

SENSE AND SENSIBILITY: A HISTORY OF THE EARLY BRAZILIAN COST- OF-LIVING INDEXES IN PURSUIT OF A MINIMUM WAGE, 1935–1939

BY
VICTOR CRUZ-E-SILVA

The early decades of the twentieth century witnessed a far-reaching growth in empirical exercises designed to measure the cost of living. Brazil was no exception to this movement, and the first studies of this nature for that country surfaced between 1935 and 1939. Among these, three deserve special attention for the soundness of their construction. These are the exercises of Horace Davis, Samuel Lowrie, and Bruno Rudolfer, professors of the Free School of Sociology and Politics of São Paulo, which investigated the cost of living in connection with the pursuit of a proper minimum wage in Brazil. The aim of this article is to revisit their pioneering efforts to measure the cost of living and to indicate how these studies touched upon the search for a minimum wage in Brazil.

I. INTRODUCTION

A steadfast concern with the cost of living sprang up both in developed and in underdeveloped countries in the first decades of the twentieth century. As industry flourished here and there, these concerns increasingly emphasized the necessity to observe, fathom, and address the economic hardships imposed on the working class, whose anxieties had been for a century the leitmotif of statistical activity, from observation to measurement (see Stapleford 2012). Brazil was not alien to this movement. As such, the first proper efforts to design a cost-of-living index (COLI) in the country were brought forth in the 1930s in pursuit of a minimum wage policy, adding sense to the

Victor Cruz-e-Silva: Adjunct Professor at Federal University of Paraná (UFPR), Brazil The author would like to thank Marco Cavalieri for discussions on the subject. Thanks are also due to the CEDOC/FESPSP and the NPH/UFRRGS for allowing access to relevant documents for the research. Finally, the author thanks two anonymous referees and the editor Pedro Duarte for valuable comments on previous versions of this paper. Email: victor.cruzesilva@ufpr.br

ISSN 1053-8372 print; ISSN 1469-9656 online/24/03000358-379 © The Author(s), 2024. Published by Cambridge University Press on behalf of History of Economics Society.
doi:10.1017/S1053837224000026

remarks about the poverty-stricken condition of the masses, an issue hitherto settled solely upon the basis of sensibility.

The pioneers behind this endeavor in Brazil were Horace Davis, Samuel Lowrie, and Bruno Rudolfer. Davis and Lowrie were American sociologists who went to Brazil to work at the recently founded *Escola Livre de Sociologia e Política de São Paulo* (Free School of Sociology and Politics of São Paulo, henceforth ELSP), whose purpose was to train employees for the civil service, for large private enterprises, and for social service institutions (Lowrie 1935, p. 104). Rudolfer was a Czech engineer who also joined the ELSP in its early days. Their studies touched upon the living conditions in the city of São Paulo, a town that became the most industrialized center in the country in the 1930s.

Taken together, the cost-of-living studies of Davis, Lowrie, and Rudolfer offered an important support to the enforcement of a minimum wage policy in Brazil, which would take place in 1940 (Del Vecchio and Diéguez 2008, p. 9). Indeed, given the Latin American socio-economic context, efforts to measure the cost of living were often connected to the minimum wage (Vargas Domínguez 2023, p. 114). In Brazil, this movement crystallized the populist concerns with the living conditions of the working class ignited in the 1930s (Skidmore 1967, p. 40; Conniff 1981, pp. 117, 133).

Accordingly, the goal of this paper is to scrutinize the content of the studies of Horace Davis, Samuel Lowrie, and Bruno Rudolfer as pioneers of the measurement of the cost of living in Brazil. These studies not only followed some of the most advanced practices in the observation and measurement of the cost of living but also were inherently related to the search for a minimum wage. As such, the paper also intends to indicate their influences and motivations and their relation to the pursuit of a minimum wage in the country, tracing an evolution among them.

Such an account is hitherto absent from the literature. The closest exceptions are Cyro Berlinck (1964) and Angelo Del Vecchio and Carla Diéguez (2008), which scrutinize the exercises of Davis and Lowrie within narratives about the early years of the ELSP, and John Wells (1983a, 1983b), which rely on Davis's and Lowrie's estimates to evaluate the living standards of São Paulo's industrial workers between 1930 and 1975.

This article focuses both on the contributions of Davis, Lowrie, and Rudolfer to the measurement of the cost of living in Brazil and on their connections with the search for a minimum wage in the country, paying heed to the broader historical context and to the theoretical influences in action. This effort fits into the growing body of literature in the history of economics aimed at understanding the use of index numbers to observe and measure the cost of living, both in developed countries (Tooze 2001; Stapleford 2009; Searle 2015; Touchelay 2015; Jany-Catrice 2018) and in Latin America (Sember 2013; Lanata Briones 2021; Pohl-Valero and Vargas Domínguez 2021; Vargas Domínguez 2023).

II. THE 1930s: LABOR QUESTIONS IN BRAZIL

The history of the attempts to measure the cost of living in Brazil cannot be detached from the 1930 to 1945 administration of Getúlio Vargas. Vargas ran for president in 1930, invoking “a bold nationalistic and reformist agenda” (Levine 1998, pp. 20–21), and lost the election. At a time when “politics in Brazil, just as in Europe of the early

1930s, was becoming radicalized” (Skidmore 1967, p. 20), Vargas decided to carry out a coup, taking the presidency by storm (see Skidmore 1967, pp. 4–7; Wolfe 1993, p. 50; Levine 1998, pp. 20–22).¹ This marked an irreversible transformation in the country.

Since World War I, the Brazilian working class had been dealing with price hikes and scarcity of foodstuffs—and their agenda included cost-of-living demands as early as in the general strikes of 1917 and 1919 (Dean 1969, pp. 157–161; Conniff 1981, pp. 127–128). By 1930, the working-class situation had come to be characterized by crippled trade union movements and meager labor conditions. As such, with his attempts to mitigate these problems, it is in the matter of labor policies that Vargas would leave his indelible mark (Love 1980, p. 89; Conniff 1981, p. 117).

Already in his opening speech, for instance, Vargas announced the creation of the Ministry of Labor, Industry, and Commerce (Skidmore 1967, p. 14; Wolfe 1993, p. 52). The ministry—Vargas’s “revolutionary” labor unit, as per himself—was built following the guidelines learned from the program of the International Labor Organization (ILO) during Vargas’s presidential campaign (Conniff 1981, p. 127). Based on the conviction that “the State had to intervene more actively in the society and economy to assure the nation’s well-being” (Conniff 1981, p. 127), this drive catalyzed the government’s willingness to design a wide program of social policies encompassing measures such as a protective labor legislation, health and unemployment insurances, pensions, and the organization of unions.² In this sense, Vargas’s social and labor agenda, known as *trabalhismo*, though not fully implemented until the 1940s, already in the 1930s encompassed comprehensive social welfare legislation aimed at securing worker loyalty to the paternalistic government responsible for its execution (Skidmore 1967, pp. 39–40; Conniff 1981, p. 163). In fact, over the fifteen years of his presidency, Vargas would continuously address “the working classes about his social and labor programs” (Conniff 1981, p. 166; see also Levine 1998, p. 146).

Among Vargas’s proposals, a key policy was the enforcement of a minimum wage. This had been advertised since the dawn of his administration but would not be enacted until 1936 and brought into effect until 1940 (Dean 1969, p. 226; Wolfe 1993, p. 51), already within Vargas’s authoritarian *Estado Novo*, “Brazil’s milder version of Europe’s fascist mode” (Skidmore 1967, p. 30). Therefore, the design of a minimum wage in Brazil, from Vargas’s 1930 platform to its actual enforcement, was a maturation process that took nearly a decade. By then, unlike some other Latin American countries, Brazil had not yet ratified ILO’s 1928 Convention No. 26 about minimum wage fixing (see Méndez 1950, p. 123)—something that would not happen until 1957. Nonetheless, the Vargas administration enacted laws in conformity with it. As such, the core objective of the minimum wage in Brazil was, as in every other Latin American country, “to improve the standard of living of those sections of the working population whose conditions are materially unsatisfactory” (Méndez 1950, p. 129).

However, the availability of data to ensure the proper address of such concerns in Brazil was scarce (see Zamberlan Pereira 2019). No effort to quantify inflation or the cost

¹ The Vargas administration had three phases: the Provisional Government (1930 to 1934), the Constitutional Government (1934 to 1937), and the *Estado Novo* (New State, 1937 to 1945), Vargas’s most oppressive period. Only the Constitutional Government was democratic.

² Nonetheless, Vargas’s dictatorship was violent against any attempts to organize the working class outside the control of the state (Skidmore 1967, p. 40; Conniff 1981, p. 129).

of living had hitherto been made, and the regular publication of price indexes in Brazil would not begin until 1947 (*Revista de Conjuntura Econômica* 1947, p. 7; Haddad and Versiani 1990, p. 149). Thus, price series for the 1930s are an a posteriori achievement, based mainly on data published either in mass-circulation newspapers or in commercial magazines.

This latter sort of exercise informs us that prices in Brazil rose consistently from 1912 to 1939, except for the 1927 to 1933 interim, a period that witnessed a steep contraction in economic activity—courtesy of the 1929 crisis. In 1934, prices returned to their ascending path, rising approximately 7.7% (Haddad and Versiani 1990, p. 176). These movements indicate a deteriorating scenario for the working class in the 1930s—due either to rising prices or to rising unemployment. This was true not only of the Brazilian case but all around the capitalist economies, so much so that Cecilia Lanata Briones (2021, p. 78) classifies the Depression as “an essential prelude to the [cost-of-living] index’s role as a fundamental variable in economic analyses.” As such, as prices began their escalation in the mid-1930s, the comprehension of this process became imperative to guarantee an adequate wage for the Brazilian working class, fostering the appearance of the first COLIs in the country.

As a consequence, in May 1935, the *Bulletin of the Ministry of Labor, Industry, and Commerce* (henceforth *Bulletin or Boletim*), created in September 1934 as Vargas’s official labor publication, claimed that any statistical exercise aimed at informing a fair minimum wage had to take into consideration the working-class budgets (*Boletim* 1935, p. 355). Almost simultaneously, and independent of official agencies, the first studies of this nature were about to see daylight in Brazil.

III. HORACE DAVIS AND THE FIRST SWING AT MEASURING THE COST OF LIVING IN SÃO PAULO

In June 1935, Horace Davis published the groundbreaking article “Living Standard of the Working Class in the City of São Paulo,” usually taken as the first of its kind in Brazil (see Berlinck 1964, pp. 283–284; Del Vecchio and Diéguez 2008, p. 15).³ J. H. Dixon, of the International Bureau of Labor Affairs—where Davis had worked for three years—for instance, praised Davis’s exercise as such, stating that it would complete the bureau’s “international documentation regarding the living conditions of the working class” (Davis 1935, p. 114). Davis himself identified his article as “the first statistical study” about “the living conditions of Brazilian workers” (Davis and Davis 1937, p. 245).⁴

A sociologist from Columbia University and an “organic intellectual of the proletariat” (Del Vecchio and Diéguez 2008, p. 10), Davis concerned himself especially

³ The original titles of the articles, written in Portuguese, will be omitted throughout the paper.

⁴ Davis recognized that Brazilian physician Josué de Castro engaged in a similar and simultaneous endeavor (Davis and Davis 1937, p. 245), which turned out to be the work “Living Conditions of the Working Class in Recife” (De Castro 1935). De Castro’s main concern was the pervasive starvation problem in Brazil, with a special emphasis on his home town, Recife, the capital of the state of Pernambuco. However, De Castro (1935) did not delve into the measurement of the cost of living of the working class per se. His measurements privileged calories and nutrients vis-à-vis prices and costs. Accordingly, a history of the first COLIs in Brazil can dispense with his work.

with social inquiries. Alongside Lowrie, he joined the ELSP in 1933 by recommendation of the American Society of University Professors and of the International Institute of Education. At the ELSP, Davis and Lowrie would teach social economics and general sociology, respectively (Lowrie 1935, p. 101). Davis's discipline focused on debates regarding economic planning, within both capitalism and socialism. He also discussed economic institutions, the different traditions of economic thought, and the determination of wages. Nonetheless, the most striking feature of his course was an orientation toward the design of field experiments—a disposition that shines through his 1935 article (Del Vecchio and Diéguez 2008, p. 36; Escola Livre de Sociologia e Política [1934] 2009, pp. 231–232).

Davis inaugurated the ELSP tradition of works on the cost of living. In his 1935 work, which followed the guidelines of the International Bureau of Labor Affairs (Lowrie 1935, p. 103), the goals were manifold. First of all, he aimed at observing thoroughly the diet of a number of working-class households in order to determine its value and the consumption habits. However, Davis also intended to offer bases upon which the measurement of variations in the cost of living could be settled. Furthermore, Davis aimed at training researchers for this task, covering from the study of the most appropriate methods to perform these inquiries to the understanding of the fundamental problems related to the living standard of the working class in São Paulo (Davis 1935, p. 115). Hence, Davis's endeavor did not comply with a national sense but abided by a regional perspective, restricting the analysis to the city of São Paulo.

Using the method of open journal diaries, which, as in the US, gathered data about a household's income and expenditure, Davis's team of researchers asked a sample of working-class households scattered through the working-class neighborhoods of São Paulo to give information about their budgets.⁵ Two hundred and twenty-one families offered appropriate responses to the diaries and were included in the sample. Given the meager conditions of the working class, a coefficient of correlation of 0.89 between the assessed income and assessed expenses was found for these two hundred and twenty-one families, which indicates that working-class households in São Paulo expected to spend virtually all of their budgeted income (Davis 1935, p. 119). In American dollars, the median of this monthly income was \$22.40 per household (p. 126)—much below the median monthly income for the American working class for 1935–36, which amounted to \$97.91 (*Monthly Labor Review* 1938, p. 735).

Davis divided the expenditures of households into foodstuffs, housing, and clothing. As expected, he found the greater part of the family budget going to the first of these categories. This was true for the overwhelming majority of the families analyzed. At this point, Davis appealed to Engel's Law, which stipulates that “the poorer is a family, the greater is the proportion of the total outgo which must be used for food” (Engel, cited in

⁵ The survey method worked with preconceived items likely to omit relevant information; for instance, a household's expenditure on items such as vinegar or abrasive cleaner would not be considered if these specific items were not included in the survey. This was the method employed by Josué de Castro. Open journal diaries, on the other hand, were blank spreadsheets with general groups of expenditures—foodstuffs, housing, clothing, and so on—but with no definite items for foodstuffs. This implied that they had relinquished a predefined list of items for which quantities and prices ought to be appended; instead, the items were to be added based on the households' consumption habits (see Lowrie 1938, p. 294; Sudman and Ferber 1971, p. 725).

Zimmerman 1932, p. 80). Also, under conditions of increasing income, Engel's Law may be taken to indicate that a lower proportion of income will be spent on foodstuffs, whereas sundries (which include education, health, and recreation) will drain a greater percentage of the family budget—with expenditures on rent, fuel, light, and clothing kept relatively stable. For Engel (cited in Zimmerman 1932, p. 80), “the proportion of the outgo used for food, other things being equal, is the best measure of the material standard of living of a population.” Davis believed that his results offered yet another conclusion in line with Engel's Law, a relation “verified many times” since it was originally conceived (Davis 1935, p. 135).

Furthermore, Davis (1935) resorted to theoretical and technical inputs from works previously published by those interested both in developing the theory of index numbers and in measuring the cost of living. These influences are important not only because of their influence on Davis but because of their indirect influence, through Davis, on the works of Lowrie and Rudolfer, who would take Davis's proposal further and actually design COLIs for São Paulo.

The first of Davis's influences was the works of Edgar Sydenstricker and Willford King (1921a, 1921b), which he used to define the measurement per equivalent adult male, a unit that takes into account the age and the gender of the members of a household in order to identify their dietary needs in relation to the needs of an adult male. Sydenstricker and King were statisticians with close ties to economics, whose work, among other things, orbited the making of index numbers and the application of statistics to health economics (see King 1930; Clarke and Erreygers 2022). In the case of the equivalent-adult-male scale, they start from a sample of 1,500 selected families living in the South Carolina cotton-mill villages in 1917 to establish the “fammain” unit, which stands for “food for adult male maintenance” (Sydenstricker and King, 1921a, p. 588; 1921b, p. 847). For Sydenstricker and King (1921b, p. 855), the fammain unit would be accurate enough to study the living conditions of the working class anywhere.⁶ Each adult man between the ages of twenty-one and forty-four is taken to require one fammain unit. Therefore, the needs of other members of the household, following their ages and genders, are set in relation to this adult male's needs. For instance: the dietary needs of a nine-year-old boy are taken to be equivalent to 0.53 of the dietary needs of an adult male. “A family composed by a husband, a wife, and a nine-year-old boy shall have 2.39 units of food expenditure, or 2.39 ‘fammain’” (Davis 1935, p. 141). The reference values Davis used followed the adaptation of the League of Nations' Health Organization, published in 1932.⁷ Davis's concept of “household” implicitly followed Sydenstricker and King (1921a, p. 574): “an economic family includes all persons contributing the bulk of their income to a common family income stream or depending mainly upon this stream for their support.”

Furthermore, and perhaps more importantly, Davis's method implicitly followed Sydenstricker and King's (1921a, p. 584), which, after several theoretical definitions, suggested an empirical exercise that consisted in canvassing “about three hundred families in order to ascertain the amounts actually spent for each member of every

⁶ They also devised the broader “ammain” unit, which means “adult male maintenance” and refers to the gross, general demand for articles—not only food. Sydenstricker and King (1921a, p. 594) hoped the ammain unit could be used by governments for several ends, such as the reconstruction of income-tax statistics.

⁷ Lowrie (1938, p. 226) details these reference values.

family for thirty classes of common articles.” Among these, food was the most representative category, taking nearly half of the household’s income in Sydenstricker and King’s sample.

Later on, Davis resorted to British statistician Arthur Lyon Bowley, whose approach to the housing of families in relation to their size in English towns deeply influenced him (see Bowley 1913; Bowley and Burnett-Hurst 1915). Bowley was the third great author of poverty surveys—following Charles Booth and Benjamin Rowntree—and inaugurated the use of random sampling in poverty surveys, which made him responsible for amplifying the field. He aimed at comparing different towns, a goal he achieved with the use of index numbers (Hennock 1987, pp. 216–217).

In a broader sense, Davis was inspired by Bowley’s efforts because Bowley set a path that would fit perfectly into Davis’s purposes. Both Bowley and Davis accounted for the cost of living of the working class—which included wages, rents, and retail prices—in order to build comparative index numbers. These would allow not only an intertemporal comparison for a given place but also a comparison between different cities in a country, informing minimum wage policies (Bowley 1913, p. 672; Bowley and Burnett-Hurst 1915, pp. 26, 31–42; Hennock 1987, p. 218). Narrowly speaking, Davis also relied on Bowley’s investigation of housing conditions. Bowley inquired “about rent levels, housing types and degrees of overcrowding” (Hennock 1987, p. 221, see Bowley and Burnett-Hurst 1915, pp. 18–25). Following suit, Davis identified the growth of families as a factor that led them to relocate into worse neighborhoods—both in relative and in absolute terms. “In other words, when the number of members in a household grows, the pressure for better accommodations is smaller than the pressure for raising the expenditure on other necessities, such as food supplies and clothing” (Davis 1935, p. 159; see Bowley 1913, p. 685).⁸ This is in line with Engel’s Law.

This is the tenor of Davis’s pioneering work on the cost of living of working-class households. For Berlinck (1964, p. 284), Davis’s activity marked the beginning of a social process in Brazil that led the problem of wages to be determined from a rational perspective, bringing to the table elements in line with the most avant-garde practices in observation and measurement in the social sciences. Nonetheless, despite his attempt to measure the cost of living of the working class in São Paulo, Davis did not design a COLI per se. Instead, in his own vision, he filled an existing gap in the computation of COLIs in São Paulo: “we conclude that the average of the expenses allows us to establish a composite budget. In fact, this is the process usually employed in the determination of cost-of-living indexes” (Davis 1935, p. 163).

Davis’s work did not take long to find an echo in the *Bulletin*. In May 1936, a member of the official committee established to discuss the creation of minimum wages in Brazil wrote a report in the *Bulletin* relating the minimum wage to the minimal needs of the working class in terms of foodstuffs. In his report, Alexandre Moscoso acknowledged the contributions of Davis and Josué de Castro to the Brazilian debate. He claimed that diet inquiries conducted for São Paulo and Recife revealed an indisputable insufficiency in the dietary habits of the working class (*Boletim* 1936b, p. 71)—a Gordian knot to be solved by the enforcement of minimum wages.

⁸ The papers of Davis, Lowrie, and Rudolfer are written in Portuguese. Therefore, all quotes within quotation marks germane to these works are translations by the author.

Also in 1936, the *Bulletin* began to publish the monthly evolution of prices for several foodstuffs—"the prices of essential goods"—in Rio de Janeiro, Brazil's capital at the time. It did not aggregate these items to form a COLI, but it indicated a concern regarding the evolution of foodstuff prices (*Boletim* 1936a, p. 328). This concern was extended to other Brazilian regions in 1937, with the publication of the prices of eleven foodstuffs and of an index denoting their variation—even though no base for these indexes is discernible (see *Boletim* 1937a, 1937b).⁹

Nonetheless, Davis had to follow the influence of his work from a distance: by the end of 1935, he had already left the ELSP and returned to the US. In late 1936, he learned that an official, government-sponsored study on the working-class cost of living was in progress (Davis and Davis 1937, p. 245). There is no clear reference of the study to which he refers. However, it is likely that he was referring to one of the studies of his ELSP colleagues, Lowrie and Rudolfer. Lowrie's exercise was titled "Research on the Living Standard of the Households of Public Cleaning Workers in the City of São Paulo," and was published in 1938. Rudolfer's article, to be published in 1939 in co-authorship with Oscar Egídio de Araújo, was titled "Price Statistics of Essential Goods." Both works took Davis's agenda forward, and neither tried to deny the influence of Davis's pioneering efforts upon them.

IV. BUILDING A COLI: SAMUEL LOWRIE, THE PUBLIC CLEANING WORKERS, AND A MINIMUM WAGE

Samuel Lowrie, as did Davis, arrived in Brazil after finishing his studies on sociology at Columbia to become one of the original professors of the ELSP. Upon his arrival, Lowrie already had more than fifteen years of teaching experience (Lowrie 1935, p. 101). However, although Davis returned to the US in 1935, Lowrie would stay in Brazil until 1939. At the ELSP, Lowrie was responsible for teaching general sociology, which covered the methods of American sociology, social organization, social education, and social problems—including poverty and the economic order (*Escola Livre de Sociologia e Política* [1934] 2009, pp. 226, 229).

Lowrie's work on the cost of living was published in 1938. As did Davis, Lowrie also relied on the application of the method of open journal diaries, but he selected a specific group of working-class households for its application. Lowrie worked with the households headed by the public cleaning workers of São Paulo. Three hundred and six families delivered appropriately annotated diaries, which contained information on their incomes—both from the head of the household and from the supplementary workers, such as wives, teenagers, and children—expenses and demographics. The research was conducted between November 1936 and May 1937 and did not exceed one month in each household.

Lowrie saw his exercise as a considerable methodological advancement in comparison with Davis's study. Davis's exercise, for Lowrie (1938, pp. 192–195), presented three fundamental problems. First, it included the unemployed and dependent families in the group of working-class households, which goes against the idea of the working class

⁹ These foodstuffs were rice, sugar, lard, coffee, fresh beef, jerked beef, flour, beans, corn, bread, and fish.

as a group of wage earners. By definition, he claimed, the unemployed and the dependent families *did not* receive a wage during the research. Second, Lowrie questioned Davis's indication that his sample was sufficiently representative of the whole working class of São Paulo. For Lowrie, neither his work about the public cleaning workers could make such a statement and nor could Davis's. By raising this point, in fact, Lowrie revealed a more thorough comprehension about the limitations of observations in the social sciences than did Davis. Borrowing Mary Morgan's (2011, p. 314) words, it might be said that Davis's fault, for Lowrie, was "not entirely a data problem but more of a conceptual problem." Lowrie also criticized Davis's use of incomplete and unverified diaries, which may have tainted his results. Despite its shortcomings, Lowrie also recognized that Davis's exercise had a great influence upon his own.

Furthermore, unlike Davis's, Lowrie's study was commissioned by the municipality of São Paulo to serve as support to the formulation of a local minimum wage for the public sector. Since the Brazilian legislation did not yet enforce a floor for wages, the intent of the work was to assess the cost of living of the lowest-paid class within São Paulo's civil service—that is, the city's public cleaning workers—in order to estimate its corresponding necessary minimum wage (Lowrie 1938, p. 185).

Two reasons presided over the choice of the public cleaning workers among all the departments of the municipality. The number of workers was sufficiently large as to allow the cooperation of a few hundred households. These workers were also considered the lowest of the municipality. And, insofar as the intention was to perform a study to determine what should be the minimum wage, the lowest group was clearly indicated (Lowrie 1938, p. 193)

Through this effort, Lowrie believed, the government could serve as a role model to private enterprises. From its conception, Lowrie's work had an explicit normative dimension, and was intended to guide political action.

In this regard, Lowrie (1938, p. 185) was clear about the relation he envisioned between the cost of living, the minimum wage, and government action: "If the determination of the minimum wage should be made on the basis of the cost of living, it is desirable that the government itself provides a wage level to its workers that allows them to at least comply with the normal demands of life." In fact, Lowrie made a point of emphasizing this issue already in the opening remarks of the diaries sent to the households of the public cleaning workers in order to garner their cooperation, advertising that, in conformity with the Federal Constitution of 1934, Brazilian laws acknowledged the need to establish wages that met the current costs of living (p. 188).

Accordingly, Lowrie designed a COLI whose goal was twofold. First, the goal was to compare the changes in the cost of living with the changes in wages to understand whether or not the public cleaning workers received an appropriate wage. The second goal was to check if prices had changed substantially between November 1936 and May 1937, that is, the period in which his diaries were filled, because this might bias his results. The acknowledgment that Lowrie actually built a COLI—the first proper COLI in Brazil—makes his work the most important one within the ELSP tradition for the purposes of this article.

Lowrie (1938, p. 205) understood his research as "conducted during a period of rising prices," and that no satisfactory price index was available for either São Paulo or Brazil. His COLI relied on prices of foodstuffs as informed by the São Paulo Commodity

Exchange—wholesale prices—and by the notes of street market inspectors—retail prices. The observations ranged from January 1934 to June 1938. Lowrie recognized that other items such as housing, clothing, and transportation ought to be included in the analysis in order to build an “expressive” COLI, but left such an exercise for further elaborations.¹⁰ This is understandable from the perspective that Lowrie was concerned with the least-paid class within São Paulo’s civil service, and that, following Davis in his acknowledgment of Engel’s Law, Lowrie found that poorer households tended to focus their spending on food supplies. Sundries, for instance, amounted to 0.3% of the expenses of the public cleaning workers, whilst more than half of their budgets were, on average, spent on foodstuffs (1938, pp. 271–272, 277). For Lowrie (1938, p. 303), this last information denotes “the exceedingly low level of the group examined.”

Thus, seven items are considered in Lowrie’s COLI (their respective weights in the index are given in parentheses): bread (0.39), rice (0.17), sugar (0.14), lard (0.11), beans (0.08), olive oil (0.06), and potatoes (0.05) (Lowrie 1938, p. 208). Taken together, these items represented 54% of the amount spent by the households of public cleaning workers on food. Moreover, the more comprehensive group of “essential goods,” which includes foodstuffs, housing, clothing, and fuels, absorbed, on average, something between 79% and 93% of the expenses of the public cleaning workers (p. 276).

A relevant piece of information to establish a household’s cost of living was its size. The average size of the families investigated in Lowrie’s study was 4.89 members, which approximated Lowrie’s study from the standard of five members per family used in several countries. As did Davis, Lowrie would rely on this datum to employ the idea of equivalent adult male, citing the League of Nations’ Health Organization. In this regard, he quoted Newel Howland Comish to define the standard family as a set of five people who amount to 3.40 equivalent adult males—more precisely, 3.35 equivalent adult males, as per Comish (1923, p. 75) (a father, a mother, and three children of twelve, six, and two years old).¹¹ The average equivalent adult males within the households of public cleaning workers usually ranged from 3.45 to 3.65. However, this typical range failed to describe the situation of a large portion of the households within the sample, as per Lowrie (1938, pp. 225–226). For instance: more than 10% of the families had more than eight members. This might be a problem, because a) the establishment of a minimum wage that took as reference the average equivalent adult males might not answer the needs of a good part of the households headed by public cleaning workers (p. 226), and b) in agreement with Davis, Lowrie identified that, even though the *total* wage grew in tandem with the number of members in a household, the *average* wage per equivalent adult male decreased in relation to the number of its members (pp. 228–230).

Another issue Lowrie had to deal with was the use of wholesale vis-à-vis retail prices. The availability of street market retail prices began only in July 1936, in such a way that from 1934 up to that month only an index of wholesale prices was within reach. This is problematic because the weighting of the foodstuffs in the index used their share in the expenses of the households of public cleaning workers—who paid retail prices in their

¹⁰ Royal Meeker, commissioner of the US Bureau of Labor Statistics from 1913 to 1920, made a similar acknowledgment in 1917 about the American COLI, which also included only foodstuffs (Stapleford 2009, p. 87).

¹¹ Lowrie (1938, p. 248) acknowledged this unit of measurement as less than “entirely satisfactory,” but believed it to be more efficient in representing the needs of a household than the absolute number of members.

purchases. Lowrie (1938, p. 206) recognized this to be less than ideal, but proceeded nonetheless, because he identified a remarkable adherence between the movements in wholesale and retail prices from July 1936 to June 1938, as Figure 1, representing his COLI, illustrates.

Lowrie's COLI used the arithmetic average of the 1937 prices as base but did not specify the functional form behind the formula employed. Nonetheless, it can be said that it was a "constant-goods index" in line with what had been practiced by the US Bureau of Labor Statistics since 1910.¹² It is worth quoting Thomas Stapleford (2009, pp. 101–102) at some length at this point:

To create official indexes, government statisticians had produced price relatives for a subset of goods purchased by working-class families and then calculated the average of

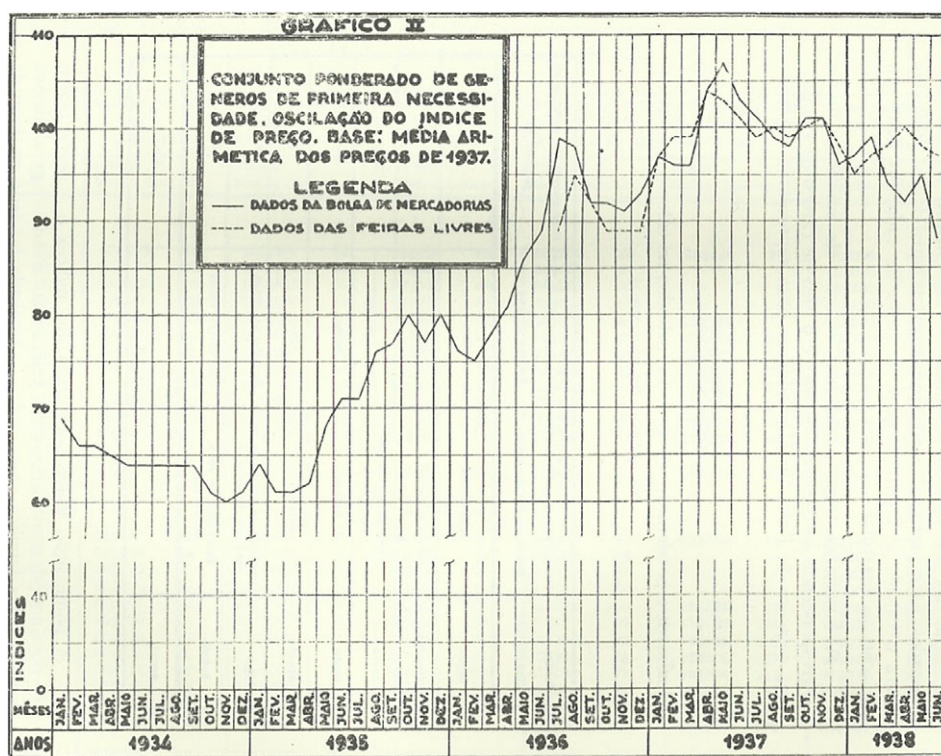


FIGURE 1. Lowrie's 1938 COLI.

Source: Lowrie 1938, p. 207. The box in the graph, in Portuguese, reads as follows: "weighted set of essential goods, price index oscillation. Base: arithmetic average of 1937 prices." The continuous line in the graph represents wholesale prices as informed by the Commodity Exchange, whereas the dotted line represents retail prices garnered from the notes of street market inspectors.

¹² The "constant-goods index" may be contrasted with the "constant-utility index." The latter failed "to translate the theoretical objective into functioning statistics beyond highly implausible special cases," rendering "the constant-utility ideal largely irrelevant to actual price indexes" (Stapleford 2009, p. 114).

these ratios (either an unweighted average or one with fixed weights, typically based on proportional family expenditures during some time period). Since both the items and weights remained fixed for each index, these calculations were effectively “constant-goods” indexes, that is, ratios of the cost to purchase a fixed collection of goods and services (the “market basket”) in two different time periods.

This is a perfect description of Lowrie’s exercise. Furthermore, from December 1936 to May 1937, Lowrie (1938, p. 215) noticed that wholesale prices increased by nearly 12.5%, whereas retail prices increased by nearly 16.6%.¹³ In fact, May 1937 is the peak of the time series. From January 1934 to June 1938, Lowrie’s COLI indicates an increase of 39.13% in the prices of the reference food basket. From its lowest point—November 1934—to its peak, Lowrie’s COLI informs a variation in prices of 78.33%.

In that sense, based on his findings, Lowrie contended that the wages of the public cleaning workers were outdated, because wages had not increased in the same proportion as costs had risen. Whereas prices rose 56.25% between 1934 and 1937, the readjustment of wages amounted to 32% in the same period (Lowrie 1938, p. 302). Since wages represented 94% of this group’s income (pp. 252–253), this was an important mismatch: “if the wages were agreeable in 1934, now [1938] they are exceedingly low. The living conditions observed in this study confirm the fact that wages are inadequate” (p. 302), and should be readjusted by 15% or 20% (p. 304)—18.4%, more precisely. This conclusion, which finds no parallel in Davis’s study, was possible only because Lowrie devised a COLI.

At this point, Lowrie took the opportunity to lay down his normative remarks on the minimum wage. For him, a minimum wage “could not be reasonably set without reference to different genders and ages,” because the head of the household—in his research, the public cleaning worker—was more efficient than the supplementary workers of the family—whose activities were frequently less stable and, in comparison, underpaid (Lowrie 1938, p. 304). Accordingly, fixing a unique minimum wage would fall into one of the following cases: a) it would be as low as to have no impact whatsoever on the wages of the public cleaning workers, or b) it would be as high as to render the employment of everyone but the head of the household incompatible with the employer’s profit. Lowrie defended the latter alternative, but only if in tandem with policies aimed at maintaining the teenagers and the children in school. Also, Lowrie (1938, p. 304) recommended that the minimum wage—or wages—should be brought into effect gradually, without a direct confrontation with employers and the general public. In such a case, “the structure of the wages and the economic organization” would not be led into disarray.

Apart from his mention of Comish and of the League of Nations in the issue of the equivalent adult male as a unit of measurement, and of Engel in the matter of the distribution of expenses, Lowrie did not make any explicit references to other theoretical preconceptions in the design of his statistical exercise. In that sense, despite Lowrie’s methodological grievances with Davis’s approach, Davis seems to be the source of Lowrie’s main theoretical guidelines. As such, the same theoretical tenets that had led Davis’s analysis also paved Lowrie’s path toward both a COLI for the public cleaning

¹³ Lowrie’s notation is fractional, so he uses “one-eighth” and “one-sixth” to represent increases in wholesale and retail prices, respectively. More precisely, these increases were 11.82% and 15.73%, respectively.

workers of São Paulo and his normative remarks regarding the minimum wage. There is also a clear parallel between Lowrie's exercise and Sydenstricker and King's (1921a, p. 580) proposition for computing and comparing the purchasing power for a given group across time: "The first essential is to compute or obtain a reliable chronological series of weighted average index numbers covering approximately the list of commodities that are commonly purchased by the class of persons to be considered." Moreover, in terms of the technical inputs regarding nutrition theory, Lowrie made use of the classic works of Samson Wright and of Charles Best and Norman Taylor to conclude that the dietary energy level of the public cleaning workers was surprisingly within the recommended range of 3,000 to 3,500 calories per day.

This is the gist of Lowrie's statistical work on the living conditions of the public cleaning workers of São Paulo. His exercise had an immediate impact on the wages of this group, which were readjusted by 30% by the city hall (Publicações 1938).

Almost at the same time, the *Bulletin* revisited the issue of the relation between index numbers and the minimum wage, and established that a minimum wage had to transcend the mere subsistence of the individual, also taking into account other indispensable factors for a decent living—the minimum wage should also be a living wage. In this sense, price index numbers were presented as a particularly important gateway into the subject of minimum wages (*Boletim* 1938a, p. 321). Regarding index numbers, in fact, the *Bulletin* started from Fisher's *The Making of Index Numbers*, and aimed at offering an overview of the subject in order to clear the air in the general understanding about the use of this important statistical tool in the search for an appropriate minimum wage in Brazil. In the following month, the *Bulletin* even presented a hypothetical COLI—also restricted to the prices of foodstuffs—for the city of Rio de Janeiro and other state capitals (*Boletim* 1938b). This COLI was defined as a population-weighted geometric average of food costs for different states, taking 1935 as the base year. The formula used resembles Fisher's.

Nevertheless, even though the prices of the food items were allegedly informed by reliable sources, the weight of each item in the index was defined arbitrarily for each Brazilian region—hence its definition here as hypothetical (*Boletim* 1938b, pp. 354–355). Thereupon, from August 1938 onward, the *Bulletin* started to publish a monthly version of this COLI for each Brazilian state (*Boletim* 1938c). The technical assistant of the Ministry of Labor, Industry, and Commerce responsible for delivering this hypothetical COLI was Lauro Sodré Viveiros de Castro. Elsewhere, De Castro (1938, p. 118) would yet praise the ELSP studies of Davis and Lowrie for confirming Engel's Law in São Paulo and for showing that working-class households in Brazil were much worse off compared with those in "civilized countries."

V. BRUNO RUDOLFER, THE GENERALIZATION OF LOWRIE'S EXERCISE, AND FURTHER DEFINITIONS REGARDING THE MINIMUM WAGE

Bruno Rudolfer coordinated the third exercise of interest to this article. His study was co-authored with Oscar Egídio de Araújo, a statistical technician at the Subdivision for Social Documentation and Municipal Statistics of São Paulo. Rudolfer's paper was

published in 1939, while he was chief engineer of the subdivision. Appointed in 1938 as representative of São Paulo in a three-member committee to study ways of lowering the cost of living in Brazil (Solucionando 1938), Rudolfer was by then an important voice in the debate over the cost of living in the country. At the ELSP, he taught statistics. According to the syllabus of the discipline, descriptive statistics was his primary focus, and the last subject covered was precisely the issue of index numbers (Escola Livre de Sociologia e Política [1934] 2009, pp. 230–231).

Already in their opening remarks, Rudolfer and Oscar Araújo (1939, pp. 71–72) stated:

A standard-of-living study determines how much a worker and their family spend to live, in the specific period of the inquiry. It studies the conditions of that period. But, as we know, the prices of all things, including those of the essential goods, [...] also change; and a minimum wage, based on studies of the standard of living, whichever its degree of exactness, will not correspond, in time, to the cost of living of another period if we do not use a method capable of adjusting the minimum wage to the oscillation of prices.

Hence, relating the research on the standard of living to the minimum wage, Rudolfer and Araújo designated the COLI as the appropriate apparatus to adjust the minimum wage to price oscillations. They saw minimum wages, living standards, and the price index of essential goods as interdependent, and “to the measure that science should intervene in their determination, the objective inquiries on the price index are a necessary condition to the establishment of any of the other two” (Rudolfer and Araújo 1939, p. 74).

For Rudolfer and Araújo (1939, pp. 73–74), the COLI must work with a basket of goods that represents the goods consumed by whichever class is studied. The COLI must also be properly weighted. Therefore, by comparing the actual standard of living with the ideal standard of living, such an exercise ought to inform which measures should be taken to improve the living conditions of the population. In other words: a periodically adjusted minimum wage capable of producing the highest desirable outcome must be associated with objective studies about the cost of living.

Rudolfer and Araújo’s exercise was much influenced by the works of Davis and Lowrie. Such was this influence that no theoretical basis whatsoever was offered: Rudolfer and Araújo referred only to the previous efforts of the ELSP professors. However, Rudolfer and Araújo did not restrict their analysis to the working class or to the public cleaning workers but aimed at finding a general COLI for the city of São Paulo. In order to do so, they gathered data for several regions of the city according to the social classes prevailing in each. They collected data from warehouses, butcher shops, greengroceries, and street markets. Their primary aim was to trace the evolution of the prices of several foodstuffs in São Paulo. Given the heterogeneous character of the city, Rudolfer and Araújo (1939, p. 80) found that regions dominated by the working class tended to have lower prices than regions in which the upper classes prevailed, because, they argued, the lower the dominant class in a neighborhood, the lower the rents of the surrounding areas, and, therefore, the lower is the necessary capital for starting a business, which allows for lower prices. This heterogeneity, in fact, is what demanded prices to be weighted in order to find a proper COLI for the city.

Moreover, unlike Davis and Lowrie, Rudolfer and Araújo did not carry out an inquiry on the standards of living of any particular group. Their weighting was made in accordance with the number of inhabitants per region, accepting that the volume of transactions in a given area correlates with the corresponding size of the population (Rudolfer and Araújo 1939, p. 82). Davis and Lowrie had conducted inquiries on consumption habits and living standards. The study Rudolfer coordinated did no such thing. This meant that Rudolfer and Araújo had no basis of their own upon which they could select the items to enter the index. A first way out was to rely on the information retrieved by Lowrie (Rudolfer and Araújo 1939, p. 84). In this way, they traced the evolution of the prices of Lowrie's food basket for the public cleaning workers of São Paulo, and updated Lowrie's COLI until June 1939, altering its base from the monthly average of prices for 1937 to the monthly average of prices for 1934. Their results are summarized in Table 1.

Nonetheless, Rudolfer and Araújo also designed a COLI of their own. They stipulated that the COLI needed a value of reference, discarding the arithmetic average of prices on behalf of the modal value of prices, because the arithmetic average was, in their regard, exceedingly sensitive to extreme values. The base for the index was January 1937. Here, it is worth noting that, despite the mention of "essential goods" in the title of the article, Rudolfer and Araújo's index referred only to food supplies, as did Lowrie's. The thirteen items that enter their index are: prime beef, milk, brown beans, rice, pasta, potatoes, tomatoes, Italian bread, coffee, dwarf bananas, sugar, lard, and fresh butter. Of the seven items in Lowrie's COLI, only olive oil was not included in Rudolfer and Araújo's. The items in Rudolfer and Araújo's COLI were selected following the standard ration for São Paulo as indicated in the Federal Decree-Law 399, signed in April 30, 1938. This decree aimed at offering support for the definition of a minimum wage for each Brazilian region, stipulating, among other things, the necessary items in the appropriate diets for different

Table 1. Lowrie's COLI as Updated by Rudolfer and Araújo. Annual Summary of Monthly Price Indexes, 1934–1939

Years	Food supplies							COLI
	Rice	Sugar	Cottonseed Oil*	Lard	Potatoes	Wheat Flour*	Beans	
1934	100	100	100	100	100	100	100	100
1935	72	100	138	142	100	112	186	114
1936	129	100	164	177	131	136	217	142
1937	166	125	183	198	114	163	156	160
1938	141	107	150	181	74	138	204	142
1939**	106	109	112	157	90	109	269	126

Source: Adapted and translated from Rudolfer and Araújo (1939, p. 108). Base: arithmetic average of 1934 monthly prices. Data from the Commodity Exchange. * Cottonseed oil and wheat flour replace, respectively, olive oil and bread in the original index. ** First semester of 1939 only.

Table 2. Rudolfer and Araújo's 1939 COLI

Months	Years	
	1938	1939
January	105	98
February	104	96
March	106	97
April	114	112
May	119	111
June	114	107
July	112	109
August	109	110
September	116	104
October	102	105
November	102	105
December	97	114

Source: Adapted and translated from Rudolfer and Araújo (1939, p. 103). Base: Modal prices, January 1937.

regions in the country. Rudolfer and Araújo offered a table with the following values for their COLI, as indicated on Table 2.

Rudolfer and Araújo believed that this table showed “the extraordinary oscillation” in the prices of essential goods—even though a 14% rise throughout thirty-five months was no extraordinary variation, given the context of the 1930s. But, more importantly, this COLI used the basket of goods officially indicated by the Brazilian government as reference for the minimum wage. This meant that Rudolfer and Araújo’s COLI could offer an effective contribution to the computation of the—not yet mandatory—minimum wage and, thereupon, to its subsequent readjustments. This COLI could also allow for the comparison between São Paulo and other Brazilian cities in terms of changes in the cost of living (Rudolfer and Araújo 1939, p. 103). This complies with their conclusion that “price indexes for food supplies are one of the fundamental underpinnings for studies on the living standard and on the minimum wage” (p. 109).

As such, despite the existing similarities and adherence to a common tradition, Rudolfer and Araújo carried out a different exercise from Davis and Lowrie in one crucial regard. Davis (1935) and Lowrie (1938) aimed first and foremost at understanding the standard of living of the working class (or of “a” working class, in Lowrie’s case). In their analyses, measuring prices was a means to this end. The study of Rudolfer and Araújo, on the other hand, investigated the changes in prices to build a COLI. This was the purpose of their paper. For them, it was the other way around: data on the standard of living were the instrument.

A few months later, on the symbolic Worker’s Day 1940, the minimum wage was officially enforced in the country.

According to Berlinck (1964, p. 284) and Del Vecchio and Diéguez (2008, p. 12), Rudolfer and Araújo's COLI was immediately adopted by the Labor Courts upon their creation, in 1941, for the arbitration of wage settlements. Furthermore, important initiatives recognized the technical virtues of this COLI in the following years. For instance, the Abbink Mission, in the person of its Brazilian leader, Octávio Gouvêa de Bulhões (1950, p. 128), defined the COLI inaugurated by Lowrie and developed by Rudolfer and Araújo as "the one usually regarded as the best to indicate the consumption prices for the working class." Similarly, Pedro Malan et al. (1977, pp. 479–480) report that this COLI, whose origins they trace back to Lowrie's work, was employed by the Joint Brazil–United States Commission (CMBEU, as the acronym in Portuguese) in 1950, and taken as "the most technically satisfactory cost-of-living index" available at the time.¹⁴

VI. OTHER EARLY EFFORTS TO MEASURE THE COST OF LIVING IN BRAZIL (AND THEIR ENCUMBERING LIMITATIONS)

Three other early efforts to measure the cost of living in Brazil are worthy of highlight—as are their encumbering limitations, which render them unfit for a more comprehensive scrutiny.

In November 1919, Léo de Affonseca, director of statistics at the Ministry of Finance, submitted to the minister a report on the cost of living in the city of Rio de Janeiro. As demanded, Affonseca (1920) produced estimates for 1893, 1914, and 1919, even though he thought 1893 to be an inappropriate year to use as reference, because prices that year were atypically high (pp. 3–5). His index included foodstuffs, fuel, clothing, housing, servants, utilities, and sundries for a seven-member household (p. 12).

However, Affonseca's report was commissioned by the minister in response to a demand of the Imperial Legation of Japan (1920, p. 3). It was also by order of the minister, on behalf of the legation, that Affonseca took 1893 as base, despite his reservations. Thus, Affonseca recognized his report as destined to provide information to foreign authorities, "naturally serving to give greater publicity to elements that demonstrate our [Brazilian] expansion in the economic field" (p. 8). Therefore, the motivations behind this study are questionable, affecting its reliability. As a matter of fact, not even Affonseca, in a later study of his, would resort to his 1920 estimates.

In 1935, the recently created Bureau of Economic and Financial Statistics of the Ministry of Finance started to publish a quarterly newsletter titled *Economic Statistics*. Affonseca, director of the new bureau, signed the newsletter, which offered several statistical facts about the Brazilian economy. Its goal was "that the precise economic situation of the country be made clear to all, [...] making public, at home and abroad, the economic possibilities and resources of Brazil" (*Directorio de Estatistica Economica e Financeira do Thesouro Nacional 1935*, p. viii). In the newsletter, we find a table with

¹⁴ The Abbink Mission was created in 1948 to study the factors hindering/promoting Brazilian economic development. The CMBEU, established in 1950, aimed at both producing a diagnosis of the Brazilian economy and designing projects to be undertaken with financial aid from the American government. Both were agreements signed between the Brazilian and the American administrations, and represented important landmarks for the economic development of Brazil (Malan et al. 1977, pp. 47, 60–61).

the evolution of the cost of living for the city of Rio de Janeiro since 1928, which included the prices of foodstuffs, housing, fuel and lighting, servants, clothing, and sundries. Affonseca's previous estimates are not at all mentioned.

Nevertheless, Affonseca did not offer any information about the technical aspects of the bureau's COLI, except that it considered—as in his 1920 study—the expenses of a seven-member household whose monthly income in dollars was approximately \$129.50.¹⁵ (This astonishing result is nearly six times higher than Davis's median income for working-class households in São Paulo.) Accordingly, we cannot know whether this index is a weighted average or not, whether the expenditure patterns were collected from a given group or are hypothetical, whether the prices considered are wholesale or retail prices, whether it is built from a sample—and if it is, its characteristics—or focuses on a certain complete set of individuals, and so forth (see *Directorio de Estatistica Economica e Financeira do Thesouro Nacional* 1935, p. 37). As such, though relevant in the 1930s to inform the general public about changes in the cost of living (see *Custo* 1937), the bureau's COLI presents important transparency issues that do not allow for any sort of historical appraisal. Later, in 1946, these estimates were presented upon sounder bases. A weighted geometric index for nineteen foodstuffs for all regions of the country was defined then, paving the way for the launch of the 1947 official COLI (*Serviço* 1946, pp. 9–10, 99).

Mário Cardim (1936), at last, published an analysis of economic and financial elements in the state of São Paulo between 1913 and 1934 on behalf of the Bureau of Agriculture, Industry, and Commerce of São Paulo. Among Cardim's numbers, we find figures for the evolution of prices, collected from the São Paulo Commodity Exchange. He even mentioned the need for a "rational minimum wage," which should allow both for fair pricing and for the worker to purchase the minimum energy needed for their craft (p. 8). Nonetheless, for Cardim, it would be possible to fix wages in Brazil only once index numbers were appropriately put to use, as had been the case in England, Belgium, and France (pp. 12–13).

However, Cardim did not indicate the demographic group he covered or the referential basket of goods used in his exercise. In this latter regard, the closest approximations we have for a basket are the mentions of the foodstuffs needed for a meal as informed by the Immigration Inspectorate—information hardly consistent with the rest of his exercise—and Augustus Sauerbeck's basket for nineteenth-century England!

Thus, these works are riddled with encumbering limitations, which jeopardize their reliability. For that reason, the choice in this article has been to treat the Davis–Lowrie–Rudolfer thread as the pioneer tradition in the construction of transparent, scientifically sound COLIs in Brazil, following the standard practice established in more advanced economies.

VII. CONCLUDING REMARKS: THE BRAZILIAN EXPERIENCE IN PERSPECTIVE

Insofar as Florencia Sember (2013, pp. 375–376) and Lanata Briones (2021, p. 63) indicate that Alejandro Bunge published a COLI in Argentina as early as 1918, it cannot

¹⁵ The conversion to dollars was made using the exchange rate informed by Davis.

be said that Brazil was exactly a pioneer in this sort of exercise among Latin American countries—and Davis (1935, p. 114) recognized the Argentine avant-gardism.¹⁶ Nonetheless, this acknowledgment says more about the Argentine cutting-edge policymaking than about Brazil's backwardness within Latin America.

Argentina, alongside Uruguay, was also the first country in Latin America to properly discuss a minimum wage legislation, in 1904, whereas most Latin American countries would not enact minimum wage bills until the 1930s or 1940s (Méndez 1950). The common driving force behind these was the idea of raising the standard of living (Méndez 1950, p. 129). Every so often, however, a long time elapsed between a country's enactment of the minimum wage and its actual enforcement (Méndez 1950, pp. 132–133). Argentina took forty-two years to do so—despite the provincial experience of San Juan in 1923 (Méndez 1950, p. 135). Mexico, in 1934, after enacting minimum wage legislation in 1917, seems to be the only Latin American country to have enforced the minimum wage before Brazil, in 1940 (Vargas Domínguez 2023, p. 112).

The quantification of inflation in Brazil, as in most countries, surfaced as an answer to concerns about the cost of living. As in the US, the UK, and Argentina, the cost of living in Brazil was first measured from a regional perspective, taking advantage of the rise of a bureaucratic apparatus. Also, the first studies on the cost of living in Brazil, as in the US, drank from the fountain of the works of sociologists—especially William Ogburn in the US (see Stapleford 2008). As in Argentina, the COLI in Brazil followed a household budget, and the efforts to build it rested upon theoretical and methodological developments of American and European index-number theorists. Additionally, as in Mexico, the first attempts to measure the cost of living in Brazil cannot be divorced from the pursuit of a minimum wage policy.

Furthermore, whereas the enforcement of minimum wages in Latin American countries touched upon the measurement of standards of living (see Méndez 1950), this was not the case for the US (see Glickman 1997). This is especially relevant given that Davis and Lowrie came from an American background. In the US, by the 1930s, COLIs and minimum wage legislation were separate endeavors, because the wages of urban workers mostly exceeded the minimum necessary for subsistence. In this more favorable—or less grim—scenario, American labor activists believed that wages should be readjusted, considering not only price hikes but also a share of the glaring productivity gains in the American economy. The minimum, subsistence wage was one thing; the living wage and the corresponding higher standards of living were another (Glickman 1997, pp. 132, 137–139). As such, minimum wage legislation and COLIs were separate projects in the US (Glickman 1997, pp. 134, 153; Stapleford 2008, pp. 3, 11).¹⁷

In Brazil, as well as throughout Latin America, *au contraire*, minimum and living wages were one and the same thing (see Serviço 1940, pp. 26, 53–54), and could not be appropriately enforced without COLIs. Therefore, the very significance of COLIs was affected by the underlying reality to which they were to be applied. This illustrates what Morgan (2011, p. 321) defines as the importance of life experience for observing in the social sciences, “for in social sciences everyone has general knowledge from the experience of living in their own economy and society.” This may also justify why

¹⁶ Lowrie (1935, p. 103) wrongly praised Davis's work as the first of its sort in South America.

¹⁷ I would like to thank an anonymous referee for bringing up this point.

Rudolfer and Araújo, who did not have an American background, inverted Davis's and Lowrie's instrumentality relation between the measurement of prices and the collection of data on the living standard. For our Columbia sociologists, measuring prices was a means to understand the living standard of the working class; alternatively, for Rudolfer and Araújo, collecting data on the living standard was the instrument to measure the changes in prices.

Moreover, these three works focused on providing a sense for the political discussions regarding the minimum wage, replacing moral arguments with a putatively objective analysis (see Stapleford 2008, p. 14). They were powerful tools for political action. Davis's exercise was swiftly used in the *Bulletin* to strengthen the case for minimum wages. Lowrie's COLI had an immediate impact on the wages of São Paulo's public cleaning workers. Furthermore, Rudolfer and Araújo's work was soon adopted by the Labor Courts. Important projects such as the Abbink Mission and the CMBEU also relied on cost-of-living estimates of the ELSP professors. Accordingly, it is hard to deny a role for these studies in the process that led Brazil from normative disputes about the cost of living to COLIs as legitimate arbitrators for the minimum wage. As a result, as per Méndez (1950, pp. 137–138), by 1950 no other Latin American country had done more than Brazil in terms of “detailed nationwide studies for calculating the minimum wage corresponding to the worker's needs.”

COMPETING INTERESTS

The author declares no competing interests exist.

REFERENCES

- Affonseca, Léo. 1920. *O Custo da Vida na Cidade do Rio de Janeiro*. Rio de Janeiro: Imprensa Nacional.
- Berlinck, Cyro. 1964. “Liderança e Liberdade.” *Sociologia* 26 (3): 281–305.
- Boletim do Ministério do Trabalho, Indústria e Comércio. 1935. Universidade Federal do Rio Grande do Sul, NPH Digital. n. 9, May/1935.
- . 1936a. Universidade Federal do Rio Grande do Sul, NPH Digital. n. 18, February/1936.
- . 1936b. Universidade Federal do Rio Grande do Sul, NPH Digital. n. 21, May/1936.
- . 1937a. Universidade Federal do Rio Grande do Sul, NPH Digital. n. 34, June/1937.
- . 1937b. Universidade Federal do Rio Grande do Sul, NPH Digital. n. 36, August/1937.
- . 1938a. Universidade Federal do Rio Grande do Sul, NPH Digital. n. 42, February/1938.
- . 1938b. Universidade Federal do Rio Grande do Sul, NPH Digital. n. 43, March/1938.
- . 1938c. Universidade Federal do Rio Grande do Sul, NPH Digital. n. 48, August/1938.
- Bowley, Arthur. 1913. “Working-Class Households in Reading.” *Journal of the Royal Statistical Society* 76 (7): 672–701.
- Bowley, Arthur, and Alexander Burnett-Hurst. 1915. *Livelihood and Poverty: A Study in the Economic Conditions of Working-Class Households in Northampton, Warrington, Stanley and Reading*. London: G. Bell and Sons.
- Bulhões, Octávio. 1950. *À Margem de um Relatório: Texto das Conclusões da Comissão Mista Brasileiro-Americana de Estudos Econômicos (Missão Abbink)*. Rio de Janeiro: Edições Financeiras S.A.

- Cardim, Mário. 1936. *Ensaio de Analyse de Factores Economicos e Financeiros do Estado de São Paulo e do Brasil no Período de 1913–1934 pelo Methodo de Numeros Indices*. São Paulo: Secretaria da Agricultura, Industria e Commercio do Estado de São Paulo.
- Clarke, Philip, and Guido Erreygers. 2022. “Edgar Sydenstricker, a Pioneer of Health Economics.” *European Journal of the History of Economic Thought* 29 (6): 1066–1088.
- Comish, Newel Howland. 1923. *The Standard of Living*. New York: Macmillan Company.
- Conniff, Michael. 1981. *Urban Politics in Brazil: The Rise of Populism, 1925–1945*. Pittsburgh: University of Pittsburgh Press.
- “Custo da Vida no Brasil e os Seus Fatores, O.” 1937. *Jornal do Brasil*, Rio de Janeiro, February 16. Newspaper article.
- Davis, Horace. 1935. “Padrão de Vida dos Operários da Cidade de São Paulo.” *Revista do Arquivo Municipal de São Paulo* 2 (13): 113–166.
- Davis, Horace, and Marian Davis. 1937. “Scale of Living of the Working Class in São Paulo, Brazil.” *Monthly Labor Review* 44 (1): 245–253.
- Dean, Warren. 1969. *The Industrialization of São Paulo, 1880–1945*. Austin: University of Texas Press.
- De Castro, Josué. 1935. “As Condições de Vida das Classes Operárias no Recife.” *Revista do Arquivo Municipal de São Paulo* 2 (18): 167–176.
- De Castro, Lauro Sodré Viveiros. 1938. “O Salário Mínimo.” *O Observador Econômico e Financeiro* 3 (30): 112–123.
- Del Vecchio, Angelo, and Carla Diéguez. 2008. *As Pesquisas sobre o Padrão de Vida dos Trabalhadores da Cidade de São Paulo: Horace Davis e Samuel Lowrie, Pioneiros da Sociologia Aplicada no Brasil*. São Paulo: Editora Sociologia e Política.
- Escola Livre de Sociologia e Política. [1934] 2009. “Informações e Programas, 1933–1934.” In Iris Kantor, Débora Maciel, and Júlio Simões, eds., *A Escola Livre de Sociologia e Política: Anos de Formação*. São Paulo: Editora Sociologia e Política, pp. 225–248.
- Directorio de Estatística Econômica e Financeira do Tesouro Nacional. 1935. *Estatísticas Economicas*. Rio de Janeiro: Typographia da Directoria de Estatística Economica e Financeira.
- Glickman, Lawrence. 1997. *A Living Wage: American Workers and the Making of Consumer Society*. Ithaca: Cornell University Press.
- Haddad, Paulo, and Flávio Versiani. 1990. “Índice de Preços.” In Instituto Brasileiro de Geografia e Estatística, ed., *Estatísticas Históricas do Brasil: Séries Econômicas, Demográficas e Sociais de 1550 a 1988*. Rio de Janeiro: IBGE, pp. 141–297.
- Henlock, Ernest P. 1987. “The Measurement of Urban Poverty: From the Metropolis to the Nation, 1880–1920.” *Economic History Review* 40 (2): 208–227.
- Jany-Catrice, Florence. 2018. “Conflicts in the Calculation and Use of the Price Index: The Case of France.” *Cambridge Journal of Economics* 42 (4): 963–986.
- King, Willford. 1930. *Index Numbers Elucidated*. New York: Longmans, Green and Company.
- Lanata Briones, Cecília. 2021. “Constructing Cost of Living Indexes: Ideas and Individuals, Argentina, 1918–35.” *History of Political Economy* 53 (1): 57–87.
- Levine, Robert. 1998. *Father of the Poor? Vargas and His Era*. Cambridge: Cambridge University Press.
- Love, Joseph. 1980. *São Paulo in the Brazilian Federation, 1889–1937*. Stanford: Stanford University Press.
- Lowrie, Samuel, 1935. “Informações sobre a ELSP de São Paulo.” *Revista do Arquivo Municipal de São Paulo* 2 (15): 99–117.
- . 1938. “Pesquisa de Padrão de Vida das Famílias dos Operários da Limpeza Pública da Municipalidade de São Paulo.” *Revista do Arquivo Municipal de São Paulo* 5 (51): 182–310.
- Malan, Pedro, Regis Bonelli, Marcelo Abreu, and José Pereira. 1977. *Política Econômica Externa e Industrialização no Brasil (1939/52)*. Rio de Janeiro: IPEA/INPES.
- Méndez, Jorge. 1950. “Minimum Wages in Latin America.” *International Labour Review* 62 (2): 116–140.
- . 1938. “Incomes of Families and Single Persons, 1935–36.” *Monthly Labor Review* 47 (4): 728–739.

- Morgan, Mary. 2011. "Seeking Parts, Looking for Wholes." In Lorraine Daston and Elizabeth Lunbeck, eds., *Histories of Scientific Observation*. Chicago: University of Chicago Press, pp. 303–325.
- Pohl-Valero, Stefan, and Joel Vargas Domínguez. 2021. *El Hambre de los Otros: Ciencia y Políticas Alimentarias en Latinoamérica, siglos XX y XXI*. Bogotá: Editorial Universidad del Rosario.
- "Publicações." 1938. *Correio Paulistano*, São Paulo, December 16. Newspaper article.
- Revista de Conjuntura Econômica. 1947. "Índices Econômicos." *Revista de Conjuntura Econômica* 1 (1): 2–17.
- Rudolfer, Bruno, and Oscar Araújo. 1939. "Estatística de Preços de Gêneros de Primeira Necessidade." *Revista do Arquivo Municipal de São Paulo* 6 (62): 71–150.
- Searle, Rebecca. 2015. "Is there Anything Real about Real Wages? A History of the Official British Cost of Living Index, 1914–62." *Economic History Review* 68 (1): 145–166.
- Sember, Florencia. 2013. "The Reception of Irving Fisher in Argentina: Alejandro Bunge and Raúl Prebisch." *European Journal of the History of Economic Thought* 20 (2): 372–398.
- Serviço de Estatística da Previdência e do Trabalho. 1940. *Salário Mínimo*. Rio de Janeiro: Ministério da Fazenda.
- . 1946. *Levantamento do Custo de Vida no Brasil*. Rio de Janeiro: Ministério da Fazenda.
- Skidmore, Thomas. 1967. *Politics in Brazil, 1930–1964: An Experiment in Democracy*. Oxford: Oxford University Press.
- "Solucionando o Complexo Problema do Barateamento da Vida." 1938. *Gazeta de Notícias*, Rio de Janeiro, January 26. Newspaper article.
- Stapleford, Thomas. 2008. "Defining a 'Living Wage' in America: Transformations in Union Wage Theories, 1870–1930." *Labor History* 49 (1): 1–22.
- . 2009. *The Cost of Living in America: A Political History of Economic Statistics, 1880–2000*. Cambridge: Cambridge University Press.
- . 2012. "Navigating the Shoals of Self-Reporting: Data Collection in the US Expenditure Surveys since 1920." *History of Political Economy* 44 (Suppl.): 160–182.
- Sudman, Seymour, and Robert Ferber. 1971. "Experiments in Obtaining Consumer Expenditures by Diary Methods." *Journal of the American Statistical Association* 66 (336): 725–735.
- Sydenstricker, Edgar, and Willford King. 1921a. "The Classification of the Population According to Income." *Journal of Political Economy* 29 (7): 571–594.
- . 1921b. "The Measurement of the Relative Economic Status of Families." *Quarterly Publications of the American Statistical Association* 17 (135): 842–857.
- Tooze, J. Adam. 2001. *Statistics and the German State, 1900–1945*. Cambridge: Cambridge University Press.
- Touchelay, Béatrice. 2015. "La Fabuleuse Histoire de l'Indice des Prix de Détail en France." *Enterprises et Histoire* 2 (79): 135–146.
- Vargas Domínguez, Joel. 2023. "The Construction of the Minimum Wage and Nutrition in Mexico in the Early 20th Century." *História Crítica* 87 (1): 101–125.
- Wells, John. 1983a. "Industrial Accumulation and Living Standards in the Long-Run: The São Paulo Industrial Working Class, 1930–75, Part I." *Journal of Development Studies* 19 (2): 145–169.
- . "Industrial Accumulation and Living Standards in the Long-Run: The São Paulo Industrial Working Class, 1930–75, Part II." *Journal of Development Studies* 19 (3): 297–328.
- Wolfe, Joel. 1993. *Working Women, Working Men: São Paulo and the Rise of Brazil's Industrial Working Class, 1900–1955*. Durham: Duke University Press.
- Zamberlan Pereira, Thales. 2019. "The North-South-Divide: Real Wages and Welfare in Brazil during the Early 20th Century." *Revista de Historia Econômica—Journal of Iberian and Latin American Economic History* 38 (1): 185–214.
- Zimmerman, Carle. 1932. "Ernst Engel's Law of Expenditures for Food." *Quarterly Journal of Economics* 47 (1): 78–101.