The Brazilian Connection in Milton Friedman's 1967 Presidential Address and 1976 Nobel Lecture

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1. Some Crucial Monetary Episodes from Brazil

As has been often pointed out, the criticism put forward by Milton Friedman (1968) and Edmund Phelps (1967, 1968) of the stability of the Phillips curve was mainly theoretical, not empirical (see Nelson 2020: 165–66, and references cited therein). Friedman (1977a: 455) acknowledged as much in his Nobel Memorial Lecture. Phelps and Friedman were not aiming to elucidate a riddle posed by empirical evidence. Estimates of the relation between the rate of change in nominal wages (or prices) and unemployment performed relatively well in the 1960s, largely duplicating the nonlinear inverse "successful" (Phelps 1968: 680) fitting of British

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historical data by A. W. Phillips (1958). Indeed, a main purpose of Friedman and Phelps was to "reconcile" the empirical Phillips curve with the theoretical "neutrality axiom of anticipated inflation," as put by Phelps (1968: 682). They did that by postulating that the Phillips curve shifts upwards (downwards) with the expected rate of increase (decrease) of prices (or wages), accompanied by convergence of actual unemployment to its "natural" or equilibrium level.

However, Friedman (1968: 8–9) did use a piece of empirical evidence in support of his hypothesis about the role of expectations of inflation in determining the position of the (short-run) Phillips curve. He referred to the 1964–66 Brazilian stabilization plan and its perverse effect on employment due to persistent anticipations of inflation. Friedman's (1968) discussion of inflation and unemployment in Brazil is restricted to just one paragraph. But it is a crucial one, as that is also the only paragraph in his 1967 Presidential Address in which Friedman discussed Phillips (1958) and charged him for failing to distinguish between nominal and real wages. The effect of expectations of inflation on Brazilian money wages provided a forceful illustration of the instability of the Phillips curve, he claimed.

Friedman (1966: 59) had referred to the Brazilian episode as "the most dramatic example" of the "fallacy" that there is a lasting trade-off between inflation and employment. In the first draft of his 1967 address, Friedman (1967a: 22) wrote that, for relatively low inflation rates as in the US and the UK at the time, it was easy to interpret the time series as "a trade-off between price-rise and unemployment rather than between acceleration of price-rise and unemployment." Hence, "to distinguish between these, one must look at a broader range of experience. The difference is then patent." It is implicit that the monetary history of countries beset by chronic high inflation, like Brazil and other South American nations, should be able to provide the required evidence.

Friedman was primarily an empirical economist who used general economic principles to scrutinize facts in order to make predictions. As argued by Hirsch and de Marchi (1990), a close reading of Friedman's (1953) methodological essay in the context of his economics indicates that he was much closer to the pragmatism of John Dewey than to the falsificationism of Karl Popper. Instead of the Popperian separation between the contexts of discovery and justification of hypotheses, Friedman was concerned with the process of inquiry. From that perspective, theories follow as results of acquaintance with facts, in the sense that empirical investigation is prominent not just in assessing a theory but also in developing it. The empirical basis of theories comes from working back from fact obser-

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vations to assumptions. He found much inspiration for his economic methodology in Alfred Marshall and Wesley C. Mitchell (see also Backhouse 1996, chap. 11; Hoover 2009).

Friedman's work as a monetary economist was dominated by his study of money and the business cycle (with Anna Schwartz) for the National Bureau of Economic Research (NBER). The highpoint of that project—started in the late 1940s and continued for more than three decades, until the early 1980s—was their 1963 *Monetary History* (see Hirsch and de Marchi 1990, chap. 10; Hammond 1996). That book epitomized Friedman's methodology, with its stress on historical episodes and rejection of conclusive statistical tests as decisive for choosing among alternative hypotheses.[1] Friedman's case for the role of money as a prime determinant of economic fluctuations was built on the investigation of selected crucial episodes, such as the contraction of money supply in the US Great Depression in the early 1930s, mentioned in his 1967 address (Friedman 1968: 3). Indeed, he would often prefer the historical "episodic approach" to a full statistical treatment (Friedman and Schwartz 1982: 432; see also Friedman 2005). Economic history and economic theory are, therefore, intertwined in Friedman's economics.

As put by Hirsch and de Marchi (1990: 244), the methodological position that came out of Friedman's work as a monetary economist was that a "rich appreciation of what is to be explained is crucial. . . . Dramatic and discriminating tests have almost no place; the marshaling of evidence to strengthen conviction is almost everything." That is consistent with Friedman's 1953 argument that a fruitful hypothesis is: "a way of looking at or interpreting or organizing the evidence that will reveal superficially disconnected and diverse phenomena to be manifestations of a more fundamental and relatively simple structure" (Friedman 1953: 33).

Friedman's 1967 presidential address has been seen as an exception to the primacy of empirical evidence in his monetary economics. Backhouse (2007: 17), for instance, has mentioned the "irony" that Friedman's point about the accelerationist Phillips curve arose out of purely theoretical arguments with no empirical ground.[2] In the same vein, Blanchard (2017:

1. As Friedman recollected in a November 2, 1993, letter to Robert Leeson, "I felt very confident [in my 1963 joint book] in the evidence from history independently of the evidence from the statistical correlation, and hence regarded these as confirmatory rather than decisive evidence" (Leeson 1998: 76).

2. However, Friedman 1968 may be read as offering a largely deductive argument about some crucial implications of the quantity theory of money, a theory he had extensively investigated from an empirical perspective in Friedman and Schwartz 1963 and other pieces.

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164) has described the development of the natural rate hypothesis by Friedman and Phelps in 1967–68 as "theory ahead of facts." It was only in the 1970s, with the recorded coexistence of rising inflation and unemployment—as well as some evidence of a vertical long-run Phillips curve—in industrialized countries, that Friedman's natural rate hypothesis gained ascent (see also Forder and Sømme forthcoming). Nevertheless, as discussed below, the Brazilian monetary experiment, as seen by Friedman, represented a "crucial episode" that provided a forceful illustration of what was to be explained.

Friedman was very likely briefed about Brazil by other Chicago economists with knowledge of South American economies, particularly Arnold Harberger and Larry Sjaastad, who had been frequent visitors to the region since the 1950s (see Harberger 1997) and the 1960s in the case of Sjaastad. In 1965, Harberger created and became the first director of the Center for Latin American Economic Studies at the Chicago economics department. Even before that, Latin American economies had attracted the attention of Chicago development economists, led by Theodore W. Schultz (see e.g., Schultz 1956). Friedman (1977a: 464) would refer to Harberger 1966 and Staajstad 1974 as sources about chronic inflation in South America. Harberger took part in the 1963 Rio conference about inflation and growth in Latin America, a major international event sponsored by the Economic Growth Center of Yale University (Baer and Kerstenetzky 1964; see Harberger 1964, based on his better known 1963 essay about Chile). Friedman did not participate, but probably knew about the conference volume, reviewed in the *Economic Journal*, the *American Economic Review*, and other journals.

As Robert Gordon (1976, 2011) has pointed out, general acceptance of Friedman's (1968) natural rate hypothesis was delayed for lack of evidence from American data. Nevertheless, "Friedman and his followers did not pay much attention to the U.S. empirical findings nor attempt to explain the apparent conflict, since the close contacts of the University of Chicago with Latin America provided them with another set of empirical observations, which were consistent with the natural rate hypothesis" (Gordon 1976: 56). According to Gordon, that went a long way in explaining why the hypothesis was born in Chicago instead of other American centers of macroeconomic research. "I have always thought that the development of the natural rate hypothesis in Chicago, rather than at Harvard or MIT, reflected the deep involvement of several Chicago economists as advisers to several countries in Latin America, where the lack of correla-

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tion between inflation and unemployment was obvious" (Gordon 2011: 16).[3] Gordon, however, did not explicitly relate that to Friedman's (1966, 1968) remarks about Brazilian inflation, which he did not cite.

South American high inflation economies provided illustration of yet another important monetary phenomenon: the "Fisher effect," that is, the one-for-one effect of expectations of inflation on the nominal rate of interest. Friedman saw it as the approximate credit market equivalent of his argument about the influence of expectations of inflation on money-wages. Evidence of the Fisher effect came mostly from South American countries such as Brazil and Chile, where high and rising interest rates had been historically associated with fast increases in money supply (Friedman 1968: 6–7). It was only after the mid-1960s, when American investors gave up their previous notion of a "normal" price level, that evidence of comovement between nominal interest rates and inflation started to show in the US economy as well (see also Nelson 2020: 108–9). Of course, Irving Fisher (1896) had originally investigated the working of the "effect" while studying the period of high monetary instability of the US economy from the 1860s to the 1890s—he did not find a one-for-one effect, though.

In December 1973, Milton Friedman and his wife Rose spent about ten days in Brazil, where he gave lectures and met businessmen and members of the government. Except for a few days in Caracas in September 1969, to attend the Mont Pèlerin Society regional meetings, it was his first time in South America. Friedman's Brazilian trip, briefly recounted in Friedman and Friedman (1998: 426) and discussed here in some detail for the first time, is not as well-known and certainly not as controversial as his visit to Chile in March 1975. Like Chile, Brazil was a military dictatorship at the time. The authoritarian regime had started in 1964, with a significant increase of political repression in 1968–74, and would last until 1985 (see Skidmore 1988). However, unlike the Chilean case, Friedman and the Chicago school had not played a key role as advisors or in training economic policy makers in Brazil.[4]

3. As for Phelps—who Gordon does not mention—an indirect South American connection cannot be assumed away, as he worked from 1960 to 1966 at Yale University, which housed the Economic Growth Center, one of the foremost centers for the study of economic development. Phelps taught South American graduate students at Yale, such as Guillermo Calvo and Edmar Bacha. Werner Baer was the economist in charge of the Brazilian agenda of the Yale Growth Center, including the organization of the 1963 Rio conference on inflation.

4. Instead of the Chilean "Chicago boys," Brazilian graduate economic students in the 1960s and early 1970s may be described as the "Vanderbilt boys," as the modernization of economics in the country was heavily influenced by a cooperation agreement between Vanderbilt

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Upon his return to the US, Friedman (1974a) wrote enthusiastically about the so-called Brazilian economic miracle in his *Newsweek* column. In his view, the widespread indexation of economic contracts, the first of its kind in international monetary history, was a main factor behind the successful stabilization of the Brazilian economy. By preventing the negative output effects of differences between actual and anticipated inflation, indexation contributed to the very high rates of economic growth achieved by Brazil between 1967 and 1973, he claimed. Friedman (1974a; 1974b) went as far as proposing that indexation should be introduced in the American economy as well. Although Friedman (1977a) did not refer to Brazil, the notion, advanced in that lecture, of a short-run vertical Phillips curve under fully indexed economic contracts, as well as the discussion of indexation as part of institutional arrangements to cope with inflation persistency and volatility, may be seen as a reflection of his Brazilian trip.[5]

However, as discussed below, there was another side to wage indexation in Brazil that Friedman did not openly address, that is, the effect of mandatory wage setting rules versus market forces in the determination of wage dynamics. It is only implicit that Friedman (1968) assumed that wage indexation was not fully operative in Brazil during the 1964–66 stabilization experiment, differently from the 1967–73 "economic miracle" period, when declining inflation rates were accompanied by increasing levels of activity—an outcome he ascribed to post-1967 indexation.

The present article examines the role played by Friedman's interpretation of the Brazilian inflation in establishing the empirical foundations of his 1967 criticism and reformulation of the Phillips curve, and of his 1976 further elaboration of the interpretation of that curve under indexation and other institutional arrangements in the face of chronic inflation. With that goal in mind, the paper provides a case study of the relevance of economic phenomena and policy making in the unstable economic-political environment of Latin America for the formulation of macroeconomic insights by North American and European economists—apart from ideas by Latin

University and the University of São Paulo, led by Werner Baer after he left Yale for Vanderbilt (Suprinyak and Fernández 2018). Some Brazilian economic students did go to Chicago for their PhDs at the time, starting with Carlos Geraldo Langoni, who finished his PhD in 1970. Together with Harberger, he accompanied Friedman to Chile in 1975. On that occasion, Langoni lectured about Brazil as a showcase of economic policies supposedly consistent with the Chicago agenda (Edwards and Montes forthcoming; Foxley 1980).

5. See Boianovsky 2018b on the role of economists traveling in the formulation of new economic hypotheses throughout the history of thought.

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American economists themselves. This may be illustrated as well by other episodes, such as the development of the monetary approach to the balance of payments by Jacques Polak (1957) upon heading a mission of the International Monetary Fund to Mexico in 1955 (see Boianovsky and Solís 2014).

2. Brazilian Expectations of Inflation

In September 1958, Friedman attended the ninth meetings of the Mont Pèlerin Society, held at Princeton, New Jersey. The topic of the conference, attended also by some economists from developing countries, was inflation. Eugenio Gudin—the dean of Brazilian economics and minister of finance for a short period (September 1954 to April 1955)—gave a talk about the Brazilian experience with chronic inflation, and the political opposition he faced when attempting to bring it down through restrictive monetary policy. That was Friedman's first encounter with Brazilian inflation. Gudin reacted to Friedman's (1958: 3) passing remark that steady inflations tended to accelerate. "Prof. Friedman's point that it is almost impossible to keep an inflationary process within bounds . . . is *not* confirmed by Brazilian experience, where inflation has been and still is running at an average annual rate of 20% for almost ten years. The principle that 'a small inflation is like a small pregnancy' has not proved true in the Brazilian case" (Gudin 1958: 1). However, Brazilian inflation did accelerate in the early 1960s, as its average annual rate, which had been 18 percent in 1950–55 and 28 percent in 1955–60, increased to 62 percent in 1960–65 (Boianovsky 2012: 278).

Friedman ([1963] 1968: 49) would write about Brazilian inflation for the first time in his lectures delivered in Bombay (India). He then distinguished between the relatively mild effects (such as the tax on cash balances) of steady anticipated inflation—as in the case of Israel's 10 percent average inflation in 1952–62—and intermittent inflation that proceeds by fits and starts, as in Brazil. Because of long lags in the adjustment of expectations, changes in the rate of inflation (or its turning into deflation) tend to bring about unemployment and misallocation of resources. "One of the clearest examples of this kind of process," asserted Friedman, "occurred some years ago in Brazil" (49). He probably had in mind Gudin's stabilization experiment of 1954–55, although his description also fits the 1958–59 stabilization plan carried out by Lucas Lopes (then finance minister) and Roberto Campos (then director of the National Bank

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for Economic Development) and the brief attempted stabilization of early 1961 led by Finance Minister Clemente Mariani (see Skidmore 1967: 159–60, 175–76, 196–200). "First Brazil experienced a very rapid inflation. Then the Government made a heroic attempt to stop prices from rising by curtailing the printing of money. Initially wages and prices continued to rise for a time and Brazil experienced continued moderate inflation together with a large volume of unemployment" (Friedman [1963] 1968: 49).

In an economy with expectations adjusted to past inflation, as was the case of Brazil in the 1950s and 1960s, a sudden interruption of the growth of money supply will cause unemployment, argued Friedman, since wages and prices tend to continue to rise for a time. If the central bank persists in its tight monetary policy, agents will change their price expectations, and extra unemployment will be eliminated. However, as illustrated by the Brazilian episode, the central bank generally reacts to the (temporary) effects of monetary stabilization on inflation and unemployment by resuming the previous trend in the money supply.[6] The outcome is a stop-and-go process accompanied by waste of resources. "People's expectations of rising prices are justified. A ratchet process is set in train by successive abortive attempts to curb inflation" (Friedman [1963] 1968: 49).

Friedman (1966) came back to Brazilian inflation in a key passage of his critical comment on Solow (1966).[7] With the partial exception of a brief mention in Friedman (1962: 284), it was his first ever discussion of the Phillips curve and the trade-off between inflation and employment. Friedman (1966) attacked the view, ascribed to Solow (1966) and others, that lower unemployment levels could be reached through pressure on aggregate demand and higher inflation rates. From that perspective, the adoption of wage-price guideposts was a way to achieve higher employment and suppress the symptoms of inflation, which Friedman found fallacious.[8] The correct argument, he claimed, was "rather sophisticated." In order to make his case, Friedman referred again to Brazilian recent monetary history; this time he focused on the stabilization plan carried out in 1964–66 by Roberto Campos and Octávio G. de Bulhões after the 1964

6. The Brazilian Central Bank was created in 1964. Before that, monetary policy was carried out by the Superintendência de Moeda e Crédito (SUMOC) and Banco do Brasil.

7. Friedman 1966 may be read as an implicit reaction to Samuelson and Solow 1960 as well, which he did not mention on that occasion or before. On the reasons for Friedman's delayed reaction to that well-known article see Nelson 2020, chapters 7 and 13.

8. The wage-price guidepost policy was adopted during the Johnson presidency in the mid-1960s as a supplement to fiscal and monetary policies, as a way of dealing with cost-push inflationary pressures coming from trade unions and big business (see Anderson and Hazleton 1986, chap. 5).

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military coup d'état.[9] Unlike previous Brazilian stabilization plans discussed by Friedman ([1963] 1968), it was relatively successful, even if with significant unemployment costs.

Apart from information from Harberger and other Chicago economists with South American links, Friedman may have benefitted from a 1967 paper by the Czech born Brazilian economist Alexandre Kafka in the Chicago *Journal of Political Economy*, which probably circulated in Chicago the year before.[10] Friedman and Kafka had corresponded in 1961–62 about plans of a visit to Brazil and translation of Friedman's *Price Theory* into Portuguese (Friedman 1961–62; Kafka 1961–62). They were well acquainted, as indicated by the fact that they addressed each other on a first name basis. That increases the likelihood that Friedman used Kafka as a source of information about the Brazilian economy and read his 1967 paper in preliminary versions. Friedman (1966) stated that

> to suggest to you briefly why I say [Solow's argument] is a fallacy, I ask you to consider the experience of some countries that have gone much further along this line than we have. The most dramatic example I know of is Brazil, which, two or three years ago . . . was having price inflation of about 90% a year. Through "tight" monetary policies, they cut the rate of inflation down to about 45% a year. . . . Unemployment rose to 15% at least for a time. Now, by Bob [Solow's] logic you would say that this is a trade-off between inflation and unemployment, that the Phillips curve in Brazil is such that in order to maintain an acceptable level of unemployment, you would have to have price inflation of 90 percent a year. I think almost everybody would agree that that is an absurd statement. And so it is. (Friedman 1966: 59)[11]

That was followed by Friedman's oft cited phrase that "what is true is that you have a trade-off between unemployment *today* and unemployment

9. For a Chicago perspective on Campos's role in the economic reforms introduced in Brazil at the time, see Harberger 1993.

10. A. Kafka (1917–2007), third cousin to the famous writer Franz Kafka, was a long time Brazilian representative to the International Monetary Fund, a position he held together with an appointment as professor of economics at the University of Virginia in 1959–61 and 1963–75. Before migrating to Brazil in 1940, he studied at Geneva (with L. von Mises) and at Balliol College (Oxford), where he got his PhD.

11. Friedman's numbers for the rate of inflation are not off the mark (compare Kafka 1967). However, the source of his figure for the rate of unemployment is puzzling, as there was no unemployment data for Brazil at the time. He might have used an educated guess from the financial press, but that is not clear. In any event, there was a general perception that the level of economic activity came down in 1964–66 (see e.g., Fishlow 1973).

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tomorrow.” The Brazilian experience indicated that there is no long-run “stable trade-off between inflation and unemployment” (Friedman 1966: 60). Friedman’s argument was not based on statistical tests or empirical estimates of the Phillips curve for Brazil (or for other South American countries with similarly high inflation rates), which did not exist at the time, but on the interpretation of a particular monetary episode. Spurred on by Friedman’s (1966, 1967a) discussion of Brazilian inflation, A. C. Lemgruber (1974) estimated, under Bennett McCallum’s supervision, the first Phillips curve for the Brazilian economy. It was also one of the first econometric exercises for any country indicating a vertical long-run Phillips curve. Lemgruber’s findings have been controversial among Brazilian economists, though, as discussed further in the next section. What the Brazilian 1964–66 episode indicated, according to Friedman, was that, because of expectations of inflation, unemployment could only be kept at relatively low levels if inflation accelerated.

> Go back to the Brazilian case. They could have maintained unemployment low by going from 90% to 100% to 125% to 150% inflation. After a time, they would have gotten to the point where even acceleration of inflation would not keep unemployment low. When they cut it down to 45%, they of course got temporary unemployment. But . . . as inflationary expectations are broken, you will come back to a higher level of employment. (Friedman 1966: 59)

Friedman (1966: 59) claimed that “it’s the same way in the United States.” Although there were no similar episodes of high inflation in twentieth-century US monetary history, Friedman generalized the Brazilian case by arguing that if the rate of monetary expansion speeded up, it could only produce lower unemployment “temporarily,” until agents adjusted their anticipations of inflation.

Shortly after his comment on Solow, Friedman (1967b), while working on the first draft of his Presidential Address to the American Economic Association (AEA), once again used the Brazilian 1964–66 stabilization episode to bring out his thesis that the notion of a trade-off between inflation and employment, as suggested by the Phillips curve, was based on analytical confusion between nominal and real wages. “An extreme and illustrative example of that was offered by Brazil a few years back” (Friedman 1967b: 40). “What Brazil illustrates,” he argued, “is that what matters is not the level of inflation, but whether it is higher or lower than before.”

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The first draft of Friedman's 1967 address, dated July 1967, was titled "Can Full Employment Be a Criterion of Monetary Policy?" Indeed, the preliminary program of the 1967 meetings of the American Economic Association in Washington, D.C. published in the September 1967 issue of the *American Economic Review*, announced that as the title of Friedman's presidential address. Apart from the title, there were other significant changes between the July draft and the final version (see Forder 2018 for some of those differences). The passage in Friedman (1968: 8–9) about Brazil and the Phillips curve is identical with one in the July draft (Friedman, 1967a: 13, section 2 on "analysis"). Toward the end of the draft, in section 3 called "implications," Friedman (1967a: 21–22) discussed the possible objection that it may take a long time for expectations of inflation to develop. He suggested that the "time scale" in the US was "rather slow," measured in periods of four or five years. That contributed to the difficulty of distinguishing empirically between inflation and its acceleration. A "broader range of experience" was needed to provide evidence that the relevant trade-off was between inflation acceleration and unemployment. Given Friedman's reference to Brazil earlier in the draft, the "broader experience" should be found in highly inflationary economies. Indeed, Friedman (1968: 11) referred to the supposedly established fact that adjustment of expectations to inflation is much faster in South American countries, with their "more sizable changes," than in the United States.

The passage about Brazil in Friedman's presidential address follows immediately his charge that Phillips (1958) had implicitly assumed that employees and employers anticipated stable nominal prices, whatever happened to prices and wages.[12] That assumption was patently wrong in the case of inflationary economies like Brazil, he claimed. "Suppose, by contrast, that everyone anticipates that prices will rise at a rate of more than 75 per cent a year—as for example Brazilians did a few years ago. Then wages must rise at that rate simply to keep real wages unchanged. An excess supply of labor will be reflected in a less rapid rise in nominal wages than in anticipated prices, not in an absolute decline in wages" (Friedman 1968: 8–9).

After stressing the influence of inflation anticipation on the determination of money wages, Friedman discussed its implications for the evolution

12. A close reading of Phillips (1958, 1962) shows that he was not oblivious to the distinction between nominal and real wages and its implications for the stability of his curve over time, even if the relevant passages are not always ease to interpret (see Boianovsky 2018a, sec. 5 and references cited there).

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of unemployment in Brazil during the 1964–66 stabilization plan, along the lines of his 1966 comment on Solow.

> When Brazil embarked on a policy to bring down the rate of price rise, and succeeded in bringing the price rise down to 45 per cent a year, there was a sharp initial rise in unemployment because, under the influence of earlier anticipations, wages kept rising at a pace that was higher than the new rate of price rise, though lower than earlier. This is the result experienced, and to be expected, of all attempts to reduce the rate of inflation below that widely anticipated. (Friedman 1968: 9)

The Brazilian episode, Friedman argued, illustrated not just the notion of the instability of the Phillips curve, but also, because of the lagged adjustment of expectations, of the overshooting often involved in stabilization policies.[13]

3. Visiting Brazil, Praising Indexation

Friedman's 1973 visit to Brazil, a few years after his presidential address, had been originally scheduled for December 1972, but was postponed due to heart surgery (Friedman and Friedman 1998: 426). E. Gudin had invited him before—in correspondence of August 16, 1961, conveyed by A. Kafka—to give some lectures in the summer of 1962 at Fundação Getulio Vargas (Rio), funded by the US Point IV Program. Gudin had brought to Brazil several distinguished international economic lecturers, from the late 1940s to the early 1960s, including Jacob Viner, Kenneth Boulding, and Gottfried Haberler. Friedman (1961–62) wrote to Kafka that he was tempted and would consider including Brazil as one of the many countries he planned to visit during his sabbatical leave in the academic year 1962–63 (see Friedman and Friedman 1998, chap. 20; eventually, the tour included only European and Asian countries), or perhaps come to Rio in the summer of 1963. However, those plans did not materialize, and he had to wait until 1973 to visit the country, now under different arrangements.

By 1973, the Brazilian annual rate of inflation had fallen to about 15 percent, and the average rate of economic growth for the period 1967–73 had reached nearly 10 percent, after the central bank stopped its tight monetary policy in 1967. Friedman's (1974a) travel report compared Bra-

13. Champernowne 1936 provided an early theoretical discussion of overshooting and inflation acceleration (Boianovsky 2018a).

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zilian intense growth at the time to other "economic miracles" in postwar Germany and Japan. He was impressed by the introduction of widespread purchasing-power escalator clauses into contracts in the financial, labor, housing, and exchange rate markets, as well as in taxation rules. Brazilians called it "correção monetária" ("monetary correction"), a term Friedman (1974b) deployed as the title of his best-known paper on the topic.

Price stability was obviously better, but "theory and practice coincide in demonstrating that a true second best" for living with inflation is the widespread use of escalator clauses. Alfred Marshall had advanced the theoretical argument for indexation back in 1887.[14] The Brazilian experience, Friedman (1974a) suggested, "parallels Marshall's proposal with amazing fidelity—by the force of necessity, not design" (see also Friedman 1974b, where he referred as well to John Wheatley and Irving Fisher in that connection). Drawing on his 1967 remarks about the costs of Brazilian stabilization, Friedman claimed that

> given the inevitable, if temporary, costs of reducing inflation rapidly without such a measure, the Brazilians have been extremely wise to adopt it. I believe that their miracle would have been impossible without the monetary correction. With it, they have been able to reduce inflation gradually from about 30 per cent in 1967 to about 15 per cent now, without inhibiting rapid growth. (Friedman 1974a: 80)

Apart from his *Newsweek* article, Friedman's impressions of his Brazilian tour may be found in an interview given on January 4, 1974, to William Clark, a reporter for the *Chicago Tribune* (Friedman 1974c). Some practical details may be inferred from his correspondence with Eudoro Villela, who sponsored Friedman's trip, and from coverage by the Brazilian press. Villela was a Brazilian entrepreneur, president of Banco Itaú (one of the largest Brazilian banks) and of Associação Nacional de Programação Econômica e Social (ANPES; National Association for Economic and Social Programming), a think tank created in 1964 by Roberto Campos, which published studies about the Brazilian economy and stimulated links with foreign economists. Robert Mundell, for instance, visited Brazil in early 1973 at the invitation of ANPES.[15]

14. See Laidler 1990, section v for the context of Marshall's ([1887] 1925) indexation proposal.

15. See Campos (1994: 607) on the early history of ANPES. A physician by training, in his youth, Villela did significant medical research at Brazilian centers of investigation of tropical diseases, after spending some time as a graduate student at the Curie Institute in Paris in the early 1930s.

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In an August 1, 1973, letter to Villela, Friedman (1973a) expressed his wish to make real his "proposed trip" to Brazil, canceled the year before. In another letter, Friedman (1973b) discussed his travel plans and wrote that he and Rose were "looking forward to the experience." Friedman arrived in São Paulo on December 15, 1973, and returned to the US a week after. During his stay, he delivered a talk about inflation and economic policy on December 17 in São Paulo at ANPES. He also gave a seminar on monetary economics at an unidentified university in the same city, met economists, lectured in Brasilia and Rio, and toured Salvador.

The Brazilian press reported about Friedman's visit. *Veja*, a leading Brazilian weekly, in its last issue of 1973, described him as a "smiling figure," "sculptor of very subtle ironies," and "dogmatic and restless preacher of monetarist ideas," who, in his Brazilian lectures, "sowed his theses, at the same time conservative and impeccably rational" which were under "permanent fire from both liberal and leftist adversaries" in the US (my translation). *Veja* (1973: 66) regarded Friedman's visit as "the best contribution by ANPES to the analysis of the Brazilian economic model." *Veja* also called attention to Friedman's opinion about the consequences of the first oil crisis, which had erupted in October that year. That was the topic of his interview of December 26, 1973, to *Jornal do Brasil*, an important Rio newspaper, when Friedman expressed the view that the dramatic increase of oil prices would mainly affect relative prices, not the price level, if correct economic policies were adopted. He was critical of plans to introduce oil rationing and subsidies.

> We must distinguish relative from absolute prices. This should not be a big problem for Brazilians, who have for some time used the instruments of monetary correction. Hence, as the oil price goes up, other prices will naturally adjust. The increase of oil prices does not mean that generalized inflation will come about, as long as the economic system follows the laws of supply and demand without state intervention (*Jornal do Brasil* 1973a; my translation)

Friedman came to Brazil mostly to learn about the performance of the Brazilian economy and its widespread indexation. Dissemination of Chicago ideas was secondary to that goal. As he said at the beginning of the *Chicago Tribune* travelogue interview, "I was much more interested in what I saw in Brazil than what I said in Brazil!" (Friedman 1974c). By 1968, monetary correction had been extended to virtually every market (see Fishlow 1974 for a detailed account of the introduction and working

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of indexation in Brazil). Friedman was "fascinated" by the seeming ability of Brazilian policy makers after 1967 to fight inflation without increasing unemployment. In his view, indexation set the groundwork for the so-called Brazilian economic miracle, together with the interruption of the "extremely tight monetary policy" after 1967. According to Friedman, another important factor was the emphasis on investment by the "private sector" and the working of the market system, despite the role played by state-owned enterprises (Friedman 1974c). Unlike Friedman's (1966, 1968) description of the 1964–66 stabilization episode, when expectations were slow to adjust, the reduction of the rate of inflation between 1967 and 1973 was not accompanied by recession, but the opposite. This happened because, due to escalator clauses, "they have eliminated the effect of the difference between the rate of inflation that people expected and the rate of inflation you actually have" (Friedman 1974c).[16] Moreover, he argued that indexation smoothed the process of relative price adjustment, as suggested in his remark about the anticipated effects of the oil crisis on the Brazilian economy quoted above.

Friedman's discussion of Brazilian indexation and his campaign for a similar application to the American economy raised critical reactions (see e.g., Fishlow 1974). Two international conferences on indexation were held in 1975 in São Paulo (published in 1977) and 1981 in Rio (published in 1983), with papers about the Israeli indexation record as well (Nadiri and Pastore 1977; Dornbusch and Simonsen 1983). By then, models of wage indexation by Jo Anna Gray (1976; based on her 1975 Chicago PhD thesis, cited by Friedman 1977a, who was on her thesis committee) and Stanley Fischer (1977) had become influential (see Nelson 2018). Simonsen (1983) showed, in an extended version of the Gray-Fischer model, that, in the absence of supply shocks, full widespread indexation relieves the output loss of anti-inflationary policies, as price expectations are eliminated from contracts. Full-wage indexation turns the short-term Phillips curve into a vertical line, as argued by Friedman (1974b, 1977a) in his papers and implied in his 1974c interview (see also Lemgruber 1976). However, the type of indexed wage contract found in Brazil was based on

16. Friedman (1977b: 412) would generalize that observation in his claim that, under full indexation, "any discrepancy between actual and anticipated inflation would have no effect on the allocation of resources." As pointed out by Nelson (2018), Friedman's (1974a, b) advocacy of indexation indicated awareness of the credibility problem in monetary policy, an important feature of the expectations-augmented Phillips curve, later discussed by John Taylor and other macroeconomists.

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a staggered rule, with money wages adjusted at time intervals according to previous inflation rates. As modeled by Simonsen (1983), lagged wage indexation, under the assumption of rational expectations, leads to a Phillips-like relation analogous to the one with adaptive expectations.

There was yet another important difference between Friedman's indexation system and Brazilian actual experience, as Morley (1977: 85) observed. Friedman had in mind ex-post adjustment for past inflation. However, Brazilian wage laws introduced in 1965 ruled that wage increases were granted to restore the average purchasing power over a previous period (twenty-four months) and to offset prospective increases in productivity and prices. Mario H. Simonsen (1983: 119), who devised the original wage formula, later described it as a "rational expectation staggered wage determination rule" instead of an indexation scheme. It acted as an incomes policy instrument, since the Brazilian government decided the expected rate of inflation and the productivity gain, with no room for collective bargaining or strikes under the military regime. In practice, the wage formula squeezed real wages between 1965 and 1967, when future inflation rates were underestimated.[17] This is distinct from Friedman's (1966, 1968) account of the Brazilian 1964–66 recession as the outcome of an increase in real wages due to slow adjustment of workers' price expectations.

Indeed, the application of Phillips curve analysis to the Brazilian labor market, first carried out by Lemgruber (1973, 1974), would be challenged by some Brazilian economists on the grounds that mandatory wage setting rules were effective in determining the pace of wage changes, instead of cyclical excess demand for labor (see e.g., Bacha and Lopes 1983). Skepticism was also founded on the notion that Brazil, like other Latin American countries, was a dual economy with a perfectly elastic labor supply à la Lewis (Nugent and Glezakos 1982). Fishlow (1973: 77) acknowledged the relevance of price expectations in explaining the Brazilian recession of 1964–66, but claimed that it operated in ways distinct from the expectations-augmented Phillips curve approach. That was similar to Morley's (1971) argument that the relation found by Friedman and Schwartz (1963) between changes in money supply and output applied to Brazil, via the effect of credit scarcity on aggregate supply instead of aggregate demand.

17. The average real wage rate in the industrial sector dropped 25 percent between 1964 and 1967 (Simonsen 1983: 119). Kafka (1967), however, produced some qualitative evidence that real wages increased in 1964 because of expectations of inflation carried from the previous year, along the lines of Friedman (1968), before wage indexation was fully applied.

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Friedman (1974c) was informed of the peculiarities of the Brazilian labor market, such as the rules about the minimum wage rate and periodic increases by at least the amount of "monetary correction." "But in fact," he asserted, "most wages have been growing faster than that, because of rapid growth of productivity and output, so that it is really not very important." Apparently, his sources were Antonio Delfim Netto and Roberto Campos, whom he met in 1973 (see below). Escalator clauses mattered especially as a mechanism to prevent increases in real wages (beyond productivity growth) caused by adaptive expectations when inflation is coming down, as was then the case. Friedman's (1974c) perception was that full indexation of contracts was introduced in Brazil in 1967, that is, after the 1964–66 stabilization plan. That is not very precise, but it helps to explain why Friedman (1968) did not refer to indexation in his discussion of Brazilian 1964–66 wage dynamics. In fact, escalator clauses started to be introduced gradually in 1964 (Fishlow 1974). It was only in middle 1965 that wage indexation laws were introduced (see Kafka 1967 and note 16 above); they were changed and fully implemented a year after that. The crawling peg regime of the exchange rate was introduced as late as 1968.

Friedman was, of course, aware of the Brazilian political situation and its effects on trade unions and other aspects of economic and social life. Asked by the *Chicago Tribune* about freedom in Brazil, he replied that "to an outsider" there was the impression of a "good deal of freedom." However, conversation with academic people, he reported, revealed strong restrictions on freedom of speech and teaching, which also showed in censorship to the main newspapers. Brazil, Friedman suggested, was not a totalitarian country (with an "overall control of every aspect of life"), but a dictatorship, in the sense that individuals could do what they wanted, except when "they crossed the government" and were punished for that. "We would rather have a free society in Brazil, but few countries are able to sustain a free society for a long period. No South American country has been able to do it. Chile came close for a long period, and now look what has happened to Chile" (Friedman 1974c). The Chilean military coup d'état had taken place just three months before Friedman's trip to Brazil.

It is noteworthy that Friedman's sponsor, Eudoro Villela, was close to Paulo Egydio Martins, minister of industry and commerce in the previous government, who would become governor of the state of São Paulo in 1974. Martins belonged to a political group led by General Golbery do

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Couto e Silva, who opposed the military hard line—led by President Medici then in power—and designed a plan for gradual political decompression implemented after 1974, when he became head of the Brazilian presidential staff of General Ernesto Geisel, the new president. As part of his strategy for liberalization, Golbery met with some American scholars who visited Brazil, such as the Harvard political scientist Samuel Huntington, who came in 1972 and 1974 (Skidmore 1988: 162–67). Arrangements were made for Friedman to meet Golbery and Geisel, but the meetings apparently did not materialize.[18]

Friedman did mention talks with Antonio Delfim Netto, the Brazilian finance minister at the time. They met twice, in Rio (December 19) and Brasilia (December 21). Delfim Netto argued that empirical evidence indicated that average real wages were on the rise because of increasing productivity, above and beyond minimum wage legislation, which Friedman found convincing.[19] Unlike the 1964–66 period, unemployment at the time was of a "structural," not "cyclical," kind, associated with minimum wage rules and other rigidities of the Brazilian labor market (Friedman 1974c). That was consistent with Friedman's (1968) definition of the "natural" rate of unemployment. In correspondence of July 30, 2018, with the author, Delfim Netto recollected that, in their meetings, Friedman expressed much interest in Brazilian recent economic growth and in details of "monetary correction" arrangements, including their effects on the fiscal situation and the ability to issue government long-term bonds.

18. J. Palhares dos Santos, a member of Martins's staff and former officer of the Military Cabinet of the previous government, attached to a letter to Golbery, dated August 16, 1973, under Martins's request, a copy of the correspondence between Friedman and Villela. Palhares dos Santos wrote to Golbery: "It seems to us that it would be very important to promote a meeting between [Friedman] and 'our people' . . . as secret as indicated." By "our people" he meant Geisel and Golbery. Egydio Martins sent Golbery, in an undated letter, documents related to a "follow-up to Professor Friedman's visit to Brazil" (Paulo Egydio Martins Papers, CPDOC-FGV-Rio; my translation). However, in another (undated) note to Golbery, written during Friedman's stay in Brazil, Palhares regretted that Geisel and Golbery were unable to meet Friedman because of their busy agenda (Golbery do Couto e Silva Papers, in possession of Elio Gaspari).

19. Friedman's meeting with Delfim Netto in Rio was reported by *Jornal do Brasil* (1973b). Friedman was accompanied by C. G. Langoni and A. C. Pastore. According to the newspaper, Friedman stated that he was both learning and teaching in Brazil, "probably learning more than teaching." Moreover, Friedman's meetings with Delfim Netto and Central Bank officers "made evident the importance, for the US, of the economic experiments carried out in Brazil." Friedman reportedly called the Brazilian "economic model" a "laboratory" (*Jornal do Brasil* 1973b). The same newspaper provided a short intellectual biography of Friedman—regarded as the most important American economist, together with his opponent Paul Samuelson—with focus on his support of monetarism and free markets (*Jornal do Brasil* 1973c).

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Moreover, according to Delfim Netto, during their meetings Friedman kept drawing diagrams of the inverse relation between inflation and economic growth in Brazil since 1967. Friedman also met with former minister of planning Roberto Campos, one of the designers of the indexation mechanisms.

Three years after his travel to Brazil, Friedman delivered his Nobel Memorial Lecture in Stockholm, where he advanced the view, based on some recent evidence for industrialized countries, of a positively sloped Phillips curve, called "stage 3" of the natural rate hypothesis (Friedman 1977a). Such phenomenon could only be explained, he claimed, if the interdependence of economic, political, and institutional events was taken into account, along the lines of the new political economy (460). The relevance of institutional changes for monetary dynamics became evident to Friedman in his visits to Brazil (1973) and Chile (1975). One of the key issues tackled by Friedman (1977a: 465) was whether developed countries would continue along their recent increasing inflation path—described as a move toward "the Latin American pattern of chronically high inflation rates," occasionally turned into hyperinflations with deep political repercussions as in Chile and Argentina—or go back to their pre-World War II pattern of long-run stable or "normal" price level. The relative long-run price stability, in the sense that prices oscillated cyclically around an approximately steady level, went a long way in accounting for the stable Phillips curves estimated for that period, as Friedman observed.[20]

Friedman (1977a: 464) saw a positively sloped Phillips curve as a transitional phenomenon, lasting while not just expectations but also "institutional and political arrangements" adjusted to chronic inflation. During the transition period, the partial introduction of such arrangements would be associated with higher unemployment produced by the effects of inflation on economic efficiency, as illustrated by the South American record (see also Lothian 2016). Higher inflation would generally be accompanied by higher price volatility and uncertainty—with perverse effects on the working of the price mechanism and hence on economic activity—followed by the development of indexation to try to cope with it. Until such institutional arrangements were introduced, the transition from a monetary system featuring "normal" price level to another one beset by chronic high

20. The notion of "normal" prices was essential to Dennis Robertson's monetary macroeconomics. Friedman may have borrowed it from the Cambridge economist (Boianovsky 2018a).

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and variable inflation would display a positive Phillips curve. When (and if) the economy eventually adapted to chronic inflation, through "full indexation" (Freidman 1977a: 464) and other arrangements, the long-run Phillips curve would become vertical as in the natural rate hypothesis. Friedman (1977a) did not mention Brazil. However, his frequent references to indexation and chronic inflation probably resulted from his 1973 visit to that country.[21] In his Nobel Lecture, he did not offer a normative argument in support of indexation (as he had done in 1974), but a positive analysis of indexing and other institutional changes as expected reactions to persistent and variable inflation.

4. Chicago, MIT, and South American inflation

Friedman's (1966, 1968) forceful references to Brazil in the context of his critical discussion of the Phillips curve have not attracted much attention in the literature. Partial exceptions are Lemgruber (1973, 1974) and Forder (2018), from quite different perspectives. Brazilian economist Antonio C. Lemgruber (1974: 1, 192) maintained that "post-war Brazilian inflationary experience provided the basic evidence used by Friedman in his attack on Phillips curve theories of inflation," and that "the 'informal' evidence of [Friedman's] theory was exactly the Brazilian example" (Lemgruber 1974: 107). Inspired by Friedman's "casual evidence," Lemgruber (1974: 2) set out to test the accelerationist Phillips curve for Brazil (see also Lemgruber 1973: 31). By "informal" or "casual" evidence, Lemgruber probably meant qualitative pieces of empirical observation, apparently not as rigorous or persuasive as econometric evidence.

Forder (2018: 526), on the other hand, has claimed that Friedman (1968) discussed the Phillips curve in order to describe the results (not goals) of policy, "and even then only in Brazil." Moreover, Forder (2018: 535) has held that Friedman did not support his point about expectations by careful theoretical or empirical arguments, as the expectations effect was regarded as common knowledge—"of all [Friedman's] discussions, only the mention of the Brazilian case even offered an instance of the expectations effect." Clearly, Friedman did not suggest that Brazilian policy makers in the mid-1960s were trying to exploit a Phillips curve trade-off. However, his reference to wage dynamics in a highly inflation-

21. Surely, by the mid-1970s indexation, especially of wage contracts, had spread to some industrialized economies (such as Italy) and attracted criticism from economists (see e.g., Modigliani and Padoa-Schioppa 1978).

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ary environment such as Brazil did play a role in his rebuttal of Solow (1966), even if, unlike Lemgruber's interpretation, Friedman did not base his entire case on that.

The economic literature at the time implicitly regarded the "Brazilian case" as a distinct sort from the American or British records, and therefore not as relevant for Friedman's point, which was supposed to apply to industrialized economies. Robert Solow, the explicit target of Friedman's 1966 criticism of the then prevailing interpretation of the Phillips curve and (implicitly) of his 1968 address as well, said as much in his pioneer econometric evaluation of Friedman's natural rate hypothesis. Upon deriving, for the US and the UK, results that rejected the accelerationist approach and the notion of a long-run vertical Phillips curve, Solow stated: "I think there is a message here: whatever may be true of Latin-American-size inflations or even smaller perfectly steady inflations, under the conditions that really matter—irregular price increases with an order of magnitude of a few percent a year—there is a trade-off between the speed of price increase and the real state of the economy" (Solow 1969: 17).

That clearly was a reaction to Friedman's (1966, 1968) attempted use of the Brazilian inflation to make his point.[22] Solow's reaction was illustrative of the general perception among American and British economists that Latin American high inflation did not prove Friedman's case. As evidence of inflation acceleration in industrialized economies started to come in, the notion of a non-accelerating inflation rate of unemployment (NAIRU) gained prominence (see also Gordon 1976).

Although the Brazilian example did not persuade Solow and others, it did play a significant role in the construction of Friedman's argument, as he predicted that a similar shift of the short-run Phillips curve would take place in the US. Referring to the Phillips curve, Friedman (1977a: 469) claimed that, "as in any science, so long as experience continued to be consistent with the reigning hypothesis," as had happened until the 1960s, "it continued to be accepted, although, as always, a few dissenters questioned its validity." Friedman's approach to business cycles along NBER lines and his Marshallian methodology, as Hammond (1996: 44) has pointed out, were behind his view that economists should focus on concrete problems and that observation was more relevant than mathematical elegance

22. There were some problems in the way Solow (1969) estimated his equations, as Friedman (1975: 24) would point out, which raised skepticism about his nonaccelerationist result. Laidler (1969) provided a first criticism of a previous 1968 version of Solow's econometric exercise.

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and completeness. Friedman believed the "ultimate test of theories was their capacity for predicting data other than those from which they were derived" (Hammond 1996: 44). Friedman's use of his Brazilian observation to predict the instability of the American Phillips curve may be seen as an illustration of that.

Even if, as Gordon (1976, 2011) has suggested, MIT economists were not as engaged in the 1950s and 1960s with South American economies as (some) Chicago economists, surely a couple of Solow's colleagues such as Paul Samuelson and Charles Kindleberger took notice of South American chronic inflation. Samuelson (1961: 787) referred to the perverse effects of inflation on investment rates in Brazil and Chile in a chapter about economic development. In the same vein, Kindleberger's (1965, chap. 13) careful discussion of the Latin American structuralist-monetarist debate about chronic inflation was set in the context of economic development issues, not monetary theory and policy. References to Brazilian and Chilean expectations of inflation in Samuelson's *Economics* appeared conspicuously in the eighth edition (1970) only, after Friedman's presidential address. In the new subsection titled "Compromising between Price Stability and Growth"—a couple of pages after a new long footnote on the Friedman-Phelps accelerationist Phillips Curve—Samuelson (1970: 814) asked whether American tolerance of price creep and insistence on high employment and growth would "inevitably snowball into a runaway inflation." After mentioning inconclusive evidence for the US and other industrialized economies, he warned that "the chronic rapidly trotting inflation of Chile and Brazil—where for decades prices advanced at a 20 to 60 per cent annual rate—provides an ominous specter for all mixed economies" (Samuelson 1970: 815).[23]

Like Friedman, Samuelson (1973: 863, 870–71) was attracted to the so-called Brazilian economic miracle, but he did not refer to indexation in that connection. Brazil's intense economic growth, according to Samuelson (1973: 863), illustrated the effects of "wage determination by power." Brazil was the "touted instance" in the early 1970s of strong-arm govern-

23. By "mixed economies" he meant advanced countries ruled by both public and private institutions, like the US. That passage, which contradicts Solow's (1969) remark quoted above, was removed from the 1973 ninth edition. In that edition, Samuelson (1973: 272) added a subsection titled "Anticipated Inflation," about the effect of expectations of inflation on interest rates. Just like Friedman (1968) and others, he referred to Brazil and Chile for evidence of the "Fisher effect." The 1973 subsection largely reproduced a footnote introduced in the seventh edition (Samuelson 1967: 259).

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ments that are tough on unions and intellectuals and can "sometimes produce short-run, so called 'miracle' sprints of real growth—even with near-term real wage growth." According to the MIT economist, the Brazilian military dictatorship represented a reaction to economic populism, which had featured both increasing inflation and unemployment in the early 1960s. It is sad, he wrote, to have to "witness an occasional economic success of such dictatorial regimes—in the short run" (1973: 871). Like Friedman, he compared Brazil to Japan—Brazil had turned into the "veritable Japan of Latin America." However, unlike Friedman, Samuelson expected that Brazilian high growth rates would not last for long, as it had historically happened with other "fascist" regimes (see also Boianovsky 2019, section 3).

Impressed by his 1973 travel to Brazil, Friedman speculated, in his 1976 Nobel lecture, whether US inflation was approaching the chronic South American pattern. Friedman's trip was prompted by his curiosity about the Brazilian economy and its mechanisms to cope with inflation. He was still quite positive about the Brazilian stabilization experience when visiting Chile in 1975. Upon his return from Santiago, Friedman wrote to Pinochet, in a letter of April 21, 1975, that Chile should find inspiration in the Brazilian 1964–67 "shock treatment," when inflation came down after a transitory period of high unemployment (Friedman and Friedman 1998: 592). However, the Brazilian "economic miracle" did not last long (426–27), in contrast with Friedman's 1973 belief that the country would be able to handle the first oil crises. Brazil was beset in the 1980s and early 1990s by near hyperinflation and balance of payments problems. New currencies were introduced "in the vain attempt to achieve by name changes what required a real commitment to reduce money supply" (427).

Friedman's 1998 critical account of Brazilian monetary reforms (especially the 1994 "Plano Real," which is not explicitly mentioned) missed the point that widespread staggered indexation, together with accommodating monetary and fiscal policies in the face of adverse aggregate supply shocks, had turned Brazilian inflation into a random walk (Simonsen 1983: 131). In the 1980s and 1990s, the notion that inflation was predominantly "inertial" became increasingly accepted—if not consensual—among Brazilian economists, which culminated with the successful 1994 stabilization through monetary reform and end of indexation after a transition period (see Andrade and Silva 1996). The key to the 1994 "Plano Real" was the notion (advanced by Arida and Lara Resende 1985) that

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the temporary introduction of full perfect indexation by means of an indexed currency would eliminate inertial inflation caused by lagged indexation.[24]

Friedman's ([1963] 1968, 1966, 1968) interest in the Brazilian inflation experience may be also explained by the context of the Latin American "structuralist-monetarist" debate, which reached its climax at the Rio 1963 international conference (Baer and Kerstnetzky 1964; see also Boianovsky 2012). In fact, the term "monetarist"—introduced by Campos (1961), who, like Gudin, sided with the monetarist camp—first gained currency during that debate. The Latin American discussion took place before the monetarist controversy that would soon dominate macroeconomics in North America and the UK (Boianovsky 2012; Laidler 2004, sec. 3).

Friedman, like some other Chicago economists, was aware of the 1950–60s Latin American controversies, and of the relevance of the experience with high inflation and the attempts to stabilize it in the region. Nevertheless, it may seem a bit surprising that he did not refer in 1966–68 to other South American countries, except Chile, and then only in connection with the Fisher effect. Friedman was certainly familiar with the history of Argentinian inflation, the topic of Adolfo Diz's 1966 Chicago PhD thesis, the main results of which were published with the same title as a chapter in Meiselman's well-known 1970 collection (in which Diz acknowledged "encouragement and criticism" from Friedman). Moreover, Friedman cosupervised, with H. Uzawa, Miguel Sidrauski's Chicago PhD thesis about money, inflation, and growth, also submitted in 1966. Like Diz, Sidrauski came from Argentina. His thesis was a theoretical study that generated a couple of classic articles (see e.g., Sidrauski 1967). Chronic inflation in Argentina was a likely (if remote) source of interest for Sidrauski, who took a position at MIT as assistant professor in 1966 and died two years later (see Friedman 1969). Friedman was also familiar with Chilean monetary history, having cosupervised (with A. Harberger) Rolf Lüders's 1968 thesis.

In any event, despite his likely knowledge of inflation history in Argentina and Chile, Friedman (1968) relied on Brazil as his single piece of empirical evidence. This may be explained by Friedman's interest in the

24. Both Arida and Lara Resende had been PhD students at MIT in the late 1970s and early 1980s. By that time, some MIT economists started to show interest in macroeconomic and stabilization problems in Latin American economies, especially Brazil. That is well illustrated by Rudiger Dornbusch, who coorganized the Rio conference on indexation (Dornbusch and Simonsen 1983) and wrote several papers on economic instability in the region (Dornbusch 1993).

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employment effects of Brazil's relatively successful stabilization experiment, which was unique in the region at the time. In his Nobel lecture, on the other hand, he referred to inflation acceleration in Argentina and Chile, whereas Brazilian indexation remained in the background.

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