Constructing Cost of Living Indexes: Ideas and Individuals, Argentina, 1918-1935

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Today, price indexes, balance of payments, national income, and unemployment figures are elements in the matrix of economic and statistical knowledge used to describe a national economy. The idea of the economy as an autonomous system defined by these variables was developed between the 1870s and the 1950s (Tooze 2001: 4-11). Due to rising prices, in the late 1890s nation-states began to construct weighted price indexes. Increasing urbanization and industrialization changed the dynamics of the labor world. The changes needed to be accounted for and understood, presenting new informational challenges for national statistical systems (Prévost & Beaud 2012: 67). Hence, in their origins price indexes, particularly those that measured the cost of living, "helped to stabilize capitalist class relations by providing a scientific measure of 'fair' wage increases" (Hayes 2011: 99). For price indexes, balance of payments, national income, and unemployment figures, World War I was a crucial moment, particularly so for price indexes as concern for the social consequences of domestic price rises was compounded by the economic disorder triggered by international price volatility. The International Labour Organization (ILO) explains that before 1914, given slow price movements, wages were set through bargaining rather than automatically to reflect changing prices. During the war, the situation changed and cost of living indexes (COLIs) became tools to adjust long-term contracts, especially wages (ILO 1925: 7-8).[2] Since World War II, price

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[2] When analysing the indicator that measured price movements in the first half of the twentieth century, it is historically appropriate to use the term COLI because the statistic was referred to with that name by those that developed and used it.

indexes, particularly those that measured the cost of living and the fluctuations of consumer prices, have economic functions that are dissociated from their earlier social functions, influencing their construction as well as the relationship between social classes and the state (Hayes 2011: 97).[3]

By the 1920s, France (Jany-Catrice 2018; Touchelay 2014 and 2015), Germany (Tooze 2001), the United Kingdom (O'Neill, Ralph & Smith 2017; Searle 2015), and the United States (Stapleford 2009), among other countries, had begun to publish COLIs. COLIs were estimated in Argentina, Chile, and Peru as well.[4] Argentina stands out because, unlike its Latin American counterparts, the weights of the Argentine COLI were based on a household budget survey, rather than being a simple average of prices. Hence, the first Argentine COLI was closer to the British, German, and U.S. indicators than to its regional peers. However, during the first half of the twentieth century the Argentine index had its own characteristics and peculiar trajectory. Measuring price changes is particularly relevant in Argentina because since independence the country has experienced recurring episodes of inflation (Amaral 1988; Irigoin 2000). The behavior of Argentines was affected, generating both interest in price indexes as well as in domestic inflation theories. Hence, the Argentine price index is a political statistic that addresses a longstanding macroeconomic problem (Daniel & Lanata Briones, 2019, 128).

Following the sociology of quantification (Alonso & Starr 1987; Anderson 1988; Curtis 2001; Desrosières 1993; Hacking 1990; Porter 1995; among others) and the sociology of economic knowledge (Fourcade 2009; Furner & Supple 1990; Hayes 2011; among others), this paper illustrates the construction and use of statistics through two estimates of the Argentine

[3] Not all early indexes had social adjustment functions. For example, Jevons' mid-nineteenth century index was used for the analysis of monetary data (Hoover & Dowell 2002: 155-159).
[4] See National Industrial Conference Board (1927: 41, 85-8, 309-11). The ILO only referenced the case of Chile and Peru (*ILR* 1927: 123). Most Latin American COLIs were published in the 1930s (IASI 1947: 93, 144, 243, 301).

COLI. On the one hand, the foundational indicator – named here the Bunge COLI – was released privately in 1918 and publicly in 1924. On the other hand, the index published officially in 1935 by the National Labor Department (*Departamento Nacional del Trabajo*, DNT), which is named here the DNT COLI. How and why were these two estimates produced and how did they differ? In what economic and social context and by whom were they elaborated? How does the history of the Argentine index enhance the history of COLIs? In answering these questions, this paper contributes to the analysis of the nationally-bounded determinants and the importance of individual trajectories in cost of living measurements and uses. Moreover, this article enhances the history of COLIs by examining the characteristics, ideas, purposes, and uses of two different estimates of the Argentine index within the corresponding historical context, focusing on the men behind both estimates, Alejandro Ernesto Bunge and José Francisco Figuerola. The paper shows that the Bunge COLI did not hold as stable social and political artifact (Desrosières 1993: 9) because it lacked legitimacy in the eyes of many sectors of society, most importantly the working class. This was a consequence of Bunge's personal connections, and of the close relationship between the COLI and Bunge and between the index and his embryonic macroeconomic vision, which, in fostering industrialization, differed from that of the economic and political ruling elite. Thus, once Bunge distanced himself from the national statistical system, the index ceased to be published between 1925 and 1931. Similar to its counterparts in France, Germany, the United Kingdom, and the United States, but in contrast to its predecessor, the DNT COLI's history highlights the importance of the working class as a social actor in fostering the adoption of the COLI as industrialization increased. The DNT COLI's legitimacy was enhanced by the connections between the Spaniard Figuerola and the ILO.[5] By contrasting the trajectories of

[5] Unlike Lanata Briones (2016 and forthcoming), this paper does not examine the accuracy of the measurements or the problems behind their construction.

the Bunge and DNT COLIs, I argue that the lesson from the history of the Argentine COLI is that, for COLIs to hold as stable social and political artifacts during the first half of the twentieth century a connection between the COLI and industrial relations had to exist. In particular, the COLI contributed towards the formation of the working class as a visible object for policy intervention.

Constructing statistics in Argentina during the first half of the twentieth century

The existing research on Argentine public statistics mainly examines the period between the first (1869) and the fourth (1947) national population censuses. González Bollo (2014) conceives of the Argentine national statistical system of that period as the *fábrica de las cifras oficiales* (factory of official figures). He defines the *fábrica* as a decentralized network of statistical agencies that regularly produced numbers. These agencies had dissimilar administrative capacities and were located in different ministries. This decentralized character, the proliferation of agencies and their lack of coordination was a "normal feature" (Prévost & Beaud 2012: 71) of statistical systems at their beginnings. Throughout this period, the *fábrica*'s characteristics and outputs changed substantially, particularly due to the work of Alejandro Ernesto Bunge and José Francisco Figuerola.

Between 1869 and 1898, the *fábrica* had five agencies. The General Bureau of Statistics (*Dirección General de Estadísticas de la Nación*), the predecessor to today's National Institute of Statistics and Censuses (*Instituto Nacional de Estadística y Censos*), was founded in 1894. In this period, seven national censuses were taken, focusing, for example, on immigration, foreign trade, and agriculture. All of these topics related to the ruling elite's concerns for a country endowed with vast and fertile land and little human capital that was entering the world economy as an exporter of agricultural products.

As the economy diversified and society became more complex, the decentralization of statistics was reinforced.[6] Between 1900 and 1916-1917, the number of state institutions with statistical agencies and total employment within those agencies increased substantially. The statistical system improved its internal organization by introducing stable routines. With the birth of the social question and the subsequent rise in conflict, urbanization became another theme of frequent enquiry. In this period, the decentralized network became a three-story building with two agencies at the top, two in the middle and three at the bottom. The offices in the top two levels, unlike the rest, were able to maintain a stable routine (González Bollo 2014: 80-7). The General Bureau of Statistics – situated at the top level of the building – collected foreign trade, and public revenue and expenditure figures. The DNT was created in 1907. It was a proposal of lawyers, rather than a result of pressures from labor market participants. The underlying principle was that the state should intervene in social matters. The aim was to understand the situation of the working class in order to legislate. Its Statistics Division – in the middle story of the statistical building – was headed by Bunge between 1913 and 1915. The division collected information on the prices of working-class consumption goods and developed working-class family budget surveys.

For much of the interwar period, Argentina experienced an expansion of citizen participation in politics, rapid economic growth with an increase in the share of manufacturing in economic activity, and a subsequent rise in the number of industrial workers.[7] Between 1916-1917 and 1932, public statistics experienced a cognitive and methodological revolution. This revolution was linked, partly, to the closure of the *Caja de Conversión* (1914-1927) –

[6] Recent research has argued that meat produced for cold storage and wheat flour, among other products, "represented more than a fifth of the total export value from the beginning of the twentieth century" (Pinilla & Rayes 2019: 453), enhancing the role of that individual items had in backward and forward linkages (Kuntz-Ficker & Rayes 2017: 43).

[7] Between 1918 and 1928, the Argentine economy grew almost as intensely as during the period 1900-1914 (Gerchunoff & Aguirre 2006: 10).

Argentina's currency board during the Gold Standard era and a crucial piece of the export-oriented economy. The closure encouraged the construction of statistics to fill the vacuum that the new economic context generated. The cognitive and methodological changes also required that agencies renew their position in the national statistical system by hiring university students and graduates with statistical training. Index numbers were introduced in 1917, and IBM's Hollerith punch-card machines in 1925. As tasks were mechanized, routines became increasingly impersonalized and focused throughout the agencies (González Bollo 2014: 123-125).

Between 1916-1917 and 1932, the General Bureau of Statistics – headed by Bunge between 1916 and 1921 and from 1923 to 1925 – developed price indexes and collected data on external trade, public revenue and expenditure, and banking activities. Bunge first developed index numbers to establish the prices and quantities of foreign trade (DGEN 1917). He also constructed a national income estimate, and cost of living and wholesale price indexes. With these statistics, Bunge developed an embryonic macroeconomic vision that favored expansive, countercyclical economic policies and highlighted the potential of the domestic market (González Bollo 2014: 120). Bunge's vision differed from that of the prevailing liberal, free trade view that aimed at maintaining the agricultural product export-led status quo.

Throughout the 1930s, the industrial sector had a leading role in the Argentine economy, encouraged by exchange controls rather than by active economic policy.[8] The number of agencies that regulated productive activities multiplied. Declining population growth and urbanization, due to the demand created by industrialization, generated significant social changes, which fostered public policy. Throughout the period 1932-1943, public statistics expanded. From the start of his presidency in 1932, Agustín P. Justo (1932-1938)

[8] Between 1930 and 1939, annual industrial growth rate reached 7.1% (Barbero & Rocchi 2003: 272).

aimed to normalize the national statistical system (Lanata Briones 2016: 142).[9] The administrative structure of the statistical offices broadened as they established more sections and expanded their geographical and subject coverage. Their permanent staff rose substantially. Each agency was in charge of at least one periodically-released measure. Agricultural production and its commercialization; the balance of payments; money in circulation; wholesale and retail prices; industrial production, employment, and unemployment; and the income and purchasing power of the families of urban workers were the most important variables. The more refined collection of information portrayed a "standardized, global and dynamic economy" (González Bollo 2014: 163, author's translation).

The Statistics Division of the DNT was re-launched with the sanction of the law for the 1932 unemployment census, an increase in its permanent staff, the acquisition of a punch-card machine (González Bollo 2014: 207), and the 1932 presidential decree which directed it to construct a COLI (*BIDNT* 1933). In 1934, a presidential decree reorganized the division's tasks, strengthening its technical autonomy (*BIDNT* 1934b). Also in that year, Figuerola was appointed officially as the division's head. As the government increasingly regulated capital-labor relationships, the division began to take part as a moderator in those relationships. It perfected its statistical research, extended its geographical coverage, and introduced methods, concepts, and innovative calculations. The re-launched division began to compile industrial statistics, wage and occupation data for several urban areas, information on strikes and collective wage agreements, and working-class family budgets for different income levels. This data was compiled in the annual publication called Social Investigations (*Investigaciones Sociales*), a compilation of statistics that generated a taxonomy of the Argentine worker. The

[9] In 1928, President Yrigoyen's administration (1928-1930) fired the heads of two statistical agencies (González Bollo 2014: 128-9). In 1931 the agencies' budgets suffered cuts. The Statistics Division's allocation declined by 24.6%, while the DGEN's dropped by 10.5% (González Bollo 2007: 164).

number of reports on different economic sectors grew substantially. Due to this and its administrative and intellectual activity, the division and its statistical outputs gained legitimacy in the eyes of workers and of workers' organizations. Official figures gave unions authoritative arguments to support their demands, as statistics became a means to prove scientifically the workers' claims (Daniel 2011: 186). Figuerola's appointment was crucial behind this process. Along the lines of Bunge's embryonic macroeconomic vision, statistics helped Figuerola and his team at the division develop that taxonomy as well as ideas that enhanced domestic market consumption and, consequently, endorsed industrialization, while relegating to the backburner the traditional idea of exporting surplus agricultural production. Together with the statistical system, the division evolved and adapted to the changing context.

Throughout these years, the COLI was an important indicator within the Argentine statistical system. It was one of the pillars of Bunge's embryonic macroeconomic vision in the late 1910s and 1920s. It was a tool that provided legitimacy to the Statistics Division of the DNT in the 1930s while contributing towards the making of the working class. Moreover, Bunge and Figuerola – the men behind the COLI – were key statisticians within the national statistical system. Together with the traits mentioned above, these characteristics, explored in detail in the following two sections, explain the relevance of the Argentine COLI.

The Bunge COLI

In 1918 Alejandro Ernesto Bunge was embedded fully in the Argentine statistical system.[10] He was then director of the General Bureau of Statistics. The Bunge COLI, the first Argentine COLI, was first published that year in the first ever issue of the *Review of Argentine Economics* (*Revista de Economía Argentina*), a journal founded and edited by Bunge (Bunge 1918). The 1918 article had annual COLI figures between 1910 and 1917 that were updated by one year

[10] Bunge, born in Buenos Aires in 1880, died there in 1943.

in two subsequent journal articles (Bunge 1919; Valle & Ferrari 1920). In 1924, the General Bureau of Statistics published the COLI, extending the estimate to 1923 (DGEN 1924). Bunge's indicator was constructed with information solely from the City of Buenos Aires and not from Argentina as a whole. Bunge had a leading role in the four reports where the COLI was published. Thus, between 1918 and 1924 there was a strong association between him and the COLI. I argue that this connection not only relates to the fact that he signed and/or participated in all articles, but also to his introduction of index numbers to the Argentine statistical system in 1917, his centrality within it, and the perception that society at large had of Bunge and his statistical activity.[11] These connections strongly influenced the early history of the Argentine COLI.

Beginning with his tenure as director of the Statistics Division of the DNT in 1913, Bunge aimed to modernize the national statistical system. He believed that the General Bureau of Statistics needed to advise the Argentine government and inform the country as, for him, statistics enabled "acts to be based on reality" (*REA* 1923: 248, author's translation). Hence, Bunge conceived of statistics as objective and neutral knowledge. Trained as an engineer in Germany, Bunge was exposed to and influenced by the ideas of Friedrich List, who believed that nation-states should develop using customs duties to encourage industry (Lucchini et al. 2000). Just as List interpreted the Napoleonic Wars for Germany, Bunge viewed the setback experienced by international trade due to World War I as an opportunity for Argentina to foster domestic industry and address its excessive reliance on primary product exports as a source of economic growth (Asiain 2014).[12] Bunge's interpretation contradicted the existing economic model supported by the liberal political and economic ruling elite. To encourage

[11] A thorough analysis of its methodology is outside the scope of this paper, but can be found elsewhere (Lanata Briones forthcoming).
[12] Argentinian GDP contracted by 19.6% between 1913 and 1917 (Díaz Alejandro 1970: 62).

industrialization, Bunge believed that an autonomous economic policy should be established (Crovetto & Zeolla 2019: 123). The *Caja de Conversión* was abandoned in 1914, and the changes in the world economy after World War I implied that a new set of phenomena had to be understood. Arthur Bowley's and Irving Fisher's books led Bunge to conceive the analysis of problems through the use of index numbers (Fernández López 1994: 667).[13] Just as the German Historical School approached the social question empirically using statistics (Grimmer-Solem 2003), Bunge developed a domestic market-oriented embryonic macroeconomic vision that promoted industrial policy. He based this vision on a set of statistics that he introduced to the Argentine statistical system: a national income estimate, foreign trade indexes, cost of living and wholesale price indexes, as well as working-class family budget surveys.

During the second half of the 1910s, Argentina, like the rest of the world, was experiencing general price rises. The COLI was, for Bunge (1920), the basis for the coefficient of correction of the purchasing power of money, a tool to quantify the purchasing power of the domestic currency relative to others.[14] Using the terminology of the Head of the Statistical Section of the ILO, when the objective is to obtain an expression for the fluctuations of the purchasing power of money, the COLI falls within the realm of economic statistics (Pribram 1926: 483). In terms of its uses, in 1920 seven draft laws – which made use of the Bunge COLI (Pantaleón 2004: 190) – were presented to freeze real rents. In 1921 the indicator was used in an academic paper to justify wage indexation (Prebisch 1921). National deputies designed bills to control the rise in the cost of living that were never fully discussed (González Bollo 1999: 29). The COLI was reproduced in the newspaper *La Prensa* to explain the increase in the cost

[13] On the relationship between Bunge and Fisher, see Fernández López (1994: 671) and Sember (2013: 379).
[14] The coefficient of correction estimates the change in the value of any given good or service during a particular period. With the values of the COLI in two periods, one estimates the coefficient. The product of the coefficient and the price of the corresponding item today renders the value of such item at a point in the past (Bunge 1920: 20).

of living.[15] In Neiburg's words (2006: 614), the Bunge COLI portrayed the double nature of these indexes by describing previous empirical events and by trying to prescribe future behavior.

Bunge's statistical work was endorsed nationally. The Dean of the School of Economic Sciences of the University of Buenos Aires, where Bunge was a statistics professor, publically praised the 1918 journal article that released the COLI and asked Bunge to extend the results with student help (*REA* 1919a). *La Nación* and *La Prensa,* Argentine newspapers aligned with the ruling elite's interests, published his articles and op-eds. *The Buenos Aires Herald*, an Argentine newspaper published in English, was also positive about Bunge's publications (González Bollo 2004: 64), and both it and the U.S. consulate in Argentina were optimistic about Bunge's return to the General Bureau of Statistics in 1923 (González Bollo 2012: 76). The 1919 National Economic Conference, sponsored by the Argentine Confederation of Commerce, Industry and Production (*Confederación Argentina de Comercio, Industria y Producción*), demanded an expansion of the General Bureau of Statistics when the Bureau was directed by Bunge (*REA* 1919b: 485).

Nevertheless, praise for Bunge's COLI did not extend across Argentine society as a whole. Within Argentina, Bunge's beliefs and social position, his connections with the economic establishment and the rumor of a hidden agenda influenced the perception that some sectors had of the information he produced. Why? Due to his upbringing and family history, Bunge was part of the ruling establishment (González Bollo 2004). Since he distanced himself from left-wing ideologies and believed that the social improvements of the Radical Party governments (1916-1930) had only partisan political purposes, he was politically conservative (Asiain 2014: 83). Bunge preached his new macroeconomic stance in the pages of the *Review*

[15] "La carestía de la vida. Sus causas y consecuencias." *La Prensa*, April 27, 1919, 8.

of Argentine Economics. His economic journal was the leading voice in the contemporary debate on "development strategies and economic policies capable of returning the country to the economic dynamism lost during World War I" (Llach 1985: 52, author's translation). Financed by official and private advertising, the journal's research was grounded on public and private statistics (Pantaleón 2004: 185). In 1921 the composition of the journal's editorial board changed, bringing in members who had closer connections with establishment associations, such as the Argentine Industrial Union (*Unión Industrial Argentina*) and the Argentine Rural Society (*Sociedad Rural Argentina*). It also increasingly supported the ideas of the Argentine Confederation of Commerce, Industry and Production, which represented the interests of the United States and of domestic industry. Pantaleón (2004: 185-9) argues that the journal was the base of Bunge's network. According to Belini (2006: 31), it spoke for the Industrial Union and the major domestic economic groups. Though relevant and economically important, these links were not all with the political and economic ruling elite, but with groups that antagonized it. Whilst being Director of the General Bureau of Statistics, Bunge joined the boards of directors of different firms. He was, at one and the same time, a bureaucrat and a representative of outside interests. In the 1920 parliamentary discussion of the General Bureau of Statistics' budget, Socialist representative Nicolás Repetto denounced a "scam" (González Bollo 2014: 141, author's translation). Repetto claimed that Bunge's journal was using the General Bureau of Statistics' best and most loyal employees to first publish data in newspapers as a scoop, then release it in the journal, and lastly in the General Bureau of Statistics' yearbooks.

Moreover, the working class associated Bunge with the COLI and distrusted both. Socialist organizations – one of the three strands of the Argentine labor movement – doubted Bunge's statistics since he arrived at the Statistics Division in 1913. They claimed that Bunge's statistics lacked "real and tangible empirical basis" because they were developed by an

"accomplished theologian of arithmetic science".[16] That is, these organizations believed that Bunge's numbers were tainted by his strong religious beliefs – which were widely known throughout society as Bunge did not hide them (González Bollo 2012: 33) – because, for them, they did not match reality. They argued that the lack of information on how data was collected implied a lack of honesty in their gathering, while accusing Bunge of using his position at the statistical agency to play politics in a "cynical and disloyal" way.[17] In 1925 and 1926 the newspaper *Bandera Proletaria*, of revolutionary syndicalist extraction – another strand within the labor movement – questioned the prices collected and used to construct the COLI.[18] An article in *La Vanguardia*, the Socialist newspaper, criticized and doubted origins of the prices used to estimate the Bunge COLI. It compared them with another set of prices that showed much higher yearly increases. Consequently, the article claimed that the rise in the cost of living cannot be "resolved with mathematical formulas or just by doing estimates on paper."[19]

Initially, the Bunge COLI was published privately – rather than by the national statistical system – in a journal linked to specific interests, and it was constantly associated with one individual. The political and economic elite as well as the working class condemned Bunge's statistical work, undermining it. The Bunge COLI is an example of how numbers not generated by statistical agencies and linked to particular organizations may be accepted, but are more likely to be viewed skeptically (Porter 1995: 214). The distrust placed in the COLI arose from a questioning of Bunge, rather than a specific methodological criticism.

Despite the domestic disapproval, the Bunge COLI travelled quickly outside Argentina's borders, thanks to the relationships Bunge established when disseminating the

[16] "La última estadística sobre la desocupación obrera." *La Vanguardia*, December 13, 1913, 1, author's translation.
[17] Ibid., 1, author's translation.
[18] "El valor de una estadística." *Bandera Proletaria*, July 17, 1926, 1.
[19] "Por el abaratamiento de la vida." *La Vanguardia*, September 14, 1919, 6, author's translation.

COLI (*REA* 1920a; *REA* 1920b; *REA* 1920c). In 1924 the journal of the Bureau of Labor Statistics (BLS) published it (*MLS* 1924: 39). The *Encyclopaedia Britannica* 1921 cost of living entry written by Arthur Bowley referenced it when it referred to "occasional calculations [of COLIs] on a similar basis" to that of the United Kingdom and the United States, among others (LSE, COLL MISC 0772, B6). In *The Making of Index Numbers*, Irving Fisher's (1922, 433) list on index numbers quoted Bunge's index. Many authors highlight Bunge's international connections (De Imaz 1974: 548; Daniel 2012: 74; Pantaleón 2004: 190). Their claims are based on the information published by Bunge himself since he alleged that he corresponded via post with these individuals and associations. The references listed here, by contrast, are findings that are independent of Bunge's claims. They unequivocally prove that Bunge experienced unprecedented international acknowledgment (Pantaleón 2009: 60). The COLI transcended the domestic arena without reaching the ILO because Bunge deliberately cultivated ties with certain international scholars. Thus, the COLI's international recognition was hindered. Specifically, from the perspective of the international standardization of socio-labor statistics fostered by the ILO, Argentina was an outcast in this period. In search for international validation, Bunge compared the evolution and values of the Argentine COLI with the estimates from other European and North American countries (DGEN 1924: 2). Such an association presented an Argentina that was directly comparable with other countries since it had the same statistics as them, contributing to its configuration as a modern nation-state, as also happened with population censuses (Loveman 2014). The comparison between COLIs aimed to provide legitimacy to the Argentine index by portraying its objectivity. The Bunge COLI was needed to compare the domestic situation with international trends rather than due to local needs.

The close relationship between the COLI and Bunge influenced the index's lack of publication between 1925 and 1931, which for González Bollo (2014: 139) was a consequence

of the economic prosperity of the 1920s that weakened the COLI's political and social impact. Since personal credibility is required to produce numbers (Porter 1995: 214), the lack of legitimacy of the index also relates to the close relationship between Bunge and the COLI and the role the indicator had in his macroeconomic vision. In June 1925 Bunge resigned as Head of the General Bureau of Statistics because he "considered that the reorganization of national statistics is completed" (*REA* 1925: 463, author's translation). He never had another relevant post within the national statistical system. Moreover, the monetary 'normality' restored in 1927 when the *Caja de Conversión* was re-established undermined the relevance of the coefficient of money correction (Lanata Briones 2016: 119). Lastly, in 1928 President Yrigoyen fired the Director of the General Bureau of Statistics, delaying the publication of the foreign trade index numbers. These indexes, initially elaborated by Bunge, were trusted because they were needed to measure the dynamism of the export-led economy. Foreign trade index numbers were more important than the COLI as the ruling class benefited from the export-led model. Hence, the lack of publication of the COLI also implies that the index had no clear use within the existing political economy.

Despite the trajectory of the COLI, Bunge was a symbol of the new group of Argentine statisticians that rose to prominence in the interwar period. According to the categorization of Prévost and Beaud (2012: 6), Bunge was a polymath: he was a state statistician who also had scholarly credentials. He provided a legitimate definition of statistical activity and a way of working that gave a sense of objectivity and neutrality to his actions (Daniel 2012: 65-80). Bunge adapted international norms to the existing data and/or to the Argentine situation and its constraints (Lanata Briones forthcoming). We can say that Bunge contributed to developing economic knowledge under particular situations, particularly in the form of index numbers, and transformed the local scientific field (Fourcade 2009: 258).

The existing political, economic, social and intellectual context influenced Bunge's concerns and statistical developments. Despite his knowledge and contributions to the national statistical system, Bunge was "unambiguously associated with both conservative politics and economic renovation" (Falcoff 1982: 40). The Bunge COLI was part of a toolbox of statistics used to develop an embryonic macroeconomic vision that differed from the existing export-oriented and outward-looking consensus in that it sought to enhance industrialization and the domestic market. Argentina's social, political and economic elite did not back Bunge's vision and was hostile to his COLI. The COLI was distrusted also by the working class. Unlike other statistics produced by Bunge, the COLI did not have a role within the Argentine political economy of the 1910s and 1920s. The novelty of Bunge's views and of the COLI overwhelmed many of his contemporaries, who were unwilling to read or prioritize "topics and reports based on facts and figures" (De Imaz 1974: 548, author's translation). The close association between Bunge and the COLI influenced the index's history, from its launch in 1918 to its lack of publication between 1925 and 1931.

The DNT COLI

When taking office in 1932, President Justo aimed to normalize the functioning of the national statistical system following the events of 1928-1931, which included the lack of publication of the COLI, the sacking of the heads of two statistical agencies, and budgetary cuts for statistical agencies. In September 1932 a presidential decree argued for the need to know the fluctuations in the purchasing power of workers' wages and established the construction of a COLI (*BIDNT* 1933). The task was assigned to the Statistics Division of the DNT and to José Francisco Figuerola.[20] The COLI, named here the DNT COLI, was released in 1935 (DNT 1935) and it was updated monthly. Like its predecessor, it was constructed with information solely of the

[20] Figuerola was born in Barcelona in August 1897 and died in Buenos Aires in September 1970.

City of Buenos Aires. I argue that, due to the work of the Statistics Division and Figuerola, the perception of the COLI, specifically by the working class, as well as its objective and use changed, providing legitimacy to the index.

From the end of the 1920s, the Statistics Division began to realize the potential wages had to consume local production. The "imperative need" to "quickly reach the knowledge of economic and social facts" to solve the problems between capital and labor encouraged the presidential decree of October 1934 that reorganized the division's tasks (*BIDNT* 1934b: 4032, author's translation), another piece in Justo's normalization of the statistical system. The decree conceived of statistics as a neutral and objective descriptor of reality. That year, Figuerola was named Head of the Statistics Division. The rationale of Justo's project was outlined in the prologue of the 1935 report that released the DNT COLI, where it was claimed that "social justice is highly dependent on the good understanding" of the living conditions of workers and their relations with employers (DNT 1935: 3, author's translation). The prologue also highlighted that all acts of government must have a justification and must be based on the knowledge of facts. Despite Bunge's embryonic macroeconomic vision, the agricultural export model was still backed by the economic and political ruling elite. However, increasing urbanization and industrialization required the building of a new image of the nation where its key protagonist, the working class, needed to be made with the help of statistics (Hacking 1990: 5-6). With the 1932 and 1934 presidential decrees, the statistical making of the working class became a state matter. This production of statistical knowledge facilitated the social control of that sub-population, as knowledge was the first step towards establishing evidence-based policy to encourage or enforce certain behaviors (González Bollo 2007: 238; Hacking 1990: 108). These changes generated a boom in the production of socio-labor statistics and contributed to the legitimacy of the COLI.

Unlike Bunge, Figuerola – a doctor of law and an expert on labor issues – was a Spanish native who needed to make an impression when he moved to Argentina in 1930. During the dictatorship of Miguel Primo de Rivera, he was Secretary General of the Cataluña delegation of the Spanish Labor Ministry under Eduardo Aunós Pérez.[21] Despite not being an official delegate to the ILO's statistical meetings or to any International Labor Conference, Figuerola became aware of the ILO's legal and statistical practices and guidelines (ILO, C 2-2-1; ILO, CAT 5-8-4; ILO, T 102/0/2). This provided him with knowledge of the labor world, political capital and legitimacy of having experienced a government position (González Bollo 2002: 14). Figuerola taught labor and corporate law at the Barcelona Social School, where Aunós Pérez also lectured.[22] When the dictatorship fell, Figuerola took a job as legal advisor for the Hispano-American Electric Company (*Compañía Hispanoamericana de Electricidad*) in Buenos Aires. He became the company's representative to the DNT and due to his "efficient and brilliant" performance he was invited to join the department (Delgado 1994: 413, author's translation). A 1932 presidential decree put him in charge of the COLI, and that year he conducted the unemployment census. Figuerola acted as a state statistician (Prévost & Beaud 2012: 6) before being officially named Head of the Statistics Division of the DNT, which occurred in September 1934 (*BIDNT* 1934a: 4035). Unlike Bunge, Figuerola's recognition arose mainly from his bureaucratic activities rather than his academic credentials. He imparted a corporativist ideology on the division's work, helped by his stable team and by the introduction of the ILO's statistical guidelines.

As part of a new phase in the relationship between the organization and Latin America that started in 1930 (Yáñez Andrade 2012: 34), the ILO increased its influence in Argentina through the appointment of Raúl Migone as the first ILO correspondent in the country in 1931.

[21] "Comida íntima." *La Vanguardia*, November 29, 1927, 10.
[22] "Escuela Social de Barcelona. Exámenes." *La Vanguardia*, October 22, 1929, 7.

The relationship between Figuerola and Migone played a decisive role in Figuerola's career. They met in April 1931 at the First National Labor Congress held in Buenos Aires (ILO, C 2-2-1). Figuerola pursued the relationship with Migone by preparing a dossier for him to send to the ILO and a report on Argentine social policy (ILO, CAT 5-8-3; ILO, CAT 5-8-6). After ILO Director Albert Thomas' vague proposal to create an ILO branch in Argentina (ILO, C 2202/2), Figuerola and Migone designed and submitted an outline that contained a description of the branch's tasks and costs with Migone as Director and Figuerola as Secretary. An assistant would prepare information on wages, cost of living and family budgets (ILO, CAT 5-8-4). The plan was outlined in March 1932, before the COLI became a government project. Since the proposal focused on numbers not systematically gathered by it, Figuerola was well aware of the data produced by the Statistics Division. Figuerola's efforts paid off because, according to Migone, it was thanks to his negotiation with his friend and then President of the DNT, Eduardo Bullrich, that Figuerola was offered the leadership of the Statistics Division in April 1932 (ILO, CAT 5-8-4), five months before the COLI decree and two years before being officially named as Head of the statistical agency. Figuerola also corresponded with the then Head of the Statistical Section of the ILO John Nixon in 1935 and 1936, where Figuerola referred to Migone as his "friend" (ILO, T 102/0/2). Figuerola was well aware of the legitimacy a link with the labor organization provided him.[23] Moreover, before mentioning the idea of social justice in the 1935 report, the DNT argued that the 1934 reorganization of the division's tasks crystallized in that year's decree followed the developments in the methods of study of the labor world, an indirect reference to the ILO. Such a diagnosis related to Figuerola's acquaintance with Migone and his previous knowledge of the ILO's work. The increasing influence of the

[23] Figuerola asked Albert Thomas for permission to mention ILO members and publish a photo of the Geneva office in his journal, *Revista de Derecho Social* (ILO, CAT 5-8-6). In 1932 Migone and Figuerola lobbied for a subsidy from the DNT that would enable the *Revista* to publish ILO data for free (ILO, CAT 5-8-4).

ILO in Argentina also enhances the idea of the importance gained by the working class for the Argentine government.

Figuerola conceived of socio-labor statistics as those that allow an analysis of the standard of living of social groups. For him the COLI was a mathematical tool that showed the variations of working-class family incomes (Figuerola 1942: 265-8). It was one of the statistical tools needed for the statistical making of the working class. In contrast to its predecessor, the DNT COLI was estimated due to domestic social policy needs. Using the terminology of the Head of the Statistical Section of the ILO, when its objective is to determine the level of real wages and to be used as a basis for adjusting wages to changes in the value of money, the COLI falls within the realm of labor statistics (Pribram 1926: 483). For the General Confederation of Labor (*Confederación General del Trabajo*), the national trade union federation, the index shaped the objective judgments needed to legislate; they conceived of it as an "instrument to measure poverty".[24] In 1934 the COLI allowed civil court judges to implement index-adjusted severance pay (González Bollo 2014: 173). The following year, the Federation of Garment Workers (*Federación Obrera del Vestido*) used it to update wages.[25] Meanwhile, the labor confederation employed it to validate its strike decisions.[26] In the wake of the 1937-1938 economic contraction, the COLI was used to justify the need to improve workers' situation.[27] In early 1942 manufacturers in the metal sector compared the 13% rise in the COLI to the 19.5% increase in wages to undermine the workers' claim that the purchasing power of their wages was deteriorating (Daniel 2011: 193). In 1943 Figuerola designed a scheme to index wages to the fluctuations in the COLI (DNT 1943). Like its predecessor, the DNT COLI described and prescribed, though its prescriptive nature was enhanced.

[24] "La carestía de la vida en la Capital Federal." *CGT*, November 16, 1934, 3, author's translation.
[25] "Mitin contra la carestía de la vida y la reacción." *CGT*, October 18, 1935, 4.
[26] "Contra la carestía de la vida la reducción de la jornada." *CGT*, October 18, 1935, 1.
[27] "Una realidad sombría." *CGT*, September 17, 1937, 1.

The DNT COLI had to overcome the doubts regarding its predecessor. The labor confederation endorsed the DNT COLI from the start, stating that the DNT's work to construct the COLI was carried out "without preconceptions and following a rigorous and predetermined method". For the national trade union federation, the household budget survey on which the index was based was "thorough" and the results "objective",[28] while the COLI provided "scientific proof" of workers' needs.[29] The role played by the labor confederation suggests that a network of actors is necessary to help in the diffusion of a COLI (Desrosières 2014: 357). However, there were still criticisms. Migone's reports to the ILO claimed that the index was criticized by newspapers (ILO, C 2-2-1). He mentioned that Socialist newspaper *La Vanguardia* questioned the correctness of the numbers that it reported and methodology early on, saying that the cost of living had not declined between 1933 and 1935 (ILO, C 2-2-1). A review of the report where the DNT COLI was released compared the official results with the figures obtained by the Railway Union (*Unión Ferroviaria*). It questioned that the index was based on the weights reflecting consumption patterns of the lowest-earning household and that it excluded certain goods. Nevertheless, the piece claimed that the launch of the COLI would encourage analysis and future research (Mestorino 1935). A study from a magazine related to the financial and industrial sectors asserted that the lack of inclusion of several goods led to a superficial index that if used to design laws and economic policy could become "disastrous for humble households".[30] The fact that the COLI was associated with the DNT as an institution rather than with Figuerola as an individual, contributed to its legitimacy. Unlike Bunge, Figuerola's name did not appear in the division's reports even if he wrote them. Due to the endorsement of the labor confederation, the DNT COLI was accepted by the working class. In

[28] "Algo de lo que enseña la estadística sobre el costo de la vida en la Capital Federal." *CGT*, May 3, 1935, 4, author's translation.
[29] "El salario mínimo y el costo de la vida." *CGT*, January 4, 1935, 1, author's translation.
[30] "Estadística equivocada." *Véritas*, December 15, 1936, 25, author's translation.

Porter's terms, it began to give "direction to the very activities that are being measured" (1995: 45). The Statistics Division's socio-labor statistics made individuals governable. The DNT COLI, in comparison to the Bunge COLI, was trusted. It held as a stable social and political artifact, and with it public policy was designed to consider and benefit the working class.

In February 1935 Migone sent the DNT report where the COLI was launched to the ILO (ILO, T 102/0/2). Hence, the labor organization was able to publish the DNT COLI in the May 1935 issue of the *International Labour Review*. The BLS commented on that report a few months after (*MLS* 1935: 850). These references are an endorsement of the DNT COLI, giving it and Figuerola's work international recognition. This acknowledgment and approval surged from organizations linked to socio-labor statistics because Figuerola had an interest in being acknowledged by them. This must be understood in the wider context of the change in the relationship between Argentina and the ILO, Figuerola's aim to legitimize himself and his work, and the importance he placed on the ILO.

The DNT's report where the COLI was launched stated that, apart from the 1924 publication of the General Bureau of Statistics (where the Bunge COLI was published by the national statistical system), there was no regular series with uniform data to determine a long-term estimate of the cost of living. The report claimed that, with the DNT COLI, the vacuum had ceased to exist. The methodology of the DNT COLI followed openly the resolutions of the second and third International Conferences of Labor Statisticians of the ILO that discussed COLIs and family budget surveys. The Statistics Division aimed to develop a COLI worthy of comparison to its international equivalents. The division relied on the authority of the ILO's statistical conferences to validate its proceedings. The presidential decree of 1932 that encouraged the construction of the COLI, the reference to internationally accepted methodology, the little importance given to previous estimates, and the assertion that the work

carried out by the Statistics Division was successful sent the message that the DNT COLI was something new and a greatly improved version of its predecessor. Aware of the international and national standards and developments, Figuerola was an important asset within the Statistics Division. Similar to Bunge, Figuerola adopted and adapted international guidelines to the local context and circumstances, contributing to the construction of COLIs and economic knowledge.

Figuerola arrived in Argentina with experience as a civil servant and knowledge of the international status quo of socio-labor statistics. Figuerola's awareness of the ILO's increasing relevance and his acquaintance with the contents of its statistical conferences influenced his trajectory as Head of the Statistics Division, the history of this Argentine statistical agency, and the history of the Argentine COLI. Figuerola, like Bunge, believed in the neutrality and objectivity of numbers, as facts that mirrored reality. Under his tenure, the Statistics Division became a regular collector of information on the working class. As manufacturing industry increased its share of gross domestic product, this quantitative information was part of the greater aim of making the working class a social and economic actor, helping to construct a new image of the Argentine nation. Building on Bunge's statistical work and his embryonic macroeconomic vision, socio-labor information helped develop solid arguments about the advantages of providing greater purchasing power to wages as a pillar of an expansionary economic policy. The DNT COLI became a crucial indicator to establish workers' purchasing power, as information on wages was not gathered as systematically. Hence, the elaboration of the DNT COLI, unlike Bunge's index, was encouraged by a presidential decree. The DNT COLI had an administrative/government purpose and objectives; it was an act of government, rather than a mathematical construction linked to private and individual interests. The index became a legitimate and trusted source of political dispute and a basis of objectivity for discourse. The DNT COLI held as a stable social and political artifact because it corresponded

with the new ways of thinking, organizing and shaping social relations. It also found a network of allies to diffuse it. These two dimensions correspond to Desrosières' (2014: 355) macro-historical and micro-sociological dimensions in the analysis of statistics.

The Argentine COLI *vis-à-vis* its counterparts: shedding light on the history of COLIs

This section provides an analysis of the context, ideas and uses of the Argentine, British, French, German, and U.S. COLIs during the first half of the twentieth century, particularly the interwar period, with the aim to shed light on the history of COLIs more broadly.[31] The comparison is based on existing research on the British (Searle 2015), French (Touchelay 2014; 2015), German (Tooze 2001), and U.S. (Stapleford 2009) indexes. I argue that the contrast among these COLIs enhances the idea that for COLIs to hold as stable social and political artifacts (Desrosières 1993: 9) they have to have a role within the political economy and that, more importantly, in the first half of the twentieth century such role was closely related to their use as wage adjustment mechanisms. In this process, approval, support and compliance from the working class were crucial.

By the 1920s, Argentina, France, Germany, the United Kingdom, and the United States had released COLIs. In their origins, these indexes were related to World War I, proving how moments of distress advance economic knowledge (Furner & Supple 1990: 24). However, the link between the indexes and the war varied, depending on the way in which the conflict affected each country. The British and U.S. COLIs achieved significance during the conflict, as these countries were among the belligerents. In Argentina and Germany, despite the latter being involved directly in the war, they gained importance after it, in large part due to the way

[31] Comparisons regarding the different COLIs methodology and characteristics are found in Lanata Briones (2016: 207-20).

the conflict altered each nation. In Germany, war reparations triggered hyperinflation that generated a demand for a frequently updated index. World War I modified the international political economy, so the context in which Argentina's economic and political ruling elite planned to develop its activities changed and a new reality had to be understood. The effect the international conflict had on these indicators confirms the importance of World War I for the history of COLIs.

In Britain, Germany, and the United States, COLIs were initially wage adjustment mechanisms. They shed light on the social question that was leading to increasing industrial unrest. Wages were not adjusted simply to the conditions of an industry, but tied to the cost of living (Hayes 2011: 102). COLIs were produced due to the demands of organized labor. In France, the price index was initially published to calm the anger of housewives who complained about price increases (Touchelay 2015: 136).[32] These indexes were developed because of domestic needs in highly industrialized countries. However, at that time, they were not a priority for statistical systems. For example, their relevance in Britain and the United States faded once World War I was over (Searle 2015: 149-150; Stapleford 2009: 11-12). Despite the similarities in their use, they were elaborated by different agencies: the British COLI by the Labour Bureau of the Board of Trade; in the United States by the BLS; the French index by *Statistique Générale de la France* (the country's statistical agency at the time); and in Germany through joint efforts of the Reich Statistical Office and the Labor Ministry. This reflected the differences in the characteristics of the national statistical systems and thus the needs of society and the state. As Stapleford (2009: 76) explains, data on prices in the United States began to be published when the BLS realized its role as monitor and facilitator of industrial relations. This function and the relevance of the COLI gained significance as time

[32] Wage adjustment in France was determined at a regional level at that time. Thus, the price index was not used for this purpose (Touchelay 2014: 120).

passed. For Touchelay (2014: 120), the French price index became more relevant once price and wage policy was nationalized. On the other hand, Argentina, a country that in the 1910s and 1920s was scarcely industrialized, needed statistical instruments to understand and make governable the changing economic situation, leading, in turn, to an embryonic macroeconomic vision that enhanced the role of national industry. However, as the reader can recall, Bunge's claim for industrialization was not shared by the political and economic ruling elite, who aimed at maintaining the outward-looking, export-led economic strategy pursued since the 1880s. Economic knowledge is constructed upon and contributes to produce representations "about social organization, legitimate governance practices, and understandings of national identity" (Fourcade 2009: 20). These views have to be widely shared across society for the elements of this knowledge to be perceived as legitimate and to hold as stable social and political artifacts, something that did not happen with the Bunge COLI. Wage adjustment and the social question were crucial in the design and trajectory of the DNT COLI. In fact, the idea of the DNT as mediator between capital and labor appeared in the prologue of the report where the DNT COLI was published. As suggested, this related in part to the changing relationship between Argentina and the ILO that began in the 1930s, but mainly it was a consequence of increasing urbanization, industrialization and, consequently, the existence of a working class that could articulate its demands through the labor confederation, which supported and diffused the COLI from the start. The DNT COLI was developed to deal with domestic matters.

With respect to the periodization of the COLIs, the Argentine index followed a similar path to its counterparts from Germany and the United States. While World War I provided an initial boost, the changes triggered by the Great Depression were the major turning point in the history of the indexes, although with national nuances. In all cases, the Depression was an essential prelude to the index's role as a fundamental variable in economic analyses. The Argentine DNT and its Statistics Division gained substantial importance during the 1930s,

particularly in comparison to previous years. Unlike the BLS (Stapleford 2009: 149, 167-9), the DNT was still at that time a "closed stronghold" that collected statistics (Fayt 1967: 96, author's translation). Tooze (2001: 153-4) suggests that the German *Reichsindex*, affected by the shifts that the German statistical system experienced in the 1930s, was able to withstand the criticisms that had previously been a weakening factor. There were substantial differences between the two periods, however. Before the turning point, the idea of cost of living generally implied studying family expenditures and living conditions, which resulted in fairly simple indexes where food items predominated (Stapleford 2009: 69). Their elaboration and regular update were subject to the availability of financial resources (Touchelay 2015: 136). In Germany and the United States, from the 1930s onwards, COLIs gained a more economic meaning linked to the under-consumption argument. In Argentina in the 1930s, the study of family expenditures and living conditions was reinforced. Since there was insufficient pressure for a rule-governed system to regulate wages, the index became a well-established indexation mechanism with the same scope as in other countries in the 1960s and 1970s (Daniel & Lanata Briones 2019: 132).

Stapleford demonstrates that theoretical and academic discussions about the significance of COLIs intensified after World War I, mainly in Britain and in the United States. The debate, which heavily influenced both indexes, was triggered by the increasing financial implications that COLIs had in arbitration and collective bargaining agreements, and to the changes in consumption patterns generated by conflict (Stapleford 2009: 99-118; Searle 2015: 151). Bunge and Figuerola adopted concepts, knowledge and practices from the international arena and adapted them to the local context and to their own understanding of the Argentine situation. Debate on how to produce COLIs was absent in Argentina at this time. Even practical discussions did not take place (Lanata Briones 2016: 213). Figuerola was aware of the importance the ILO was attaining and included its guidelines to legitimize all his statistical

work at the Statistics Division. Hence, Argentina incorporated ILO vocabulary in its reports, which seems to be less relevant in Britain and the United States. These two countries focused much more on internal discussions. However, Argentina always aimed, at least in its discourse, to generate standardized statistics. Thus, despite international developments, national context and particular individuals' aims and knowledge influenced economic knowledge in general and the history of national COLIs in particular.

In its origins, the Argentine COLI had a different initial trajectory *vis-à-vis* its counterparts from Western Europe and the United States. This trajectory suggests that for COLIs to hold as stable social and political artifacts they have to have a clear function within the political economy (Stapleford 2009: 60). In the first half of the twentieth century, COLIs were wage adjustment mechanisms, while state agencies were mediators between capital and labor. Early in their history, COLIs had to be perceived as a neutral and objective means to foster the rationalization of labor relations. As individuals recognize and define themselves through figures (Hacking 1990: 3-6), approval, support and compliance from the working class was crucial. A political space that generates a space of common measurement must be created, to make things that hold as stable social and political artifacts (Desrosières 1993: 9). In their beginnings, COLIs that held were closely related to the working class. As the Argentine case study shows, COLIs were a key instrument in the making of the working class. The analysis of the two Argentine indexes and the comparison with its counterparts also implies that, consequently, they must have been triggered by domestic, rather than international, needs.

Conclusion

In their origins, COLIs were designed according to the availability of data, the aims set by their designers, the context in which they were produced, their expected uses, and political and practical decisions. Going beyond the valuable insights of Searle, Touchelay, Tooze, and

Stapleford for the British, French, German, and U.S. COLIs, this article analyzed the ideas and objectives of the men behind the first two Argentine COLIs with the aim to enhance the existing knowledge on the history of COLIs more generally and Argentina's in particular. The general contribution follows Fourcade's (2009: 14) idea that understanding how economic knowledge was initially organized is crucial to comprehend long-term trajectories. The particular contribution is of relevance considering the importance the indicator has within Argentina, and the recent questionings the index has experienced.[33] This enhances Jerven's (2014: 4) notion that examining the origins of statistics is of great importance to understand current trends.

The analysis of public statistics generates knowledge of the political economy and depicts how states changed over time (Jerven 2014: 4). Until 1932, Argentine public statistics standardized demographic, economic and socio-labor indicators providing evidence to the ruling elite in order to sustain agricultural export-led growth. Several changes occurred in the 1930s, fostered by urbanization, industrialization and an increasing presence of the state within the economy. The documentation of the worker was deepened, rendering a representation of an empirical worker, and making the Argentine industrial working class. Within the *fábrica*, tasks, capacities and objectives adapted to the changing social, political and economic context to generate economic and statistical knowledge (Fourcade 2009).

From the outset, the first two estimates of the Argentine COLI were worthy of comparison to others largely due to the indexes' traits as well as the knowledge and aims of the statisticians that constructed it. This paper depicts how the two Argentine COLIs had both similar and unique characteristics when contrasted to international counterparts at different points in time. There is no doubt that economic knowledge had distinctive trajectories in each country. Alejandro Ernesto Bunge conceived of the economy as a national entity and believed

[33] Between 2007 and 2015, the official price index ceased to be the sole reference of Argentina's inflation (Daniel & Lanata Briones 2019).

that facts, which can take the form of statistics, were needed to analyze the economy and develop policy recommendations. He knew that he needed a statistical toolbox to portray and convey his ideas. However, his vision about how the scarcely industrialized Argentine economy should function differed greatly from that of the political and economic ruling elite. Because of this and also due to his personal connections, the Bunge COLI did not hold as a stable artifact and ceased to be published for several years. The DNT COLI, on the other hand, contributed toward the statistical making of the working class, and its trajectory was influenced by the connections between the Spaniard Figuerola and the ILO. The idea set out in the report where the DNT COLI was published was that the index should contribute towards establishing social justice. The DNT COLI mirrors the initial use of these indexes identified by Hayes (2011: 99): providing a scientific foundation for the resolution of problems of social order by stabilizing and mediating capitalist class relations. This use can surge when a country is relatively industrialized or in that economic path, as Argentina was in 1930s. The change in the COLI could be considered a step back in the history of the Argentine indicator, in terms of how Hayes and Tooze conceive the history of these indexes. However, it was a great step forward as the index was published uninterruptedly between 1935 and 2007 by the national statistical system, and the official Argentine price index was (relatively) trusted by society. Hence, the history of the Argentine COLI during the first half of the twentieth century shows that for a COLI to hold as stable social and political artifact, it should not only be embedded within the political economy; a connection between the COLI and industrial relations had to exist. In particular, the COLI needed to have a role in the formation of the working class as a visible object for policy intervention.

The comparison between the different national estimates neatly depicts how the cost of living is an intangible concept, "with several possible meanings, an ambiguity not eliminated by turning it into an index number" (Stapleford 2009: 183). In contrast to Argentina, the BLS

and the British Ministry of Labour did not need to follow ILO guidelines for their indexes to be legitimate, given that these countries generated much of the debate. In the 1920s and 1930s the legitimacy the ILO had or aimed to have regarding socio-labor statistics seems, therefore, to have been important only for countries with relatively weak statistical systems.

Throughout the first half of the twentieth century, the British, French, German, and U.S. COLIs were subject to criticism and had problems; so did the Bunge and the DNT indexes. Indexes were questioned by different sectors and for different reasons. Criticisms arose both from labor as well as from employers, as the two were involved in wage negotiations. These disapprovals existed partly because no statistical agency or individual behind the estimate got it right and had all the answers from the beginning. It is clear that the history of these indexes is not one of linear progress (Lanata Briones 2016; Touchelay 2014). Why was the history of these national COLIs subject to progress with setbacks rather than continuous, linear development? Inflation can be thought, defined and quantified in different ways (Desrosières 2014: 352). These differences are not only technical but have historical, political and sociological significance. Notwithstanding their aim to be rational, objective and neutral, price indexes as statistics and as economic knowledge had to adjust to the context and to national intellectual traditions to be translated into policy instruments and policy. Their trajectory was dependent both on statistical and theoretical developments, as well as on political, economic and social circumstances. For statistics to hold as stable social and political artifacts, they must be trusted and perceived as legitimate. Legitimacy, trust and relevance are not gained automatically; they are constructed, like numbers.

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