**Reaching a Broader Audience: Simonsen’s International Career**[[1]](#footnote-2)

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**Resumo: O artigo discute a carreira internacional de Mário Henrique Simonsen, iniciada assim que ele saiu do governo no início da década de 1980. Argumenta que apesar de ele buscar uma audiência maior para seus trabalhos, ele focou nas áreas mais relevantes para o debate econômico brasileiro da época, ou seja, dívida externa, e a inflação em suas diversas facetas: indexação, inércia inflacionária, política de rendas e o seu custo social. Além disso, havia uma preocupação em influenciar a política da época, buscando soluções concretas a esses problemas tanto em termos nacionais quanto internacionais.**

**Palavras chave: Mário Henrique Simonsen, inflação, dívida externa.**

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**Abstract: The paper discusses Mário Henrique Simonsen’s international career, which began as soon as he left the Government in the early 1980s. It is argued that, although he searched for a larger audience for his papers, he focused on the most relevant areas of the Brazilian economic debate of the time, that is, external debt and inflation and its several layers: indexations, inflationary inertia, incomes policy and its social cost. Also, he wanted to influence policy, searching for concrete solutions for these problems both domestically and internationally.**

**Keywords: Mário Henrique Simonsen, inflation, debt.**

Mário Henrique Simonsen was one of the most important Brazilian economists in the twentieth century. He had a very prolific career that spanned from the 1960s until his death in 1997. However, in the 1980s, he decided to influence a larger audience and chose to write in English – that is when his career as an international scholar begun.

This purpose of this paper is to discuss Simonsen’s career focusing on the international turn it took in the 1980s. The first section discusses his work before this time; the second describes the period when he left the Brazilian Government to dedicate his time to study and lecture; the third analyzes the main contributions made in English, in the 1980s while the fourth section proposes and overview of these contributions. Section five brings the conclusions.

1. **Simonsen’s career before the 1980s:**

Simonsen began his career in the 1960s. In this decade, his most important pieces of work were: i) the introduction of the cash-in-advance restriction in a discussion of the possibility of a boundary equilibrium prompted by the Patinkin controversy (Simonsen, 1964; Boianovsky, 2002); ii) and what came to be known in Brazil as “Simonsen’s curve”, that is, a discussion of the impacts of inflation on real wages when nominal wages are fixed by contracts. As noted by Vera (2008), that was actually first discussed by Kaldor (1957) in a conference in Rio de Janeiro which was later published in a prestigious Brazilian journal (Revista Brasileira de Economia – RBE) – however, Simonsen did not seem to be aware of the fact[[2]](#footnote-3).

The first work was discussed in length by Boianovsky (2002, p.58), who notices that Simonsen “explicitly introduced the cash-in-advance constraint as an inequality in a non-linear programming problem”. Boianovsky also points out that dynamic programming was introduced in 1957, but Simonsen chose not to use it and that in his 1983 book *Dinâmica Macroeconômica*, he discusses dynamic programming without applying to cash-in-advance models.

Simonsen’s contribution is well analyzed by Boianovsky (2002), but given the importance of cash-in-advance models in the economic literature and how early in his career he wrote this paper, it should be noticed it is possible that Simonsen did not remember making such contribution, and that explains why he did not mention it in any of his books[[3]](#footnote-4).

The second important contribution made in the 1960s was Simonsen’s curve. He may not have originally thought of it, but he was the one responsible for its development and diffusion in Brazil. Behind the curve, was the idea of an informally indexed nominal wage affected by chronicle inflation which made real wages float – and he was playing with that idea both theoretically and empirically in 1964, a decade before Friedman (1974), Gray (1976) and Fischer (1977).

Following the military coup of 1964 in Brazil, a Financial Reform took place that introduced indexed bonds to guarantee that lenders would get a positive reward. Concurrently, a Wage Policy (in which Simonsen was involved[[4]](#footnote-5)) would insure that wages would be adjusted once a year considering productivity gains and inflation expectations (both defined by the Brazilian government). In a little more than a decade, a system of formal and informal indexation soon took over the Brazilian economy and Simonsen, as one of the earliest scholars to take notice and eventually the most important Minister in the economy, became one of the countries’ leading experts in that system. So, it was clear, that in the late 1970s and early 1980s, when the rest of the world was starting to pay attention to the problems concerning indexation, he might have something to say on the subject.

His trajectory on inflation studies was not limited to indexation, however. In the 1970s, his focus turned to the effects of past inflation over the current inflation rate, something eventually called inertial inflation.

Again, Simonsen was not the first one to deal with this issue – one can name the studies on price-wage-spirals or the works of ECLAC economists Juan Noyola (1956), Oswaldo Sunkel (1958) or even Celso Furtado (BOIANOVSKY, 2012). However, in Brazil, it was Simonsen’s 1970 “feedback model” that made the idea known to a generation of economists. The model was based on a simple equation,

in which he divided the current inflation rate into three parts: an autonomous component (, which reflected exogenous shocks, a demand component (, that reflect government policy and the feedback component, ( where the effects of past inflation were felt. The simplicity of his model and its empirical validation contribute for its success among Brazilian economists.

Soon, Simonsen would become one of leading economists in Brazil and in 1974, the most important Economic Minister in Brazil. It happened right after the oil shock of 1973 and he had to deal with problems much more complex than he had anticipated: an economy that had been growing fast suddenly had to hit the brakes; fuel prices increased dramatically and inflation would soon follow and indexation was just starting to show its evil side; a balance of payments disequilibrium had to be managed; and all was happening under a Government that in need of economic performance to legitimize itself.

1. **Leaving the Government:**

Simonsen left the Brazilian Government in August 1979 and retreated at the Getúlio Vargas Foundation (Fundação Getúlio Vargas in Portuguese, or FGV). He had been away for more than five years and need to update himself on what had happened while he was gone. For more than a year, he studied the new developments in the field of macroeconomics, became acquainted with the new rational expectations macroeconomics and the controversy it generated. From that effort, he wrote the book *Dinâmica Macroeconômica*, published in 1983, and used up to this day in some graduate courses in Brazil.

From 1979 until just before he died, he continued working at FGV. The Graduate School at FGV, which he directed from 1979 to 1993 (LEAL, 1998) would organize international conferences, bringing renowned scholars (including future Nobel Laureates) in order to try to ease the contact of its faculty and students with the Economic Literature Frontier. As Simonsen had a strong mathematical background and probably due to seniority, he was usually the one to comment and debate the papers of people like Thomas Sargent, Robert Lucas and others. It was unusual at the time for someone at the South side of the equator to have that kind of mathematical rigor, which surprised his visitors.

One of his frequent visitors was Rüdiger Dornbusch. Dornbusch was married to Eliana Cardoso, a Brazilian economist with a PhD from MIT, and was specialized in international economics, which made his interest in Brazil seem natural. Soon, an important partnership between Simonsen and Dornbusch would develop, centered on the effects on inflation and indexation on Latin American economies.

1. **International Career:**
2. **Indexation:**

In December 1981, a conference sponsored by FGV on Inflation, Debt and Indexation, with a focus on the last subject, took place in Rio de Janeiro. By then, Simonsen had already written already extensively on inflation and indexation and was becoming interested on debt studies, since the LDC (Least Developed Countries) crisis was about to erupt some eight-nine months from then – but all this material was in Portuguese.

Many famous scholars attended the conference, such as Olivier Blanchard, Jo Ann Gray, Edmund Phelps, Thomas Sargent, Joseph Stiglitz, Stanley Fisher and Robert Barro. A book with the papers presented at the event was later edited by Simonsen and Dornbusch.

This conference was important for Simonsen’s career as it introduced him to the International Economics academic world. Before that, Simonsen had mostly published in Portuguese. His international recognition until then derived from the fact that he had been the most important Brazilian Economic Minister in the late 1970s but that is hardly an academic credential. From this moment on, Simonsen begun publishing consistently in English and to make inroads on the areas the conference covered: inflation, debt and indexation.

The volume edited by Simonsen and Rüdiger Dornbusch is divided into five parts. The first one is named “Wages, Prices and Inflation Stabilization” and brings contributions by Olivier Blanchard, Jo Anna Gray, Edmund Phelps and Thomas Sargent on contract theory considering price asynchonization, price inertia, incomplete information, moral hazard issues and a review of stabilization experiences in Great Britain under Thatcher and France under Poincaré.

The second part is composed of three articles that discuss indexation experiences in Europe (by Michael Emerson) and in Brazil: one by Roberto Macedo and one by Simonsen by the name “Indexation: Current Theory and the Brazilian Experience”. Simonsen’s article will be discussed will be described in detail ahead.

The third part explores the relation between indexation and assets markets and brings articles by Joseph Stiglitz, Stanley Fischer, Nissan Liviatan and David Levhari. The last section is called Panel discussion, in which Robert Barro, Domingo Cavallo and F. H. Hahn participated.

In a review of the book, McNelis (1985, p.274) regards Simonsen’s paper as “certainly the most interesting paper in this book”. He intended to confront the results of the Gray-Fisher model and some stylized facts associated with indexation: it was seen as a way to reduce welfare costs associated with chronic inflation while at the same time was an inflation-perpetuating mechanism. He saw a Keynesian touch in the Gray-Fisher model as wage indexation prevents employment and output from being affected by demand shocks, but at the cost of increased price instability. However, as he put it, “the Gray-Fischer results, important as they may be, hardly support the policy-makers’ contention that indexation is an inflation-perpetuation mechanism and that even in the absence of shocks widespread escalator clauses produce sticky inflation rates. The stickiness argument of course does not preclude the eventual effectiveness of a tight monetary policy. Rather, it suggests that indexation makes inflation harder to fight because of worsened price-output trade-offs” (SIMONSEN, 1983a, p.100).

Simonsen proposed then an extended version of the Gray-Fisher model and reaches opposite results. Those results however, were in line with Friedman (1974) with predicted that indexation could ease the side effects of stabilization policies, due to the role of expectations and the absence of a price-output trade-off even in the short-run. Simonsen obtained that through lagged indexation and he showed that, even with rational expectations, it was possible to obtain a Phillips relation equivalent to the one that would be generated by adaptive expectations. He also claimed that this result supported the policy-makers’ view on the effects of wage indexation. He then went on described Brazil’s experience with wage, tax and bond indexation.

Simonsen mentions in a footnote that Dornbusch commented on a preliminary version of the article – together with the volume edition, this is his first print collaboration with the German economist, and were fundamental to his international career, as most of the work that had any impact outside Brazil had some connection to what he did with Dornbusch. This particular article is an example as it was often cited in discussions on wage indexation throughout the 1980s, usually regarding Latin America, but not always just so.

1. **Income Policies:**

From this relation with Dornbusch came a second incursion into the international literature – one that dealt with the role of income policies in anti-inflationary plans in Latin America in the late 1980s.

Simonsen had been a defender of income policies, such as wage and price controls, ever since he proposed his feedback model in the 1970s. In that model, those policies would reduce the feedback component (in equation 1 and, therefore, reduce the perpetuating mechanism inflation presented. However, he was cautious as to how extensive those policies could be applied in the economy without causing serious distortions.

In the 1980s his argument was modified[[5]](#footnote-6) - Simonsen had already made this point in some articles he had written in Portuguese, and that’s what he did in an NBER working paper written with Dornbusch by the name “Inflation Stabilization with Incomes Policy Support: A Review of the Experience in Argentina, Brazil and Israel”, published in 1987 but already with drafts already circulating in 1986, as it was prepared for a meeting of the Group of Thirty[[6]](#footnote-7) of October 2-3, 1986[[7]](#footnote-8). Some of the same ideas were defended in a paper presented at conference and published in volume under the name *Inflation Stabilization: The Experience of Israel Argentina, Brazil, Bolivia and Mexico* in a paper called “Price Stabilization and Incomes Policies: Theory and the Brazilian Case Study”.

Instead of defending income policies based on the feedback model, they still regarded its effects on expectations, but in a different way: considering that an inflationary process would lead to a distributive conflict in which agents would try to defend their share of real income, an stabilization plan presented a problem since nobody would be willing to stop raise prices first, that is, without assure that others would do the same. That way, the adoption of income policies would work as a way to make expectations uniform and to reduce the cost of fighting inflation, by solving this game theory conflict.

Describing markets as a (n+1) - person non-cooperative game (with n private players and the government) and considering that a Nash equilibrium means *ex post* wisdom (and not *ex ante* rationality), that is, players choose their actions before knowing what others will choose. Therefore, he postulates that caution leads to *max-min* strategies, or, maximizing your payoff in the worst possible scenario.

However, as Simonsen argues: “Rational expectation macroeconomics implicitly assumes that intelligent participants of non-cooperative game immediately locate a Nash equilibrium (…). This assumption is often justified by bringing on stage an auctioneer who prevents any transaction so long as any participant can improve his payoff by unilaterally changing his strategy. That the outcome is a Nash equilibrium is nothing but a tautology. Yet there is no place for the auctioneer, either in game theory or in the real world.” (SIMONSEN, 1988a:260) He went on saying that “*maximim* strategies that do not yield a Nash equilibrium are not likely to be indefinitely repeated. (…) Prudent players in a repeated game may gradually narrow the conceivable range of other participants’ strategies, triggering a ‘*tatônnement* approach’ to a Nash equilibrium. Little can be said, however, about convergence speeds, which may be painfully slow (…). Governments should play the role of the Walrasian auctioneer, speeding up the location of the Nash equilibrium, namely, using the visible hand to achieve what rational expectations models assume to be the immediate performance of the invisible hand. As such, the central function of incomes policies is not to constrain individual decision making but to tell each actor how other will play.” (SIMONSEN, 1988a, p.261)

Simonsen and Dornbusch also took the opportunity to evaluate both the Austral and the Cruzado Plan that had been implemented in 1985 in Argentina and 1986 in Brazil respectively. As their article was published in the end of 1986, they could not yet realize the full consequences of those plans, but they stressed that income policies alone would not solve the inflation problem.

They believed that plans that did not employ income policies led to unnecessary long stabilization crisis. Plans without fiscal austerity were doomed as scarcity created by price controls had to be tamed by demand controls. So, we can say that they overestimated the reach of Austral’s and Cruzado’s fiscal austerity compared to those needed to tame the inflationary process they were fighting. According to Simonsen (1988a, p. 262), “the big mistake of the government was to confound necessary with sufficient conditions and to diagnose inflation as a purely inertial problem. Demand inflation took its revenge.”

1. **Debt:**

In April 1984, Simonsen presented at a World Bank Symposium a paper by the name of “The Developing Country Debt Problem”. According to preface of the volume published after the symposium, the World Bank aimed to assemble those active in research in debt as it became a major issue for developing countries. The symposium was organized by J. Michael Finger and Gordon W. Smith. Also present in the volume are contributions by Jeffrey Sachs and Richard Cooper, Paul Krugman, Rudiger Dornbusch and Leopoldo Solís and Ernesto Zedillo among others.

Simonsen was one of the first scholars to pay attention to the LDC crisis and did so with a different perspective. On one hand, he was a former Finance Minister of a Developing Country, in part responsible for some of those policies that led to the situation. On the other hand, he was a director of Citicorp, one of the key lenders to Brazil, a job he held from 1980 until 1995[[8]](#footnote-9). This means he had extensive practical knowledge from both sides of the issue.

His article focused on describing how the crisis arose and its main characteristics. Competitive recycling, that is, the recycling of OPEC oil surpluses to developing countries that lacked savings, would work as long as the rate of growth of debtor countries exceeded international interest rates. He formalized that rule and it became known in the literature as Simonsen’s identities (Krueger, 1987), or in Portuguese, as the prudential debt rule:

In which,

z is the debt /exports ratio and its derivative regarding time,

g is the resources gap/exports ratio,

i is the average interest rate for the debt,

x is the growth rate of exports.

The problem was that by 1979, there was reversal concerning this rule, as can be seen on table 1. Simonsen (1985) credited this reversal to the United States fiscal and monetary policies.

**Table 1. Average growth rate of exports (non – oil LDCs) X Average interest rate for the debt (LIBOR + 1,5% spread) – 1974-1982:**

|  |  |  |
| --- | --- | --- |
|  | **Average growth rate of exports (non – oil LDCs)** | **Average interest rate for the debt (LIBOR + 1,5% spread)** |
| **1974 - 1980** | 21% | 10,7% |
| **1981 - 1982** | 1% | 16,3% |

Source: Simonsen (1988b).

Simonsen (1985) also argued that some of the actions of the International Monetary Fund (IMF) prevented total collapse of the financial system in the early eighties. He noticed that when came to sovereign countries, it was hard to distinguish an illiquid agent from and insolvent one – “since there is virtually no collateral to sovereign risk, subtle instruments are required to approach moral hazard issued: as far as external debts are concerned, there is no clear line between ability to pay and willingness to pay” (SIMONSEN, 1985, p. 113).

However, he was also very critical of IMF’s position regarding the solvency of debtors, wrong calculations (in Brazil’s case, the controversy regarding nominal and real accounting) and the type of adjustment required, which was mostly done by imports reduction instead of raising exports, which would in turn improve debt indexes. Simonsen also had a positive view of the creditors’ cartel, as he believed it represented a Pareto improvement, as it allowed for a continuous flow of needed capital to indebted countries, avoiding what would be, in many cases total default of theirs debts. Without the cartel, he argues, the individual private banks would not have incentives or guaranties to continue lending to such risky agents.

1. **Inflationary Inertia and the Santa Fe Institute Conference:**

A workshop on “Evolutionary Paths of the Global Economy” sponsored by the Santa Fe Institute took place in September 8-18, 1987 at that Institute’s campus, aiming to “explore the potential usefulness of a broadly transdisciplinary research program on the dynamics of the global economic system, by bringing together a group of economists and a group of natural scientist who have developed techniques for studying nonlinear dynamical systems and adaptive paths in evolutionary systems.” Participants were selected by Kenneth J. Arrow and Philip W. Anderson and David Pines, the Co-Chair of the Santa Fe Institute Science Board served as Moderator. They also edited the volume of the compiled lectures and papers presented at the conference named *The Economy as an Evolving Complex System*. The workshop counted with financial support by Citicorp[[9]](#footnote-10).  
  
According to the introduction to the workshop published in the book, John Reed, then the Citicorp Board Chairman suggested an examination of “the potential application of recent developments in the natural sciences and computer technology to the understanding of world capital flow and debt” to the Santa Fe Institute. This project developed into that workshop and Simonsen was called to present an analysis of the then “present debt crisis” (PINES, 1988, p.4), which corroborates the idea that he was seen as leading expert on the subject, and that his 1985 paper can be considered seminal.

The paper by Simonsen published on the book, however, deals mostly with his work on inflationary inertia in a rational expectations scenario. The paper is called “Rational Expectations, Game Theory and Inflationary Inertia” and advances and idea already present in some of Simonsen’s works in Portuguese. His argument is similar to the one he posits on Simonsen (1988a) on his defense of incomes policies but here he is trying to show simply that, even under rational expectations, inflationary inertial might arise. In his words, “in the later sixties and early seventies, inflationary inertia was explained by combining the natural unemployment rate hypothesis with Cagan’s adaptive expectation formula. Although empirically convincing, the explanation was soon eclipsed by the rational expectations revolution that dismissed backwards-looking inflationary expectations as an ‘*ad hoc*’ assumption. Painless inflation cure appeared as a strong possibility, provided a credible monetary rule was announced, and provided some gradualism was accepted to bridge the temporary inertia caused by staggered wage and price setting. Empirical evidence never supported this optimism, but it appeared as the outcome of sound economic theory. Once wage- and price-setting decisions are viewed as a play of a B2[[10]](#footnote-11) game, the rational expectations optimism goes to pieces. Even if the Government commits itself to a credible program of nominal output stabilization, price-setters have no serious reason to stop price increases until they are assured that price-setters will behave as Nash strategists. ‘Expectations’ now appear as an imprecise concept that attempts to summarize how rational economic agents face strategic interdependence problems. (…) The old-fashioned adaptive-expectations hypothesis deserves some rehabilitation, since it describes a trial-and-error approach to a Nash equilibrium in a B21[[11]](#footnote-12)game.” (SIMONSEN, 1988c, p. 207-8)

In this paper, he also presents his defense of income policies. Some of the ideas presented on this paper were already hinted or discussed elsewhere, however, it is more elegantly prepared.

1. **The Welfare Cost of Inflation:**

The last paper published by Simonsen was co-authored with Rubens Cysne published posthumously in the Journal of Money, Credit and Banking in 2001[[12]](#footnote-13), named “Welfare Costs of Inflation and Interest-Bearing Money”. According to Cysne (2001), this line of work was based on the work of Lucas[[13]](#footnote-14), mainly regarding the overestimation of welfare costs of inflation for low interest rates when assuming a money demand with constant interest-elasticity and the use of a monetary aggregate that included both currency bills and interest-bearing demand deposits without properly distinguishing between them.

That would be the contribution of Simonsen and Cysne (2001). They differentiate the two kinds of money – currency bills and interest-bearing demand deposits, other than bonds - and extend Lucas’ analysis of welfare costs of inflation, developing a lower and an upper bound to the welfare cost of inflation. They assume the banking spread (the difference between the yield on bonds and on demand deposits) to be constant and find that the welfare loss is an increasing function of the yield on bonds and that the demand for interest-bearing deposits depends on the signal of the sum of the elasticity of substitution between both kinds of money and the elasticity of demand for currency bills with respect to yield on bonds. As Cysne (2001) points out, it establishes a “bi-dimensional welfare cost of inflation” as both types of money have their demands depend on their cost of opportunity.

1. **Overview of his contributions:**

A few general comments can be made about Simonsen’s contributions that were described here.

First of all, most of the contributions made here were of importance to their respective fields. Simonsen managed to engage with top economists in each line of research, and especially from a case study point of view, that is, Latin America, or more specifically, Brazil – but without disregarding theoretical rigor – he made his point and he was heard in those niches.

Most of the papers mentioned here have been cited 50-100 times since they were published as table 2 shows. They are cited by renowned economists.

Table 2: Number of citations of selected papers by Simonsen.

|  |  |  |
| --- | --- | --- |
| **Paper** | **Number of Citations[[14]](#footnote-15)** | **Examples** |
| Indexation: Simonsen, 1983a | 93 | Blanchard (1987) |
| Simonsen and Dornbusch, 1986 | 65 | Helpman and Leiderman (1989) |
| Incomes Policies: Simonsen, 1988b | 32 | Rodrik (1998), Romer and Romer (1997) |
| Debt: Simonsen, 1985 | 109 | Krueger (1987) |
| Inflationary Inertia: Simonsen, 1988c | 20 | Nagel (1995) |
| Simonsen and Cysne, 2010 | 38 | Henriksen and Kydland (2005) |

Second, it is worthy noticing that those contributions were made on issues that inherently Brazilian. That is, he never adhered to mainstream topics to please the Anglo-Saxon audience. What he had to say were things about issues in a Latin American economy. That is true on all topics, even when he adheres to mathematics or tries to engage on conversations started by mainstream economists (Lucas, as reported by Cysne, 2001: the fact that they extended the model to include interest-bearing deposits is very curious). On one hand, one notices an interest in a larger public – otherwise he would not have started to write in English, but on the other, not a compromise on topic – and he surely had the skills to adventure in new areas.

That is a very interesting point if you combine with the first one – he managed to reach a large (and important) audience, but talking about his issues.

Third, that last point is probably relates to a desire to influence policy. Simonsen left the Government in the late 1970, but never stopped serving as informal consultant to Finance Minister in times of need (LEITÃO, 2010). His place in the board of directors of Citicorp when Brazil was negotiating the terms of its debt also points in that direction. International academic reputation could help in this purpose both domestically and abroad.

Lastly, there is his relationship with Dornbusch. They collaborated on many papers that gained attention worldwide, but also, he was the one responsible for many of the invitations to international conferences Simonsen attended, so he is part responsible for this greater reach of Simonsen’s ideas.

1. **Conclusions:**

The goal of this paper was to put into context the last two decades of Simonsen’s career, mainly from an international point of view. He was one of the most important Brazilian economists from the twentieth-century and one of the first to gain international recognition. He did it sticking to a Latin-American agenda, discussing the problems that were relevant to economies that dealt with high inflation and debt, but with methods that were familiar to international audiences in a way that he could engage them in the debate and still influence policy both domestically and internationally.

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1. The author would like to thank Eliana Cardoso, Fernando de Holanda Barbosa, Renato Fragelli and Rubens Cysne for interviews given during the research of this article. Any errors or incorrections, however, are fully my fault. [↑](#footnote-ref-2)
2. Simonsen claimed, in fact, to have seen something similar to his analysis on a report about the Chilean economy by ECLAC, the Economic Commission for Latin America and the Caribbean (Barbosa, 1997) [↑](#footnote-ref-3)
3. Most of his conclusions published on his papers ended up one way or another on one of his books. [↑](#footnote-ref-4)
4. Campos (1998). [↑](#footnote-ref-5)
5. This change of argument came from his “catching up” with the profession after leaving the government, in which he learned game theory as well. [↑](#footnote-ref-6)
6. According to its website, “the Group of Thirty, established in 1978, is a private, nonprofit, international body composed of very senior representatives of the private and public sectors and academia. It aims to deepen understanding of international economic and financial issues, to explore the international repercussions of decisions taken in the public and private sectors, and to examine the choices available to market practitioners and policymakers.” Current members include Domingo Cavallo, Stanley Fischer, Arminio Fraga Neto, Kenneth Rogoff, Lawrence Summers Paul Volcker and Ernesto Zedillo for example. Also according to the website, Simonsen was not a past member, but Roberto Campos was. [↑](#footnote-ref-7)
7. The authors thanked Stanley Fischer for his help reviewing the article. [↑](#footnote-ref-8)
8. According to his obituary in the New York Times, February 13th, 1997. [↑](#footnote-ref-9)
9. According to the Santa Fe Institute’s website, the Institute itself was established with funding and strong ties to Citicorp (at the same that Simonsen was a director of Citicorp). [↑](#footnote-ref-10)
10. Simonsen (1988c) defines a B game as one in which a Nash equilibrium is not reachable by a *max-min* strategy, that is, “to reach a Nash equilibrium, prudence must be left aside”. Simonsen (1988c, p. 210) B2 are games in which the number of participants is large or information is incomplete, which makes reaching a Nash equilibrium unlikely. [↑](#footnote-ref-11)
11. B22 games are the games in which after repeated playing, the limit does not converge to a Nash equilibrium. [↑](#footnote-ref-12)
12. Cysne (2001) describes how this research came to light. According to him, a draft was done in 1994 and a preliminary version was published as a working paper in 1999 at FGV. Simonsen died in 1997. [↑](#footnote-ref-13)
13. Based on a working paper of 1993, published as Lucas (2000), according to Cysne (2001). [↑](#footnote-ref-14)
14. June, 2013. [↑](#footnote-ref-15)