to the negation of the market determination of wages and other work conditions, thus offering a rationalisation of the intervention of socio-political factors in labour exchange. In doing so, Jevons distinguished himself from other neoclassical economists.

However, Jevons lacked self-knowledge of the feature of his own theory. In addition, he failed to provide a deeper perception of the distinctiveness of labour exchange rooted in the variability of labour that depends on the worker's identity and the constraints imposed by the employer. Consequently, instead of advancing the anti-neoclassical perspective implied in his arguments, Jevons argued for the market determination of wages, similar to that of prices of non-human productive services and products, in the second edition of *The Theory of Political Economy* and other writings.

Jevons's opinions on real issues concerning industrial relations also demonstrated ambivalence. Jevons approved of union activities to shorten labour time and conceded the efficacy of legal measures in settling labour disputes. At the same time, he clung to his advocacy of the market determination of wages and harshly criticised strikes for a pay rise. Furthermore, Jevons's dichotomy of 'economic' and 'social' matters, expressed in *The State in Relation to Labour*, excluded labour-capital class strife and other socio-political factors from the scope of his economic study.

This paper makes a thorough reappraisal of Jevons's thought on labour, which has traditionally been construed as a transitional product from classicism to neoclassicism.

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I Introduction

The objective of this paper is to re-examine William Stanley Jevons's thought on labour, and to illuminate both its hallmark, which could lead to an anti-neoclassical perspective, and Jevons's weak sense of it with the resulting inconsistencies and ambivalence of his arguments.

Jevons (1835–1882) has been positioned as one of the triumvirate of the Marginal Revolution along with Carl Menger and Léon Walras. However, unlike Menger and Walras, Jevons passed away before he could witness the formative period of marginal productivity theory, which started from the last decade of the nineteenth century onwards. As a result, many critics underscore the defects or transitional elements in Jevons's theory of production and distribution and hence, in his thought on labour, in the light of later developments by neoclassical economists. For instance, George J. Stigler ([1941] 1968, 13) asserts: '[H]is [Jevons's] theory of production and distribution . . . is fundamentally classical.' While recognising Jevons's pioneering contribution to the marginal productivity theory of capital interest, Stigler presents a low appraisal of his theory of labour by stating that '[I]n the absence of a general investigation of the interrelations of costs and value no light is shed on the problem of the laborer's reward in an enterprise economy' (see Stigler [1941] 1968, 26–35). Lionel Charles Robbins (1936, 8) and Maurice Dobb (1973, 166–89) make similar evaluations.

Ian Steedman also points out the ambiguities in Jevons's theory of wages but notes that '[I]n the 1879 Preface [to the second

edition of *The Theory of Political Economy*] Jevons did in effect proclaim a ramified marginal productivity theory of rents, wages, quasi-rents and the rate of interest' (see Steedman 1997, 59–61). Mark Blaug (1996, 301) also makes a positive comment on Jevons as a pioneer in the general application of the marginal productivity analysis to all factors of production.

Differing from those writers that estimate Jevons's theory of production and distribution and his thought on labour in line with the development of the neoclassical doctrine, Ugo Pagano (1985, 76–115) pays attention to a feature of Jevons's thesis that most neoclassical economists overlooked: the consideration given to the direct impact of labour on the worker's welfare. In this respect, Pagano evaluates Jevons as having an affinity with Adam Smith and Karl Marx. David A. Spencer (2004a, 388–91; 2004b, 449–51; 2009, 71–75) also attaches importance to Jevons's emphasis on the qualitative content of work along with its effect on the worker's utility and labour supply. From this standpoint, Spencer (2009, 75–93) expounds the conflict between the Jevonian pain or real cost theory of labour espoused by Alfred Marshall and Francis Y. Edgeworth and the Austrian opportunity cost theory devoid of the characteristic observed in Jevons's discussions on labour, which resulted in the adoption of the latter principle and the loss of the former angle in modern mainstream economics.

Based on the criticism of the traditional assessments of Jevons given primarily in terms of progress in the neoclassical tenet and the acceptance of the revaluation by Pagano and Spencer, this paper attempts to re-

view the overall structure of Jevons's thought on labour and clarify its uniqueness. It would appear indisputable that Jevons's performance remains significantly rough by the standards of the typical neoclassical theory of production and distribution (see, for example, Inoue 1987, 167–70). However, this paper investigates Jevons's views on labour from a different perspective. As a result of his close adherence to his subjectivist approach, Jevons gave perceptive insights concerning the particular characteristics of labour exchange. This contrasts markedly with the later unfolding of neoclassical economics, in which the uniform theory of productive services came to be constructed by placing exchange of labour and that of non-human services in the same category. This unification served the basis for the neoclassical principle of labour exchange, which assumes that wages, labour time, and other work conditions are determined through the market adjustment of the demand for and supply of labour on each employer's and worker's maximisation behaviour. Jevons's arguments could lead to a denial of this principle by invalidating its theoretical ground and therefore, to the conclusion that socio-political factors necessarily intervene in the determination of the work conditions in general.

However, Jevons lacked self-knowledge of this feature of his own thinking. Despite his practical observations on actual labour problems, He clung to his advocacy of the market determination of wages, thereby overshadowing the above anti-neoclassical phase of his theory of labour. This paper also refers to these limitations of Jevons.

Section II deals with Jevons's discussions mainly in the first edition of *The Theory of*

Political Economy (hereafter TPE1) and clarifies the uniqueness of his theory of labour. Section III focuses on the second edition of *The Theory of Political Economy* (hereafter TPE2). Here, Jevons's limits exhibited in his argument for the market determination of wages are explained. Section IV treats *The State in Relation to Labour* (hereafter SRL) and other writings of Jevons on real problems concerning industrial relations. This section shows Jevons's ambivalence on the issues, which shares grounds with the conflict of angles in his theoretical investigations. Section V concludes the paper.

II Jevons's Theory of Labour: Its Uniqueness in the Transition from Classicism to Neoclassicism

It may safely be said that Jevons's theory of labour underwent few drastic changes through his career as an economist. It is therefore possible to discuss its features chiefly by referring to TPE1 (1871) in this section and then focus on TPE2 (1879), the last edition of Jevons's main work in his lifetime, with some important developments in the next section.

Jevons's investigations into labour start from his attack on the classical doctrine of labour exchange, or the wage fund theory. In the preface to TPE1, Jevons writes:

This [wage fund] theory pretends to give a solution of the main problem of the science—to determine the wages of labour; yet, on close examination, its conclusion is found to be a mere truism, namely, that the average rate of wages is found by dividing the whole amount appropriated to the payment of wages by the number of those be-

tween whom it is divided. (Jevons 1871, vii)

The prime reason for Jevons's criticism of the principle of the wage fund theory as 'a mere truism' is that it ignores the differences in labour and rewards among workers. At the close of Chapter IV of TPE1, Jevons argues that:

[L]abour is itself of unequal value. Ricardo, by a violent assumption, founded his theory of value on quantities of labour considered as one uniform thing. He was aware that labour differs infinitely in quality and efficiency, so that each kind is more or less scarce, and is consequently paid at a higher or lower rate of wages. He regarded these differences as disturbing circumstances which would have to be allowed for; but his theory rests on the assumed equality of labour . . . I hold it to be impossible to compare *à priori* the productive powers of a navvy, a carpenter, an iron-puddler, a schoolmaster, and a barrister. (Emphasis in original; Jevons 1871, 160–61)¹⁾

This stress on the heterogeneity of the type or quality of labour provides a ground for Jevons's refutation of the Ricardian theory of value. To appreciate the hallmark of Jevons's theory of labour, an examination of his views on the quantitative concept of labour is also needed.

Jevons argues that labour contains two dimensions. One dimension is 'duration,' that is, labour time. Yet, he emphasises the difference in the other dimension, 'intensity': 'In the same time a man may walk a greater or

less distance; may saw a greater or less amount of timber; may pump a greater or less quantity of water; in short, may exert more or less muscular force' (see Jevons 1871, 165). In his letter to John Lancelot Shadwell, dated 17 October, 1872, Jevons writes that '[L]abour is excessively variable in painfulness, and the length of time is not sufficient to measure the amount of labour' (see Jevons 1977b, 253).

Thus, Jevons concludes that labour time cannot be an adequate measure of labour. Then what should measure the amount of labour? To this question Jevons answers: '[W]e must . . . measure labour by the amount of pain which attaches to it.' Indeed, Jevons begins Chapter V of TPE1, which is devoted to discussions of labour, with this definition: 'Labour is the painful exertion which we undergo to ward off pains of greater amount, or to procure pleasures which leave a balance in our favour' (see Jevons 1871, 162, 164; see also Jevons 1879, 193).

In this manner, Jevons's subjectivist viewing of economics as 'a Calculus of Pleasure and Pain' even penetrates his quantitative notion of labour (see Jevons 1871, vii).²⁾ Meanwhile, he states that 'We may approximately measure the intensity of labour by the amount of physical force undergone in a certain time.' However, he does not generalise the idea that the amount of labour can be measured by objective values. He continues that '[I]t is the pain attending that exertion of force which is the all-important element in Economy' (see Jevons 1871, 191–92). Thus, in the words of Margaret Schabas (1990, 45), Jevons turns out to suppose that 'Although the duration of labour may be readily measured, the intensity, as in

the case of utility, can only be known subjectively.' This may be partly because, unlike most classical economists, who focused on manual labour, Jevons regards services and intellectual labour as having the same importance as manual labour. He criticises the classical demarcation between productive and unproductive labour, by arguing that 'All labour is directed to the production of utility—of useful or agreeable effect—an hedonic balance. It is an entirely secondary, if not accidental question whether material commodities are employed at all' (see Jevons 1977a, 52–53; 1905, 87–88; see also Schabas 1990, 43). This observation is more applicable to today's economy, where the service industry has become increasingly dominant. Hence, Jevons's quantitative notion of labour cannot easily be rejected as one-sided.

Jevons remarks that labour can be attended by pleasure or positive utility.³⁾ However, he believes that this case is limited, and labour is generally and practically assumed to be an activity involving pain or disutility (see Jevons 1871, 166; 1977a, 18).

In Chapter I of TPE1, Jevons writes:

The susceptibility of one mind may, for what we know, be a thousand times greater than that of another. But, provided that the susceptibility was different in a like ratio in all directions, we should never be able to discover the profoundest difference. Every mind is thus inscrutable to every other mind, and no common denominator of feeling is possible. (Jevons 1871, 21)

Thus, Jevons negates the interpersonal comparability of feeling. He also notes that:

I have granted that we can hardly form the conception of a unit of pleasure or pain, so that the numerical expression of quantities of feeling seems to be out of the question. (Jevons 1871, 19)

I should not for a moment think of claiming for the mind any accurate power of measuring and adding and subtracting feelings. (Jevons 1871, 20)

These excerpts demonstrate that one can scarcely possess the ability to cardinally measure one's own feelings, and much less, those of others.

Jevons's observation on the perceptibility of feeling has a crucial significance to his theory of labour. He recognises that because of the variability in labour intensity, labour time is not an adequate measure of labour. Hence, this cannot be an appropriate trading unit in the labour market either; for, as its requisite, each time-unit of labour must be assumed to provide the same service. Consequently, in accordance with Jevons's thinking, what remains, as a candidate for the trading unit, is the pain accompanying labour. However, while a trading unit must be plainly such that both the seller and the buyer can perceive it, Jevons's observation suggests that even the worker can hardly gauge her/his own pain and that such measurement completely exceeds the employer's capability. Thus, these discussions lead to the conclusion that there exists no appropriate trading unit of a labour service as a *sine qua non* for the proper functioning of the labour market. Indeed, this peculiarity of labour exchange is not found in the exchange of land and capital goods services. The trading unit

of the latter can be well defined on the basis of the physical attributes of the corresponding land or capital goods, because of the fact that each (piece of) land or capital good with the same physical attributes provides exactly the same service.

In Chapter V of TPE1, Jevons presents a modelling account of the concept of the ‘balance between need and labour,’ or the worker’s utility maximisation (see Jevons 1871, 165–74).⁴⁾ Here, he makes an explanation to the effect that a man works up to the point where the marginal pain accompanying his labour becomes equal to the utility that he gains from the marginal product. Jevons assumes that the marginal pain of labour first decreases, but thereafter increases persistently with the duration of labour time, whereas the marginal utility—or the ‘final degree of utility’ in Jevons’s terminology—of the product decreases monotonically.

Blaug (1996, 297) remarks that ‘Jevons’s theory of labour supply is his most important contribution to the main stream of neo-classical economics.’ Moreover, White (1994, 435–36) supposes that Jevons’s explanation above is a depiction of a labour market. Indeed, its gist could be conceived to be equivalent to what John Maynard Keynes refers to as the second classical postulate of employment.

However, Jevons makes no reference to the demand for labour or the employer in the explanation under review. Hence, it may safely be said that the model is not so much of an enterprise economy as of a Crusonian life (see Stigler [1941] 1968, 29).⁵⁾

Immediately after the previously quoted passage, at the close of Chapter IV of TPE1, Jevons continues: ‘Accordingly, it will be

found that not one of my equations represents a comparison between one man’s labour and another’s. The equation, if there is one at all, is between the same person in two or more different occupations’ (see Jevons 1871, 161). Walras assumes a market for each type of labour and formulates its equilibrium equation (see Walras 1988, 301–05). For all Jevons’s emphasis on the heterogeneity of labour, he does not make such an attempt. The equations of labour that he presents are restricted to those regarding the worker’s subjective equilibrium (see Jevons 1871, 179–83). Thus, the worker assumed in Chapter V of TPE1 is fundamentally self-employed and, to use Black’s words, ‘What this chapter [Chapter V] affords is not a theory of wages but a theory of cost of production in terms of disutility’ (see Black 1970, 19).

Peart (1996, 132) states: ‘Jevons never managed to relate the production and exchange chapters of *TPE* [*The Theory of Political Economy*] satisfactorily: the treatment of production remains distinctly separate from the treatment of exchange in that the analysis of production focused on partial equilibrium situations, while . . . the theory of exchange is a general equilibrium analysis.’ However, it is important to understand that this fact is not so much an outcome of Jevons’s theoretical immaturity as a necessary consequence of his arguments on labour. The arguments could rule out the integration of Jevons’s theory of production with that of exchange by deducing the impracticability of the proper functioning of the labour market as a result of the difficulty of finding an appropriate trading unit of labour service. In other words, Jevons’s views based on ‘a theo-

ry of cost of production in terms of disutility' could lead to the negation of the market determination of work conditions including wages and, subsequently, to the invalidation of the general equilibrium analysis covering labour markets. Hence, the following comment by Pagano is to the point:

[T]he kind of society he [Jevons] has in mind is characterized by its possessing a market only for the products of labour and not for labour itself . . . labour is considered by Jevons as a 'subjective feeling.' Therefore only the 'subjects' (i.e., the workers) can decide how much to work, how to organize, and how to allocate their labour, for the very reason that they are the only ones who can know anything about their own subjective feelings. (Pagano 1985, 80–81)

Thus, the uniqueness of Jevons's theory of labour is clarified. Jevons's age saw the transition from classicism to neoclassicism in orthodox economics, and his economics possesses such transitional characters in various aspects. However, Jevons's theory of labour has more value than that. Both the labour exchange doctrine of classical economics before Jevons and that of neoclassical economics after him embraced the market determination of work conditions. The wage fund theory of the former represented it in terms of the determination of the wage level by the proportion of the aggregate of the capitalists' advance on means of living to the labour population. Yet, this theory failed to take into consideration the labour supply and the worker's motivation for it at a micro level. Jevons cast light on this neglected issue

and explored it much more thoroughly than his 'comrades' like Menger and Walras by stressing the impact of labour *per se* on the worker's welfare.⁶ From this enquiry, Jevons derived arguments about the particular characteristics of labour exchange that could lead to the negation of the proper functioning of the labour market and therefore, the market determination of wages and other work conditions.

Like Jevons, other early neoclassical economists also criticised the wage fund theory. However, unlike him, most of them did not pursue in-depth investigations into the substance of human labour. This made them neglect or ignore the peculiarities of labour exchange and equate its nature with the nature of the exchange of land and capital goods services.⁷ Consequently, they subsumed labour exchange under their general market theory based on the marginal and maximising principles. This theory posits that the wage rate is determined such that it equals the marginal productivity of labour or the extra output gained from the added labour input. Here, the definition of a unit of labour input as not only independent of output but also cognisable for both the worker and the employer is a vital prerequisite for this determination in the market place. If the neoclassical economists had given serious consideration to the difficulty of finding such an appropriate unit of labour input as was implied by Jevons's discussions, they would have been obliged to question the legitimacy of their own theories supporting the market determination of wages and other work conditions. For them, this was too pernicious a reflection that could undermine the whole orthodox tenet. Thus, despite Jevons's

solid reputation as a leading figure in the Marginal Revolution, his insights concerning the particular characteristics of labour exchange were scarcely carried over in the subsequent development of neoclassical economics.

However, Jevons himself was also not very aware of the features of his own arguments on labour. Hence, he did not deny the market determination of wages and other work conditions and left a vague theory of labour exchange in TPE1. The next section will show that when Jevons came to discuss wages in support of their market determination in later years, the insistence collided with his explanations in the chapter on labour in TPE2, whose substance differed little from that in the same chapter of TPE1.

III Developments in the Second Edition of *The Theory of Political Economy* and the Limits of Jevons's Theory of Labour

TPE2, which was published in 1879, about three years prior to Jevons's death, is the last edition of *The Theory of Political Economy* in his lifetime. Hence, this edition may be considered to express most of his final thoughts.

The preface to TPE2 contains most of the important new developments in Jevons's theory of labour. As a typical illustration, Jevons writes:

Every one gets the most which he can for his exertions; some can get little or nothing, because they have not sufficient strength, knowledge, nor ingenuity; others get much, because they have, comparably speaking, a monopoly of certain powers.

Each seeks the work in which his peculiar faculties are most productive of utility, as measured by what other people are willing to pay for the produce. Thus wages are clearly the effect not the cause of the value of the produce. But when labour is turned from one employment to another, the wages it would otherwise have yielded must be debited to the expenses of the new product. Thus the parallelism between the theories of rent and wages is seen to be perfect in theory, however different it may appear to be in the details of application. Precisely the same view may be applied, *mutatis mutandis*, to the rent yielded by fixed capital, and to the interest of free capital. (Emphasis in original; Jevons 1879, lv)

In TPE1, Jevons did not articulate his idea of the general rule of wages. However, the above passage expressly states the notion that wages are determined on the same principle as rents, adding that this principle also holds for the remuneration of capital. The rent doctrine that Jevons espoused was the Ricardian theory of differential rent (see Jevons 1871, 198–211; 1879, 228–40). Jevons observes that 'Rent [in the Ricardian system] . . . is represented as the effect not the cause of high value; wages on the contrary are treated as the cause, not the effect' (see Jevons 1879, liii). Arguing that 'wages are clearly the effect not the cause of the value of the produce,' Jevons maintains the error of Ricardian wage theory and the applicability of its rent theory to wages.

In this manner, Jevons denies the value causality from labour to product as supposed by the mainstream classical economists and justifies the reverse, that is, from product to

labour, whose likeness he sees as implied in the Ricardian theory of rent. Furthermore, Jevons maintains that the causal relationship flowing from the value of output to that of inputs generally holds true, whether the latter are services from labour ability, or land, or capital goods. Thus, as Menger already did perspicuously in the first edition of *Grundsätze der Volkswirtschaftslehre* of 1871, Jevons, too, was ready to break away from the classical doctrine of distribution characterised by the application of different rules to the determination of wages, rent, and profit, and to shape a neoclassical one by formulating a uniform theory of their determination on the principle of the value causality from products to productive services (from 'goods of lower order' to 'goods of higher order' in Menger's nomenclature) (see Menger [1871] 1868, 138–52). As Walras suggested, this development may be regarded as a logical result of Jevons's subjectivist approach to value (see Inoue 1987, 168–69).⁸⁾

Moreover, Jevons states that 'It is only when separate owners of the elements of production join their properties, and traffic with each other, that distribution begins, and then it is entirely subject to the principles of value and the laws of supply and demand' (see Jevons 1879, li). Also, in *Political Economy*, published in 1878, Jevons remarks:

[R]ates of wages are governed by the same laws of supply and demand as the prices of goods. (Emphasis in original; Jevons 1878, 57)

As already mentioned, Steedman reads a de facto proclamation of 'a ramified marginal

productivity theory of rents, wages, quasi-rents and the rate of interest' into the preface to TPE2. As Steedman recognises, Jevons ended up not explaining in detail his theory of wages on the basis of the above notion (see Steedman 1997, 59–61). Nevertheless, the simplistic identification of Jevons's theory of wages with the neoclassical marginal productivity theory is not pertinent. Many writers have explained the affinity between the Ricardian theory of differential rent and the neoclassical marginal productivity theory (see, for example, Blaug 1996, 75–84). However, a clear distinction should be drawn between the former, which grounds rents on the qualitative differences of land, and the latter, which assumes a successive input of identical units of a productive service and concludes that their remuneration is equal to the product added from the final unit input.⁹⁾ As the previously quoted passage from the preface to TPE2 suggests, Jevons attaches importance to the interpersonal differences in the quality of labour. Regarding this, Jevons states that 'In theory the labourer has a monopoly of labour of each particular kind.' Thus, Jevons seems to regard wages as a kind of quasi-rent, paid according to each worker's labour productivity (see Jevons 1879, l–lvi, 289–96).¹⁰⁾ Here, the above-mentioned feature of neoclassical marginal productivity theory is not found.

Meanwhile, it should be noted that, as early as TPE1, Jevons gave an account that is equivalent to a marginal productivity theory of wages in the chapter on rent (Chapter VI). Here, Jevons provided a modelling exposition of land cultivation by a successive input of a worker's labour and defined dx/dl as 'the ratio of produce, or the productiveness

of labour, as regards the last increment of labour applied.' Jevons further argued that dx/dl diminishes after a certain value of output x and that 'The whole labour is l , so that if the recompense be equal over the whole, the result would be $l \cdot dx/dl$.' (see Jevons 1871, 204–11).

In this fashion, Jevons, in effect, specified the concept of the marginal productivity of labour, diminishing returns, and the equalisation of the wage rate with the marginal product of labour (see Black 1970, 26; Matwari 1997, 186–87). The same explanation is also made in TPE2 (see Jevons 1879, 233–40). Nevertheless, unlike in Jevons's treatment of capital interest, the marginal productivity theory did not take root in his discussion on wages. This is not groundless. The amount of labour l in the modelling explanation is that of a worker's pain. As already mentioned, Jevons reasonably denied the human ability to measure others' feelings. Thus, l is disqualified as a trading unit, and therefore, the wage determination here proves to be no more than imaginary. Accordingly, if Jevons had tried to generalise the idea in the above modelling exposition, he would have revealed a serious self-contradiction. From Jevons's avoidance of this failure, it can be inferred that, upon his own arguments on labour, he was conscious of the difficulty in the application of the marginal principle-based theory of market to labour exchange to some degree.

Nevertheless, even if not basing his thesis on the marginal productivity theory, Jevons comes to argue that, not only do wages correspond to labour productivity just like rents, but also that their determination follows 'the same laws of supply and demand

as the prices of goods.' That is, Jevons advocates the market determination of wages.

However, the chapter on labour (Chapter V) in TPE2 presents few momentous changes in Jevons's views compared with the same chapter in TPE1.¹¹⁾ In the former, Jevons scarcely incorporates his ideas on wages as set forth in the preface to TPE2 and the features of his arguments on labour in TPE1 remain intact (see Jevons 1879, 181–227). Thus, the employment relationship is still not referred to in Chapter V of TPE2. Rather, Jevons's explanations here, with the insights concerning the particular characteristics of labour exchange, also could lead to the negation of the market determination of wages and other work conditions. This is at variance with the import of the preface in TPE2 and suggests that Jevons was yet to develop the latter idea sufficiently to embody it in the main text. On the other hand, as is clearly shown in the previously quoted passage, especially in such phrases as 'when labour is turned from one employment to another, the wages it would otherwise have yielded must be debited to the expenses of the new product,' Jevons brings forward an opportunity cost theory of labour in the preface. Indeed, he goes so far as to state that 'There is no such thing as absolute cost of labour; it is all matter of comparison' (see Jevons 1879, 1v). This clashes with his pain cost theory that underlies the arguments in Chapter V. Thus, Jevons includes the two conflicting standpoints on labour in TPE2 with no account of the discrepancy.

More importantly, the above contradiction in TPE2 can be ascribed to the collision between the consequence of Jevons's subjectivist approach to value (the preface) and

that to labour (Chapter V). Jevons's subjectivism, or rather subjectivism in general, entails such antinomy, although Jevons himself seems to be hardly aware of it. Most subjectivists, including Menger and Walras, did not face the problem because, unlike Jevons, their focus was exclusively on value.

In addition, Jevons does not appear to pay proper attention to the following peculiarities of labour exchange. The characteristics of labour are not rooted merely in its qualitative differences among workers. Owing to the inalienability of labour ability from its possessor, the type and intensity of service from a time-unit use of the worker's labour ability can vary depending on her/his preference. In labour exchange, the employer also strives to extract the labour service to her/his advantage. Hence, as Jevons's discussions imply, the substance of labour actually performed is generally indeterminable in the market because of the inadequacy of labour time as a unit of labour and the impracticability of positing labour service itself as a trading unit. Consequently, the worker–employer power struggle, which will not remain individual but develop into labour–capital class strife, and other socio-political factors may inevitably enter into the prime determinants of wages and other work conditions. Marx's distinction between labour power and labour exhibits these particular characteristics of labour exchange (see Okada 2011, 52–56).

Jevons indeed stresses the variability of labour intensity or pain. However, it may well be said that this conception is grounded on physiological knowledge of human exertions, rather than on an understanding of the worker's identity and the constraints imposed

upon it by the employer. While emphasising the variability in the worker's marginal pain with the duration of labour time, Jevons does not give due consideration to this variability at the same point of labour time or the bodily shift of the marginal pain schedule (see, for example, Jevons 1879, 184–89, 221–27).¹²⁾ If it is left unconsidered, the entire service from given work hours, despite hourly differences in pain, may be regarded as fixed. Consequently, the exchange of labour services may be interpreted on the same footing as that of land and other non-human services, which is what Jevons does.

Thus, Jevons did not acquire a deeper penetration of the distinctiveness of labour exchange that rules out the market determination of wages and other work conditions. As a result, in lieu of developing the anti-neo-classical phase of his thought on labour, Jevons held fast to the orthodox thinking. The accentuation on the value causality from products to productive services and on the determination of the price of productive services, including labour, by the typical demand–supply interplay, in the preface to TPE2 and other late writings of Jevons, was to ripen into the marginal productivity theory, the formation of which got into full swing after his death.

IV Ambivalence in Jevons's Opinions on Industrial Relations and His Dichotomy of 'Economic' and 'Social' Matters

It has been explained that Jevons's theory of labour has two antithetical angles. On the one hand, as can be seen in the chapter on labour in TPE1 and TPE2, there was his insight on the peculiarities of labour exchange

that could lead to the negation of the market determination of work conditions including wages. On the other, as in the preface to TPE2 and other writings, there was his advocacy of the market determination of wages, similar to that of the price of non-human productive services and products. Conflicting facets are also observed in his opinions on real problems concerning industrial relations.

Takutoshi Inoue (1987, 204–08, 221–23) underlines Jevons's shift from an 'old and obstinate proponent of laissez-faireism' to a 'neo-individualist' accepting state intervention, with 1870 as its watershed. T. W. Hutchison (1978, 96–102) also presents a similar view.

Regarding Jevons's stance on industrial relations, an event that symptomatised a similar change occurred as early as 1866. A union leader reproached Jevons's introductory lecture to the course of Cobden Lectures in Owens College on 12th October of that year for its partisanship. The leader criticised Jevons's attitudes in the lecture, such as his reticence about lockouts and political actions by employers, in sharp contrast to his bitter denunciation of strikes, and his ignorance of the truth that unionisation was the only resort that enabled workers to be 'free to accept or reject the terms offered them by one employer,' owing to the great disproportion in power. Thus, the leader wrote: 'I felt . . . that the address of Professor Jevons was calculated to aggravate that distrust of economical science amongst working men . . . It was essentially a plea for the employer, to the detriment of the employed' (see Jevons 1977b, 129–31, 132–36).

Jevons answered this censure by insisting on his impartiality (see Jevons 1977b,

131–32, 137–38). Meanwhile, the following passage in Jevons's journal, dated 1st November, 1866, obviously manifests his disquiet concerning this matter:

My Introductory lecture to the course of Cobden lectures, has brought some little criticism from the Radicals upon me. I am often troubled and now more than ever to know how to reconcile my inclinations in political matters. What side am I to take one—the other—or can I take both? I cannot consent with the radical party to obliterate a glorious past—nor can I consent with the conservatives to prolong abuses into the present. (Jevons 1972, 207–08)

The ambivalence expressed here characterises Jevons's subsequent positions on problems regarding industrial relations.

Thereafter, Jevons often offered favourable comments on union activities. He even delivered a lecture requested by the Trades Unionists' Political Association in 1868 (see Jevons 1883, 101–21). Thus, to borrow Keynes's words, Jevons moved 'just a little to the Left' (see Keynes [1933] 1972, 144). However, Jevons steadily maintained that the determination of wages should be left to the market and opposed striking for higher pay as 'an act of folly' (see, for example, Jevons 1977a, 74; 1878, 64–70; 1883, 110–15).

SRL, Jevons's main work on industrial relations and their legislative regulations, published in June 1882 just before his death, integrates his previous views on the subjects and, at the same time, exposes his dilemma regarding them.¹³⁾

In the preface and in Chapter I, respectively, Jevons remarks that:

The all-important point is to explain if possible why, in general, we uphold the rule of *laissez faire*, and yet in large classes of cases invoke the interference of local and central authorities. This question involves the most delicate and complicated considerations, and the outcome of the inquiry is that we lay down no hard-and-fast rules, but must treat every case in detail upon its merits. (Emphasis in original; Jevons [1882] 1910, vii)

The first step must be to rid our minds of the idea that there are any such things in social matters as abstract rights, absolute principles, indefeasible laws, inalterable rules, or anything whatever of an eternal and inflexible nature. (Jevons [1882] 1910, 6)

In this manner, Jevons professes to take a scepticism-based pragmatic position on 'social' issues, such as many problems in industrial relations. Friedrich A. Hayek (1973, 59) regards this statement as 'the end of liberal era of principles.' Robbins (1936, 14–17) also criticises its negative stance on rules.

Indeed, Jevons's judgements on labour problems vary depending on the case. For instance, he argues in favour of legislative regulations for the protection of female workers raising children (see Jevons [1882] 1910, 71–77; see also Jevons 1883, 156–79). On the other hand, he argues against regulations to shorten adult male workers' labour time. However, at its foundation, Jevons thought that union movements, to a considerable extent, had already promoted such a reduction. In fact, he observes that each individual factory worker is generally not in a position to

choose his own labour time. In this regard, Jevons notes that:

All [factory workers] must conform to the wishes of the majority, or the will of the employers, or the customs of the trade. I see nothing, therefore, to forbid the State interfering in the matter, if it could be clearly shown that the existing customs are injurious to health, and that there is no other probable remedy. (Jevons [1882] 1910, 67)

Thus, Jevons approves, even encourages, union activities for a reduction in labour time and improvement in work environments, as well as state interventions to impose them, if necessary. On the whole, Jevons is sympathetic to the British Factory Acts enacted in his age (see Jevons [1882] 1910, 54–89; see also Jevons 1878, 63–64; 1883, 106–10).¹⁴⁾

However, Jevons contends that 'Wages and prices are governed by . . . the laws of supply and demand' and objects to union interferences, especially strikes, for a pay rise. He argues that, even if unions win wage increases temporarily, employers will mark up product prices to secure their profits. Hence, the burden is imposed not on employers, but on consumers, most of whom are workers: '[T]he supposed conflict of labour with capital is a delusion. The real conflict is between producers and consumers.' Thus, Jevons concludes that '[I]t is quite impossible for trades unions in general to effect any permanent increases of wages, and that success in maintaining exclusive monopolies leads to general loss and injury to the community in general' (see Jevons [1882] 1910, 93–112). In the lecture requested by the Trades Unionists'

Political Association, Jevons maintained that the union should concede a wage cut for a reduction in work hours (see Jevons 1883, 106–07).

Nevertheless, Jevons could not ignore the difficulty in settling actual labour disputes, particularly those over wages. ‘The great evil of the present day is the entire disunion of the labourer and the capitalist’ (see Jevons [1882] 1910, 167). In his lecture in Owens College on 28th January 1876, Jevons also remarked that ‘[T]here is no absolute remedy for the troubles of capital and labour’ (see Jevons 1977a, 79).

Accordingly, Jevons discusses practical proposals. In SRL, too, Jevons, who supports management–labour cooperation, advances the Industrial Partnership, a system of profit-sharing between the employer and the worker. However, Jevons recognises its immaturity (see Jevons [1882] 1910, 146–50: see also Jevons 1883, 122–55; 1977a, 74–77; 1977b, 152–54). As a result, he comes to admit the effectiveness of legal measures:

Though it was held that trades unions ought not to settle the course of trade, yet it was argued that courts of conciliation, if not of arbitration, might decide many matters which, according to the pure principles of political economy, ought to be left to the action of the laws of supply and demand. (Jevons [1882] 1910, 170)¹⁵⁾

Jevons states that ‘[A] trade dispute, especially when it has reached the acute phase of a strike, has little or nothing to do with economics’ (see Jevons [1882] 1910, 159). This may imply that, in Jevons’s conception, labour exchange as an object of economic

science is limited to the worker–employer interplay in the market place and the determination of wages and other work conditions through it, and the operation of socio-political factors is excluded from the scope. However, in order for this dichotomy of ‘economic’ and ‘social’ matters to be convincing, Jevons needs to theoretically expound the mechanism behind the determination of the work conditions that would not necessitate the intervention of socio-political factors. This keeps all the more to his insistence that the determination of wages ought to be left to the market and unions should not resort to industrial actions on the issue. It has been seen that, in SRL, Jevons attempts to theoretically demonstrate the futility of the union’s struggle for a pay rise, leaving the justice of the demonstration out of the question. Yet, in spite of his stress on the market determination of wages, Jevons does not detail its mechanism anywhere in SRL or in his other writings.

Indeed, Jevons’s explanations as to wages in the preface to TPE2 were limited to a rough sketch. In this respect, it is hard to imagine that he made marked progress in his remaining few days after that. Additionally, like in TPE1, Jevons did not even refer to the employment relationship in the chapter on labour (Chapter V) in TPE2. Hence, he must have been conscious of the difficulty of theorising the determination of wages to some extent. (In contrast, Jevons already made detailed explanations of rent and capital interest in TPE1). Furthermore, the arguments in Chapter V of TPE2, like those in TPE1, could lead to the negation of the market determination not only of labour time but also of wages and therefore, to the conclusion

that labour–capital class strife and other socio-political factors unavoidably enter into their prime determinants. In this section, it has been observed that Jevons recognises the numerous socio-political interventions in industrial relations.

Thus, Jevons's dichotomy of 'economic' and 'social' matters as expressed in SRL, which was to characterise neoclassical economics, is at odds with the actual conditions of his own thinking. Nevertheless, it may be fair to say that, since Jevons consistently believed that the ideal of economics was an 'exact' mathematical science, the dichotomy, if not articulated, substantially underlay his theoretical investigations as well as his opinions on real issues (see, for example, Jevons 1871, vii–viii; 1879, xvii–xviii, xxii, 3–5). This rationalises the fact that, while bringing forward discussions concerning the peculiarities of labour exchange that could lead to an anti-neoclassical perspective, Jevons did not follow up the enquiry. Instead, he clung to the orthodox view by advocating the market determination of wages, similar to that of prices of non-human productive services and products. Accordingly, the conflicts of angles in TPE2 and SRL have common grounds.

Actually, Jevons himself also exhibited dissatisfaction with the performance of SRL by mentioning that 'the results obtained are hesitating and conflicting, if not positively contradictory' in the concluding remarks chapter of the book (see Jevons [1882] 1910, 169). At least, he made no serious attempt to incorporate 'social' matters into the scope of his economic analysis to break this impasse.

V Concluding Remarks

This paper re-examined Jevons's thought on

labour and elucidated its uniqueness and limitations.

By dint of the application of his subjectivist approach to the theory of labour, Jevons, in TPE1, offered illuminating insights concerning the peculiarities of labour exchange that could lead to the negation of the proper functioning of the labour market and therefore, the market determination of wages and other work conditions. This allows the inevitable intervention of labour–capital class strife and other socio-political factors in labour exchange. Hence, it is hard to support John F. Henry's judgement that Jevons took advantage of the utility theory against the working-class movement in the defence of the capitalist order (see Henry 1990, 193). In fact, Jevons and Marx could share their theoretical implications of labour exchange, in spite of the difference in their approach.

However, Jevons lacked self-knowledge of the feature of his own theory, and he fell short of truly perceiving the distinctiveness of labour exchange rooted in the variability of labour that is contingent on the worker's identity and the constraints imposed upon it by the employer. Consequently, instead of advancing the anti-neoclassical perspective implied in his arguments, Jevons, in TPE2 and his other writings, maintained the orthodox thinking and argued for the market determination of wages, similar to that of rents and yields on capitals. This standpoint can be interpreted as a logical result of his subjectivist approach to value, which was to develop into the marginal productivity theory.

A similar limit is also observed in his opinions on the real issues for industrial relations. While approving union activities for

reduction in labour time and conceding the efficacy of legal measures for a solution to actual labour disputes, Jevons clung to his advocacy of the market determination of wages and harshly criticised workers going on strikes for a pay rise. Furthermore, notwithstanding his recognition of the difficulty of settling labour problems without disputes, Jevons's dichotomy of 'economic' and 'social' matters, as expressed in SRL, excluded labour-capital class strife and other socio-political factors from the scope of his economic study. Thus, the conflicts of perspectives in Jevons's theoretical investigations and in his opinions on real issues have common grounds.

Given this, Jevons's anti-neoclassical angle was overshadowed by his orthodoxy-oriented arguments and was insufficiently passed down to subsequent economists. Hence, Jevons's thought on labour has traditionally been construed as a transitional product from classicism to neoclassicism.

The studies by Pagano and Spencer brought some fresh air into that conventional evaluation by casting light on Jevons's focus on the link between the work content and the worker's welfare, which most of Jevons's contemporary and subsequent neoclassical economists lacked.

This paper has also reviewed the overall structure of Jevons's thought on labour and made clear that it has aspects that could even lead to a weighty refutation of neoclassicism. Thus, this paper presses for a thorough reappraisal of Jevons's speculations, which have broad potential, despite their limits.

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Notes

- 1) On the other hand, Jevons follows the classical notion that assumes capital to consist of, or to be reducible to, the advance on the workers' means of living or wages (see, for example, Jevons 1871, 212–20; 1878, 42–48). Differing from the classical wage fund theory, however, Jevons introduces the concept of variability in output with changes in the period of production and grounds interest on it (see, for example, Jevons 1871, 213–53). Here, Jevons's theory of capital and interest harbingers that of Eugen von Böhm-Bawerk.
- 2) R. D. Collison Black (1970, 19) argues that 'The Theory of Labour [of Jevons] is . . . to be seen as the correlative of the Theory of Utility.' Sandra Peart (1996, 117) advocates a similar view.
- 3) Jevons assumes that the worker experiences 'a small excess of pleasure' during the comparatively early stages of continuous labour. Furthermore, Jevons observes that work itself is interesting and exciting for professionals and therefore they work strenuously. Additionally, according to Jevons, morale depends on race and class. He states that 'A man of lower race, a negro for instance, enjoys possession less, and loathes labour more; his exertions, therefore, soon stop.' Jevons also suggests a lack of will to work among the labouring class in England (see Jevons 1871, 168–69, 174–78). Spencer (2009, 71–75) argues that such a racist and classist tendency of Jevons undermines the valuable implication of his perception, that is, the importance of the impact of the qualitative content of work on labour supply. Jevons's racism and classism are also highlighted by Michael V. White (1994, 437–42).
- 4) The same explanation is also presented in Jevons (1879, 184–92) and Jevons (1977 a,

92–93).

- 5) White (1994, 435) argues that real wage is assumed to be equal to the marginal product of labour in Jevons's modelling explanation under review. Apparently, White regards labour time as the unit of labour; for, from Jevons's implicit assumption of the constancy of the 'rate of production,' that is, constant output per time, which Jevons removes later in the explanation, White concludes that 'the marginal product of labor is constant, and equal to the average product of labor' (see White 1994, 435–36). Actually, Jevons does not posit that labour time is the unit of labour. Rather, he recognises that labour time cannot be an adequate measure of labour, because of its inability to refer to labour intensity. According to him, the labour unit, if any, must be found in pain. Indeed, in the modelling explanation, Jevons defines the amount of labour as 'the aggregate balance of pain accompanying it [labour], irrespective of the produce' (see Jevons 1871, 170). As will be mentioned in the next section of the paper, Jevons expresses the marginal product of labour along these lines in Chapter VI in TPE1. If the unit of labour could be so given, the corresponding marginal product of labour would prove to be diminishing under the assumption of a constant 'rate of production' and increasing labour pain.
- 6) In *Grundsätze der Volkswirtschaftslehre*, Menger notes that 'A special characteristic of labour performances that also affects the relevant value phenomena lies in the fact that some of them are connected with unpleasant feelings for the worker, and therefore they will not easily be effected if not in exchange for economic advantages that arises from their activity' (Eine besondere Eigenthümlichkeit der Arbeitsleistungen, welche auch auf die bezüglichen Werthescheinungen einwirkt, besteht darin, dass

ein Theil derselben für den Arbeiter mit unangenehmen Empfindungen verbunden ist und demnach nicht leicht anders als gegen ökonomische Vortheile, welche demselben aus seiner Thatigkeit entstehen, wirksam wird).

However, Menger continues: 'The occupations of by far the greater majority of men grant them joy and are a true satisfaction of needs for them . . . Only a small number of people work without expectation of economic advantages. The reason for this lies not so much in the unpleasantness of work in general as, rather, in the fact that opportunity for rewarding work is sufficiently available' (Die Beschäftigungen der weitaus grössern Mehrzahl von Menschen gewähren ihnen Freude, sind für dieselben eine wahre Bedürfnissbefriedigung . . . wenn . . . nur wenige Personen ohne Aussicht auf wirtschaftliche Vortheile arbeiten, so liegt der Grund hievon nicht so sehr in der Unannehmlichkeit der Arbeit im Grossen und Ganzen, als vielmehr darin, dass Gelegenheit genug zur lohnenden Arbeit vorhanden ist). Thus, trifling the influence of labour *per se* on the worker's motivation, Menger advances an opportunity cost theory of labour (see Menger [1871] 1968, 149; see also Pagano 1985, 81–84).

In Walras's case, the direct effect of labour on the worker's utility is completely excluded. Walras ascribes the cost of labour offered to others exclusively to the loss of its personal use or leisure. Hence, Walras's view on labour supply is also regarded as a kind of opportunity cost doctrine (see Walras 1988, 302–03; see also Pagano 1985, 95–115; Okada 2011, 49–50).

Marshall (1961, 762–65) contrasts David Ricardo and his followers, who 'speak of labour as a commodity without staying to throw themselves into the point of view of the workman,' with post-John Stuart Mill

scholars, in whose economics 'the human as distinguished from the mechanical element is taking a more and more prominent place.' Marshall values Jevons as most prominent among the latter.

Despite his criticism of the wage fund theory, Jevons does not object to the classical doctrine of population. However, he underlines the precedence of a study on the optimal employment of labour on the assumption of a given population. Here appears the neoclassical treatment of population (see Jevons 1871, vi, 254–55).

- 7) For example, Philip H. Wicksteed, one of the founders of marginal productivity theory, states that 'The crude division of the factors of production into land, capital and labour must . . . be abandoned' (see Wicksteed [1894] 1992, 83).
- 8) 'Once the principle of the theory of exchange made its appearance in the [economic] science, the principle of the theory of production could follow without delay; indeed, the latter did so. In the second edition of his *Theory of Political Economy*, Jevons recognised what he had not noticed in the first edition: namely, that since the *Final Degree of Utility* determines the price of products, it also determines the price of productive services, that is, rent, wages, and interest, by itself; for, under the regime of free competition, the sales price of products and the cost price of their productive services tend toward equality. In May 1879, he stated clearly, in ten pages (XLVIII–LVII) of great interest, at the close of the preface to the second edition of his work, that it is necessary here to completely reverse the formula of the British school or, at least, that of the Ricardo–Mill school, by arguing that the price of productive services is determined by the price of products, in lieu of arguing that the price of products is determined by the price of productive services'

([D]ès que le principe de la théorie de l'échange avait fait son entrée dans la science, le principe de la théorie de la production ne pouvait pas tarder à y faire la sienne, et il l'y a faite effectivement. Jevons a reconnu, dans la seconde édition de sa *Theory of Political Economy*, ce dont il ne s'était pas aperçu dans la première: savoir que, du moment où le *Final Degree of Utility* déterminait le prix des produits, il déterminait aussi, par cela même, le prix des services producteurs, ou le fermage, le salaire et l'intérêt, puisque sous le régime de la libre concurrence, le prix de vente des produits et leur prix de revient en services producteurs, tendent à l'égalité; et il a dit nettement, en mai 1879, à la fin de la préface de cette seconde édition de son ouvrage, dans dix pages (XLVIII–LVII) très curieuses, qu'il fallait ici retourner complètement la formule de l'école anglaise, ou du moins celle de l'école de Ricardo–Mill, en déterminant le prix des services producteurs par le prix des produits au lieu de déterminer le prix des produits par le prix des services producteurs). (Emphasis in original; Walras 1988, 17).

- 9) Wicksteed (1914, 21–22) archetypically expresses this characteristic of the neoclassical marginal productivity theory: '[I]f I speak of the differential or marginal significance of labour in a particular industry, I am either speaking of a uniform grade of labour or of different grades reduced to some common measure and expressed in one and the same unit, and I mean the significance which such a unit has when it is one out of so many others like itself. Thus, in my use of the word, there is no earmarked marginal unit, which is such in virtue of its special quality. Any one of 100 units has exactly the same marginal value; but as soon as one unit is withdrawn, all the remaining 99 have a higher marginal value;

- and when one is added, all the 101 a lower.'
- 10) Jevons differentiates the nature of wages, rents, and 'the rent yielded by fixed capital' from that of interest on 'free capital,' by stating: '[in the latter case] the Law of Indifference peculiarly applies, because free capital, loanable for a certain interval, is equally available for all branches of industry; hence, at any moment and place, the interest of such capital must be the same in all branches of trade' (see Jevons 1879, lv–lvi). Indeed, Jevons already formed a marginal productivity theory of interest on 'free capital,' that is, wage fund in TPE1 (see Jevons 1871, 233–38; see also Jevons 1879, 263–67).
 - 11) Two sections, 'Dimensions of Labour' and 'Relations of Economic Quantities,' are added to Chapter V of TPE2, but they do not seem to possess any special significance worth noting here (see Jevons 1879, 193–94, 205–09).
 - 12) As mentioned in Note 5, Jevons also provides a modelling explanation of the case when the 'rate of production' changes. However, he adds that 'In many cases, as for instance in machine labour, the rate of production is uniform' (see Jevons 1871, 173; see also Jevons 1879, 192). This induces readers to imagine that Jevons's slight attention to the variability of labour intensity that is dependent on industrial relations might reflect the subordination of human labour to machinery at the height of the prosperity of the British manufacturing industry at Jevons's time.
 - 13) There is no space for an extended discussion of the contents of SRL. For its details, see, for example, Inoue (1987, 209–20).
 - 14) Blaug (1996, 298) and Spencer (2009, 72) criticise the unreality of Jevons's assumption of the worker's free choice of her/his labour time in *The Theory of Political Economy*. In fact, the worker here is basically self-employed. In SRL, Jevons suggests that workers in actual employment are forced into a significantly different position.
 - 15) For Jevons's views on arbitration and conciliation, see Jevons ([1882] 1910, 152–67).

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