Regional scholar, policy-maker, academic leader: the work of Brazilian economist Clelio Campolina Diniz

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ABSTRACT
The author hosted Clelio Campolina Diniz during the writing of his second dissertation, required of professors in Brazil, at Rutgers University’s Project on Regional and Industrial Economics in the 1990s and subsequently headed up a US National Science Foundation-funded international project on new industrial districts with Campolina and colleagues in Japan and South Korea. She co-wrote a subsequently published paper with Campolina for the Inter-American Development Bank and served for two months in 2008 at the Federal University of Minas Gerais’s (UFMG) Center for Transdisciplinary Studies. Campolina and the author are currently researching how development theory might be expanded to incorporate culture and environment, using a new contemporary art museum and botanical gardens, Inhotim, in Minas Gerais as a test case. During a month-long work session on the latter in 2017, the author interviewed Campolina extensively for this paper.

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FROM RURAL POVERTY TO REGIONAL SCHOLAR: AN UNCONVENTIONAL PATH

Clelio Campolina Diniz was born in 1942 into a poor family in rural Minas Gerais, near the town of Esmeraldas, Brazil. They lived as subsistence farmers on a small piece of land that his father had inherited. The youngest of 11 siblings, Campolina was the only one to attend university. Because the family lived four kilometres from the school and he had to walk, his primary school education was deferred for several years. After this, he began at a multi-class rural school where he completed three years of primary school. Subsequently, his grandmother moved to town and invited him to live with her, and there he completed his last year of primary education at age 14.

CONTACT
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From an early age, Campolina worked – at first on the family farm in subsistence agriculture, milking cows and caring for animals. In 1957, when he entered gymnasium – the second half of elementary school – he attended in the evenings and started working during the day. He first worked in a bar, selling drinks. Then, invited by the owner, he worked in an accounting office, a small business, for two years, followed by another two years in an accounting job with a small petrol station and car-repair business.

Because his family could not afford further education for him after he finished gymnasium, in 1961 Campolina moved to Belo Horizonte, the capital and major city in Minas, a region of iron miles, steel mills and, later, automobile factories. As he needed to keep working and was a good typist, he put in two years as a clerical worker for a commercial business. He worked daytime hours and continued his schooling in the evenings, living in a family-owned pension and spending most of his earnings paying the rent and on his education at a private school.

Campolina then competed for the newly created job of Secretary for the Banco de Desenvolvimento de Minas Gerais (hereafter referred to as the Development Bank). He was one of more than 700 candidates for a handful of positions. He completed the language, mathematics and typing tests, finished in fourth position and gained the secretarial job. Though his commercial employer offered him a large raise to retain him, Campolina wanted to continue studying and viewed the Banco as a great learning opportunity. At that time, the Banco employed only 18 people, including the president. He worked very hard and was asked to stand in for Head of the Administration Department when the latter went on vacation and shared his temporarily enlarged salary with all those who worked with him.

Learning at the Development Bank

In several days of interviews with the present author in the Brazilian winter of 2017, Campolina recalled his great good luck with the Development Bank work, a kind of on-the-job apprenticeship for his economics career. In December 1963, the Banco created a Study and Planning Department, headed by Fernando Antonio Roquette Reis, a professor at the university who worked at the bank part-time. ‘He was one of the most important thinkers I knew in my life,’ Campolina recalled. He became Reis’ secretary, as Reis began to draw around him a group of economists, among them Alvaro Fortes Santiago and Elcio Costa Couto, also professors at the university. ‘Reis followed the French economist [François] Perroux’s growth pole work. He tried to attract Perroux to Brazil, but Perroux sent his disciple Jacques Beauderville instead. They did a study of development poles in Brazil,’ Campolina recalled.

In 1965, while still working with Reis, Campolina began to pursue engineering degrees at the Catholic University in Belo Horizonte. After three years, he completed the degree in operational engineering and, two years later, a mechanical engineering degree.

In 1968, the Banco sought to hire additional professional staff and chose to conduct a blind competition. Campolina won first place, becoming a bank engineer with good pay, enough that with a month’s salary one could buy a new car. But Campolina wished both to help his family and to save money. Therefore, he and some colleagues rented a flat and shared the space to lower their expenses. Between 1968 and 1973, he built a house for his parents in Esmeraldas and helped five brothers buy their own homes.

From 1968 on, Campolina served as engineer for the Development Bank. But he also worked with people – ‘very clever people’ – in the Planning Department. They prepared the Diagnóstico de Economia Mineira (Diagnosis of Minas Gerais’ Economy) (BDMG, 1968), a comprehensive study of the historical background of the Minas Gerais economy and the structural challenges. People from other bank departments began to criticize the Planning Department for planning and not earning money. In 1967, the group of economists from the bank’s Planning Department who were also lecturers at the university jointly with other university professors created CEDEPLAR, the
Center de Desenvolvimento e Planejamento Regional, at the Federal University of Minas Gerais (UFMG). The CEDEPLAR began offering a master’s degree and later a doctorate in regional planning and eventually a master's degree and a doctorate in demography.

The Development Bank also entered into an agreement with the United Nations’ (UN) Latin American Institute for Economic and Social Planning (ILPES), a section of the UN’s Economic Commission for Latin America (ECLA), to partner on research and policy. The team from ILPES and the bank prepared a development plan for Minas Gerais. Simultaneously, the team from the bank decided to create the Fundacao Joao Pinheiro as an institution to study the Minas Gerais economy. They also reformed the Minas financial system. Reis became Central Bank of Brazil Director, then Secretary of the Treasury for Minas Gerais, and then Presidente of Compania Vale do Rio Doce, one of the biggest iron ore companies in the world. Another important man of the group, Elcio Costa Couto, became the Vice Minister of Planning in the federal government.

The ILPES and ECLA were led by Raúl Prebisch, the most famous Latin American economist. He challenged the prevailing classical and neoclassical trade orthodoxy that counselled that countries such as those in Latin America should specialize in commodity exports. Arguing that this kind of specialization would result in continual poverty and underdevelopment for Latin America, Prebisch developed the concept of centre versus periphery to explain Latin American underdevelopment, first published in the annual report by the ECLA, in 1949. (CEPAL, 1949) and later republished by the United Nations (New York, 1951). Subsequently, Prebisch attracted colleagues in the United States and elsewhere, including Brazilian Celso Furtado and Hans Singer, the German Jewish refugee who had fled to Britain in 1933. Together they elaborated on centre and periphery conceptualization and proposed fostering industrialization, fashioning an import substitution strategy that encouraged governments to nurture ‘infant industries’. A collection of Prebisch’s most important contributions is compiled in Bielschowksy, 2000).

From Minas to Chile to Minas to Campinas to CEDEPLAR, 1971–76

From March to December 1971, Campolina was sent by the bank to the ILPES and ECLA in Chile to complete a nine-month full-time course on planning. His classmates were a dozen others from Argentina, Chile, Bolivia, Colombia, Cuba and Mexico. He had the good luck of taking a 60-hour course with Prebisch and to work with young leading thinkers such as Brazil’s Maria da Conceição Tavares and Antônio Barros de Castro, later famous economists who worked as technical staff at the ILPES and graduate teachers at the Escola Latina in Chile. When he finished the course in 1971, Campolina was recalled to the bank. Although not yet formally an economist, Campolina became head of the advisory office for the bank’s president.

In 1973, the Brazilians among the group in Chile decided to create the graduate programme in economics at the new University in Campinas, state of Sao Paulo, which had been established in 1967. In contrast to the economics master’s degree and doctoral programme offered at the Fundacao Getulio Vargas in Rio de Janeiro, which was neoclassical in orientation, the group decided that the new Campinas would be Marxist and heterodox.

In 1973, Campolina was encouraged by Barros de Castro to pursue a masters’ degree in economics in Campinas. He objected: ‘No, I am an engineer, not an economist.’ ‘Yes,’ replied Barros de Castro, ‘you are well-known already and you are capable of becoming one.’ He counselled Campolina to study some micro- and macroeconomics. Campolina recalls that he was only able to do so because in July 1973 he had had a very bad car accident in a small rural town. He broke his back – the third lumber vertebra – very badly. He refused surgery and returned to a hospital in Belo Horizonte. Campolina remained in bed in traction and then in a body cast, recovering totally, though he continued to wear a hard-backed body cast for two years.
During the recovery, Campolina was not working. Barros de Castro encouraged him to read economics. Campolina studied macro- and microeconomic textbooks and succeeded to win, in a national competition, the opportunity to pursue his master’s degree in economics. However, the bank did not want to release him for study in Campinas. He took leave without pay and went to Campinas for the master’s programme full time. ‘I worked very hard,’ he recalled. ‘I took twelve courses of sixty hours each term during two full academic years. I was single, so I could study full-time, day and night.’

Before finishing his master’s at Campinas, Campolina was invited to join the CEDEPLAR full time, but as a temporary employee and for only a quarter of what he earned at the Development Bank. The bank tried to keep him, offering a promotion, but he wanted to pursue an academic career. In 1976, he said yes to the CEDEPLAR, moved back to Belo Horizonte, resigned from the bank and married Alda Maria Palhares Campolina.

**Professor and graduate student simultaneously**

At the CEDEPLAR, Campolina was thrust into teaching three courses at once: a master’s degree course in political economy and two introductory courses. In the following semesters, he taught international economics, macroeconomics, industrial organization and a course on the Brazilian economy. Then he began to dedicate his work to regional economics, the principal specialization of CEDEPLAR. As any academic knows, one learns a great deal from having to construct courses and from one’s own students. He received positive feedback on his teaching from the faculty and students, winning a teaching award at the end of the first year. The following year, he gave the CEDEPLAR commencement address and was to be honoured to do so 14 times over the coming years.

During these first years at the CEDEPLAR, Campolina finished his master’s dissertation with his committee at Campinas, which he defended in September 1978, the same month his first child, Bernardo, was born. Campolina had been teaching at the CEDEPLAR as a temporary lecturer. As soon as he completed his master’s (MA), he competed for the position of Assistant Professor in the Economics Department at the UFMG and was chosen and promoted that year (1978). In 1979, Campolina became CEDEPLAR Director for two years. In 1982, the UFMG gave him leave to go to Campinas to complete a doctorate. With a grant to go to Oxford in the UK for a portion of this work, he completed his doctoral dissertation, ‘Capitalismo, Recursos Naturais e Espaço’, in 1983, under the direction of Professor Wilson Cano. His dissertation analyzed the role of natural resources for the movement of the agricultural and mining frontier from the older centres, the role of transportation systems in these developments, and how both were shaping regional development in Brazil.

**MAJOR REGIONAL STUDIES CONTRIBUTIONS**

Both at the bank and as professor and researcher at the UFMG, Campolina explored new concepts and models for regional development that shaped subsequent development strategies for both the state of Minas Gerais and Brazil as a nation. His research often began with a close study of the data and trends in energy, transportation and industrial sectors, generating pioneering perspectives on regional development possibilities and how to pursue these with policy. His deep dives into hard data on industry, infrastructure, urban structure and regional specialization yielded a series of innovative concepts and analyses linked to planning recommendations.

Many of his scholarly works were first published as books and reports aimed at shaping contemporary Brazilian and Latin American development policies, addressed to both policy and academic audiences. Here I have woven an account of his most influential books into the narrative of his scholarly work as it unfolded in step with Brazil’s regional economic evolution.
Regional energy analysis, sectorally integrated planning and foreign versus domestic enterprise ownership

Campolina’s intellectual work was often linked directly to opportunities to improve regional planning and addressed to powerful audiences: the Development Bank, the state of Minas Gerais, the federal government. The first set of his innovations, accomplished while at the bank, involved the study of, and planning for, the energy sector in Minas. Published by the Bank in a large and pioneering study, Diagnóstico de Economia Mineira (Diagnosis of Minas Gerais’ Economy) (BDMG, 1968), Campolina’s contribution constructed a balance sheet of all energy sources for the state. In researching energy options, he relied heavily on his background in engineering. The study was both a model of creative research techniques for its time and a significant planning tool for the bank and state government going forward as they undertook infrastructure projects and financing.

Campolina did not always receive proper credit for his intellectual contributions. After he returned to the bank from the Chilean planning experience, he prepared a study that challenged, and eventually changed, the way that development planning was conceptualized. The bank at that time proceeded by treating each potential project as an isolated phenomenon. Campolina’s study argued that policy-makers should approach planning with a sectoral lens rather than as isolated projects, searching for intersections among sectors such as mining, steelmaking, sugar cane cultivation and so on. The bank embraced this approach, though it did not publish the paper. Unhappily, the president of the bank crossed out Campolina’s name as author and put his own name on it instead. This discourtesy was one reason why Campolina left the bank to pursue his economics degrees at Campinas.

Campolina’s master’s dissertation, completed in Campinas’ economics department, was entitled ‘Estado e Capital Estrangeiro na Industrialização Mineira’ (State and Foreign Capital in the Industrialization of Minas Gerais) (Diniz, 1978). A main contention of the dissertation was that the state of Minas had little entrepreneurial enterprise because most businesses were the property of the state or foreign-owned capital, an insight he credits to Reis at the bank. Campolina’s research demonstrated this preponderance of foreign ownership of capital. His dissertation won the Minas Gerais Diogo de Vasconcelos prize and was published as a book, Estado e Capital Estrangeiro Na Industrialização Mineira (State and Foreign Capital in the Industrialization of Minas Gerais) (Diniz, 1981). The book became a major source on the Minas economy for many years. After the first edition sold out, Campolina was invited to republish it many times, but he postponed it indefinitely, a decision he regretted later in his career.

Analysis for planning regional and interregional integration: making the case for Brazilian national planning for regions

At various junctures in his research career, Campolina developed new analytical models that informed the planning of his state, Minas Gerais, and its relationship with other regions of Brazil. The first of these was a proposal to organize the state’s planning by focusing on five structural initiatives, inspired by ideas from Albert Hirschman: (1) improving links between the centre of Minas to Sao Paulo; (2) improving the integration of Minas Gerais and to the Northeastern region; (3) improving basic ‘first floor’ education; (4) undertaking a programme for the Jequitinhonha Valley and northern Minas Gerais, the poorest regions in Minas; and (5) restructuring state institutions. Most were not fully implemented, Campolina recalls. But the idea of structuring programmes was incorporated by the federal government in its development planning, although often in vulgarized forms and without regard for the unique challenges of various sectors.
At the CEDEPLAR, Campolina advised, coordinated and authored major studies aimed at informing national planning in Brazil. In the first of these, he and his team made the case for national regional planning to replace regional planning conducted by regions isolated from each other, published as *Economia Regional e Urbana: Contribuições Teóricas Recentes* [Regional and urban economics: Recent theoretical contributions] (Diniz & Crocco, 2006a). In their introduction to the book, the editors strongly defended the combination of both – to be democratic and successful at the same time. The team updated theoretical approaches and criticized the idea of regional planning through both top-down decision-making and the fashionable neoliberal bottom-up approach. The ministry that financed the project published the resulting book, and 50% of the print run sold within a few weeks. The ministry then refused to sell the rest, an upsetting decision for its collaborators. The ministry instead sent the copies to Brazilian elementary schools and refused to permit its commercial distribution on the grounds that the book was ‘public property’.

A second Campolina-led book project explored and recounted regional planning initiatives in 11 countries. The book was prepared for publication, but Campolina decided not to publish it because of the ministry’s refusal to allow the commercialization of the companion book.

A third book project, *Políticas de Desenvolvimento Regional: Desafios e Perspectivas a Luz das Experiências da União Europeia e do Brasil* (Regional Development Policies: Challenges and Perspectives in Light of the Experience of the European Union and Brazil) (Diniz, 2007) emerged from an international conference convened by the Ministry of National Integration and organized by Campolina. The book summarized comparative analyses the team had conducted with regional planning scholars and agencies in Europe and Brazil, an intensive and detailed project.
The chapters were written by the best scholars from Brazil and Europe, including, for instance, Jose Palma Andres, at the time Director of Regional Planning for the European Union, and others engaged in the various European nations in regional analysis and planning. Unfortunately, this book, distributed by the ministry, was not available from a commercial press.

The federal government at the time was interested in Campolina and his collaborators’ call for the national government to be engaged in regional planning. Campolina and his team worked with the team in charge of the Planning Department at the Ministry of National Integration, led by Tania Bacelar and Antonio Galvao, and produced a study for the National Integration Minister. It became the Plano Nacional de Desenvolvimento Regional, was approved by the Congress, and is still the law. But it has not worked very well because in Brazil’s federal system the political leaders of states hold on tightly to their planning and spending powers, a phenomenon that shall be returned to below.

**Linking city to region**

A further analytical policy frontier for Campolina’s work involved linking urban with regional development. Informed by his academic research analyzing the changing growth rates and specializations of major cities in Brazil, he led a CEDEPLAR team preparing a detailed study that became *Estudo da Dimensão Territorial para o Planejamento, Vol. III: Regiões de Referencia* (Study of the territorial dimension of planning, Vol. III: Reference regions) (Ministério do Planejamento, 2008). This study proposed the idea of a polycentric orientation for the future development of

![Brazilian macro-regions and strategic sub-poles](image)

*Figure 2. Brazil macro-regions and strategic sub-poles.*

Source: Diniz (2008, p. 119).
Brazil, linking the macro-poles across a region more strongly and integrating urban poles more tightly to their regions and broader regions of influence. The team analyzed polarization using several analytical tools to identify macro-regions, macro-poles and sub-poles (Figures 1 and 2). They then showed how this integrated city–region approach could be implemented in planning.

For instance, Campolina and colleagues demonstrated how this approach could be used for infrastructure policy. To avoid the overconcentration of future growth in Sao Paulo, the book proposed expanding the reining mindset of 11 large ‘growth pole’ cities in Brazil to 18, including three linked to neighbouring Latin American countries. To identify these new growth poles, they allocated the 556 Brazilian official micro-regions into 83 territories and meso-regions and 11 macro-regions based on economic, environmental, cultural and ecological (e.g., river basin) conditions. For instance, for the Amazon, they proposed a collar of cities around the edge of the region, an idea they credit to political geographer Bertha Becker. These, they proposed, could act as poles for research and knowledge generation to inform a new kind of Amazonian economic development based on the idea of nurturing biodiversity while not destroying the rain forest.

Regiões de Referência was widely read and discussed. Campolina presented this work in many forums, promulgating the idea of five dimensions of integration: territorial, economic, social, political and geopolitical. His proposals included consolidating the many funds that exist for regional development, region by region, into one large regional development fund.

Because of Brazilian politics, Campolina’s powerful ideas about integrating regional with urban and national planning have not for the most part been implemented, an outcome regrettably common around the world. Over the decades, good ideas based on hard data and models of development, though applauded when presented to government leaders, often conflicted with their own agendas. National and regional planning, which had been embraced in the 1950s and early 1960s, fell out of fashion for political reasons. The military government of that era criticized Celso Furtado’s left-wing policy positions as Creator and Director of SUDENE, Superintendency for the Development of the Northeast (Portuguese: Superintendência de Desenvolvimento do Nordeste), the programme for the north-eastern region. Later, as neoliberal ideas spread, discrediting planning, politicians preferred to work opportunistically, part of the practice of ‘soft corruption’. Campolina recalls presenting the first ideas for a regional development plan at the Presidential Council in Brasilia to much applause. ‘They clapped their hand and congratulated me, but almost immediately they begin debating projects – how to transfer water for the San Francisco river to their political jurisdictions. They end up spending a lot of money with no results.’ His pitch for a consolidated regional fund also failed because the governors of the states could not agree: they wanted to maintain control and power over spending.

**Influence of Campolina’s research in academia**

Many of Campolina’s innovative conceptual contributions and research findings, often based on detailed empirical data, were published in book and report formats. Others were written as academic journal papers (24) and chapters in edited volumes (40), some quite influential. In addition to his eight books, Campolina published more than two dozen journal papers (1994–2014) and more than 40 book chapters (1995–2014), some quite influential. I recount here the most important of these chronologically.

In the 1980s, with colleague Mauricio Borges Lemos, Campolina contested the prevailing view that economic growth in the Brazilian economy would continue to concentrate in the state of Sao Paulo (Diniz & Lemos, 1986). Using the Ministry of Commerce’s database on incentives granted for new projects (5000 since 1970), they found that the state of Sao Paulo was losing investment share. The state accounted for 58% of industrial production in 1970, but only 37% of Brazilian investment in new capacity over the following decade. Disproportionately, new capacity had been added in states neighbouring Sao Paulo, with modest increases, too, in the
Brazilian central west and northern regions, where investments encouraged by fiscal incentives were developing agricultural and mining frontiers.

Drawing from his work on the changing urban polarization of Brazil and from his full professor thesis (Diniz, 1991), Campolina published a paper, ‘Polygonized development in Brazil: neither decentralization nor continued polarization’, in the International Journal of Urban and Regional Research (Diniz, 1994). Here, Campolina challenged prevailing analyses of the recent decline in the overwhelming dominance of the Sao Paulo metropolitan area that inferred a polarization reversal and a generalized decentralization of economic activity in Brazil. His analysis showed that far from widespread decentralization, a limited number of metropolitan areas, or growth poles, accounted for the major share of new economic activity. He mapped these poles and hypothesized several major causal factors, including concerted government intervention via public investments, fiscal incentives and infrastructure construction; the successful search for new locations of exploitable natural resources; increased competitive pressures on firms due to the unification of the national market through transportation and communication infrastructure; and the continued concentration of purchasing power and research resources in a set of cities. The paper has been widely cited, including by many North American and European as well as Latin American regional scholars.

Campolina’s Revista de Estudios Regionales paper with Crocco, ‘Reestructuración productiva y nuevos distritos industriales en Brasil: el nuevo mapa de la industria brasileña’ (Productive restructuring and new industrial districts in Brazil: the new map of Brazilian industry) (Diniz and Crocco, 1995), explored more deeply how and why Sao Paulo was losing its pre-eminence. They disaggregated their economic analysis to work below state and city/metropolitan units, breaking out the data for all Brazil’s 556 micro-regions and analyzing the growth of all industries in each with more than 10,000 employed, charting employment growth rates over time. It was the first time that regional scholars had used micro-regions as a territorial scale. With their results, they refuted the prevailing view that Sao Paulo would continue to be dominant. They found that the metropolitan area of Sao Paulo was losing ground as the interior of the state was gaining with industrial decentralization. And that in other states, some micro-regions were growing rapidly. This paper and its methods has been widely cited in English-, Spanish- and Portuguese-language journals, as well as translated into and published in Korean. Campolina and his economist son Bernardo revisit and update this issue in a recent paper that explores how functional specialization of the city and its region continues (Diniz & Campolina, 2007).

Throughout his career, Campolina eagerly collaborated with faculty and students from around the globe. In the 1990s, he led the Brazilian team’s research on ‘second tier cities’, an international project that spanned Japan, South Korea, Brazil and the United States. His studies, conducted with graduate students from Brazil and the United States, explored three Brazilian cities that were growing rapidly from technology investments and government policies: San Jose dos Campos, Campinas and Manaus, with differential results (Diniz & Razavi, 1999; Diniz & Santos, 1999).

Campolina’s paper ‘Repensando la cuestión regional brasileña: tendencias, desafíos y caminos’ (Rethinking the Brazilian regional question: tendencies, challenges and pathways) (Diniz, 2003), published in the Chilean journal EURE, offered academic scholars a summary of his call for a rethinking of national-scale planning. In it Campolina stressed the challenge of integrating Latin American economies such as Brazil’s with those of its neighbours, the role of cities, and the significance of large regions such as Amazonia, shared among multiple Latin American countries. The paper emerged from a Brazilian Banco Nacional de Desenvolvimento Econômico e Social (BNDES) seminar in which Campolina was invited to give a lecture and from the analyses he did in advance to shape and support his arguments. This paper reached a large readership among Latin American scholars. In a companion piece, presented at an international convening of the Inter-American Development Bank, Campolina and Markusen wrote and subsequently published a paper on differential regional competitiveness, showing how some Latin American nations and
region within them are differentially positioned to move forward developmentally (Markusen & Diniz, 2005). The paper was also translated into Japanese and published in Japan.

Campolina contributed to regional intellectual history by writing about two giants of Latin American regional planning. In 2008, he reflected on the contributions of Lucas Lopes (Diniz, 2008b). Lopes was a Minas engineer in charge of the repair of railroads in the state and became Secretary of Agriculture, in charge of all economic activity – mining, industry, commerce and infrastructure – in the state of Minas Gerais. In 1942, Lopes, with Israel Pinheiro, who later became President do Companhia de Vale do Rio Doce and the builder of Brasilia, built the new industrial city of Contagem on the outskirts of Belo Horizonte. Chaffing under a contract for the latter with an American company for electricity provision that had proven disappointing, Lopes’ team built their own electricity generation for Contagem and succeeded in attracting international industrial branch plants, including the Germany company Mannesman. Lopes went on to implement a coordinated plan for electrical energy in Minas, and later, in 1951, created the CEMIG, the most successful state-run electricity company in Brazil. Lopes’ team analyzed the experiences of countries around the world in planning for energy, building innovating a Brazilian practice where energy was first built up region by region and then integrated for the nation. The CEMIG made major contributions to the Binomial Energy and Transport programme implemented by Minas Gerais Governor Juscelino Kubitschek’s administration (1951–55) and was the basis for President Kubitschek’s (1956–60) ‘Programa de Metas’ (Goals-Driven Initiative). Lopes, as a member the Brazil–US Mixed Commission, helped to create the BNDES in 1952, during Getulio Vargas’s government.

Campolina’s paper on Celso Furtado (Diniz, 2009) explains why this Brazilian economist was the most important thinker and policy leader in regional development for Latin America. He documents the evolution of Furtado’s views, informed by both disappointment with conventional regional development theory and his experience in visiting and studying development efforts in other countries. Furtado planned and created the SUDENE, the ambitious regional development plan for Brazil’s depressed Northeastern region. Subsequently, Furtado incorporated both the role of cities and the importance of technological change and research as bases for regional development. Campolina’s writings on these contributions also probe the fascinating relationship of Brazilian and Latin American regional economists to European and American economic development thinkers during these decades.

In his post-presidential and ministerial work, Campolina continues to review and comment on recent Brazilian government decisions bearing on regional development. Campolina and Viera (2015) examine the Lula government’s creation of a large new set of universities in dispersed areas of the country, including the Universidade da Integração Latino Americana (UNILA) in Foz do Iguacu and the Universidade da Integração Luso-Afro-Brasileira (UNILAB) in Ceará. They probe the advantages and drawbacks of this effort, concluding that the need to provide basic education to all areas is more important than decentralizing higher education.

Campolina’s curiosity and research spans the past, as in his intellectual and research histories, and the future. Teaming with his economist son and professor Bernardo, they consider the rise of the Asian economics and the race for technological change as a major driver and regional reshaper of the world economy (Campolina & Diniz, 2014). They lament the relatively backward position of Brazil currently: the decline in manufacturing, the scarcity of Brazilian private enterprise and the country’s continued specialization in basic commodities such as agriculture, mining and energy.

With his colleague Vieira, Campolina recently published a piece on Brazil’s current urban economic challenges (Diniz & Vieira, 2016). They document the concentration of economic activity and population in the mega-agglomerations: 22 Brazilian urban agglomerations of more than 1 million in population. These include Sao Paulo (30 million), Rio de Janeiro (13 million), Belo Horizonte (5 million), Porto Alegre, Salvador and Recife with more than 4 million inhabitants each. They show that this quickened pace of concentration has taken place without adequate
infrastructure investments. The results: housing deficits and poor housing conditions in favelas and slums; lack of public transportation options, so that people must suffer excessive commuting times and are overly reliant on cars, causing congestion; violence and crime, with the homicide rate reaching 60,000 annually; and inadequate sanitation resulting in the spread of disease. They recommend polycentric development policies to avoid overconcentration.

In recent years, connections and convenings among scholars outside of the United States and Europe have resulted in a new journal, *Area Development and Policy*, in which Campolina has been an important collaborator. The first issue of the journal, published in 2016, begins with a joint contribution by members of the editorial board (Dunford et al., 2016). The journal and its editorial board parallel the emergence of a new agenda by leading nations (often referred to as the BRICS: Brazil, Russia, India, China and South Africa) and not including the United States, Canada, Europe, Japan and Australia, to create their own development bank and strategies. Campolina’s contribution to this first issue of the journal stressed that Latin America needs a new way of thinking about development. Harkening back to Prebisch, who brought a new prospect that animated Latin American policy for decades, he is concerned that the world economics profession has slipped back into neoclassical dominance (by the United States and Europeans) and hopes for a new paradigm of social and economic organization beyond capitalism and Soviet-style socialism.

**ACADEMIC AND RESEARCH LEADERSHIP**

Campolina’s intellectual precociousness and considerable contributions are striking given his willingness to devote time and energy to leadership in the academy, across universities in Brazil and Latin America, for foundations external to the university, and for the Brazilian government, including his role as Minister of Science, Technology and Innovation in 2014.

**Directing CEDEPLAR, Head of the Economics Department, Dean of the Faculty of Economic Sciences and President of the Technologic Park**

Campolina’s colleagues must have sensed his academic leadership potential from the start. Not long after he began his professorship at UFMG, Campolina was pressed into the directorship of the CEDEPLAR for two terms (1979–80 and 1985–86). He set high standards for research quality, encouraged broadened research horizons, and created an atmosphere of sharing and learning among faculty and students. He also fought successfully for resources and credibility within the university, overcoming disciplinary jealousies. He coordinated the CEDEPLAR research project support from FINEP (a Brazilian federal agency supporting research) from 1979 to 1990. Each research award ran for three to four years and was renewed following a successful report and new proposal.

Campolina’s success with the CEDEPLAR and growing stature within the university prompted members of the Faculty of Economic Sciences, within which the CEDEPLAR was located, to pressure him into become head of the Economics Department (1992–93) and later Director of the Faculty (1998–2006). His challenges in this job absorbed much of his research time, though he never stopped reading, writing and presenting his work when possible or became disengaged in policy work outside of the university. He also served two years (2007–09) as Director of the Technologic Park of Belo Horizonte, a university partnership with the state of Minas Gerais, Belo Horizonte City Hall, the Industry Federation of Minas Gerais and the Brazilian Service for the micro and small enterprise (SEBRAE). That role, for which he received no additional salary, posed challenging dealings with various external institutions and, internally, faculty units jockeying for position, as well as efforts to find financial funding and developer–builders. Campolina decided to accept leadership because the park was in crisis, and because he was one of its intellectual architects.
University presidency: technology and internationalization

Owing to Campolina’s staunch commitment to quality research and teaching and his proven academic leadership at the UFMG, he was chosen to serve as Rector (Reitor) of the university (2010–14), the equivalent of a US presidency or UK chancellorship. In this role, he boosted the reputation of the UFMG into second place in Brazil, after the Universidade de Campinas, his alma mater. During his four years, he led two major initiatives, creating a Center for Technology Transfer and a Center for the Internationalization of the university. He also deftly navigated student and faculty-related challenges, including gay and black rights protests on campus and a faculty strike for higher pay and better working conditions.

The UFMG, which he found on his ascendance, had the largest number of patents of any university in the country. He led a successful effort to integrate research efforts on campus with the research staff of companies eager to apply basic research findings, to date a highly successful venture and a source of revenue for the university.

As a president who had spent time at universities in the UK and the United States, Campolina also wished to lead his region, faculty and students into greater internationalization. ‘At the time I become President,’ he recalls, ‘we had a very small center for India Studies.’ He began by improving this centre and create counterparts, hoping to form them into a Center for Internationalization of the university, adding a Center for Chinese Studies, one for European studies, another for Latin American studies and one for African studies. He initiated a building project to house all five studies centres, but this was delayed and postponed. The subsequent rector located three of these in the CEDEPLAR, because faculty members there were more interested and because the CEDEPLAR had demonstrated an ability to incorporate faculty members from many fields in the university into its projects.

Brazilian, Latin American and world university leadership

Campolina did not always bow to pressures to lead within the academy. The Brazilian Association for Federal Rectors (i.e., of public universities) pressured him to become president of its organization. But he declined, feeling that their agenda was too dominated by faculty trade unionization and particularly by faculty pressures to permit senior professors to be promoted more rapidly without demonstrating significant achievement. However, Campolina has often accepted invitations by the CAPES, an agency of the Brazilian Ministry of Education, to participate in its triennial evaluations of all Brazilian economics graduate programmes. Between 2002 and 2005 he became the coordinator of the evaluation system for all graduate programmes in Brazil and a member of the CAPES council.

Within Brazil and across Latin America, Campolina has played and continues to play mentoring roles for university faculty, research leaders and rectors, roles that were often time-consuming and required tact as well as forcefulness. During his rectorship, Campolina became head of the Portuguese Language University Association, which encompasses the presidents of universities in Portugal and the Portuguese-speaking South American, and African and Asian countries, all former Portuguese colonies. He proposed an agenda of ‘internacionalização solidaria’ (international solidarity) among them and a more generalized rejection of relationships of ‘dependência’ (dependency) and ‘domination/submission’ between Portugal and the nations of its Portuguese-speaking diaspora. Although their Portuguese counterparts were not that enthusiastic, they did not complain. In Brazil, Campolina won two grants from the CAPES and the CNPQ to support integration programmes between Brazilian universities and African Portuguese-speaking universities.
NATIONAL POLICY-MAKING ADVISOR AND MINISTER OF SCIENCE AND TECHNOLOGY

During the administrations of presidents Lula (2003–10) and Dilma Roussef (2011–16), Campolina was invited to serve as a member of the Presidential Council of Brazil (2010–14). Campolina recalls that at the beginning the council's composition and discussions were interesting and could have been influential in governance. But each of the presidents had his/her preoccupations and did not give the council’s recommendations priority.

However, a few days before Campolina finished his rectorship, he was invited to become Brazil's Minister of Science and Technology (Ministro da Ciência, Tecnologia e Inovação), a role he served in from March to December 2014. As minister, his most important responsibility was to prepare the plan for the nation's science and technology, Knowledge Platform, approved by the decree of the President. Knowledge Platform aspired to develop and finance public policies that would link science, the academy and private enterprise companies with public policy through research. Campolina and the ministry team studied what other countries were trying and achieving. For instance, they explored the American experience under President Barack Obama, Manufacturing USA, which funded 15 large-scale projects, and the Chinese effort to linking science, public policy and enterprises. They found the European experience particularly exciting. He recalls often leaving the ministry in Brasilia and sleeping over his papers: 'I was trying to read all the time!'

Brazil supports a very good group of researchers in the ministry and at the universities. The Knowledge Platform initiative that Campolina created and led was committed to the creation of 20 platforms over 10 years. For instance, one set out to explore the biopharmaceutical industry's potential to promote Brazilian biodiverse products for Brazilian, and possibly world, markets. Another addresses the aircraft industry, including the flagship company Embraer, as well as smaller ones and suppliers, by linking research with engineering. Some projects were aimed at expanding trade, while others were geared to specific sectors, such as offshore oil exploration and development. Another targeted alternative energy including wind power and energy from bacteria. This latter initiative supported second-generation alcohol, encouraging one company's effort to produce energy from sugar cane processing waste by using bacteria in a fermentation process, an initiative that Campolina views as an exceptionally promising technology implementable worldwide. Another project, the Platform, promoted supports innovative agriculture in the dry and warms areas of the Brazilian Northeast, where, for instance, quality grapes could be harvested every 100–140 days. A pre-existing federal government agency, the FINEP (Financiadora de Estudos e Projetos), offered loans and grants as incentives. For instance, one project engaged the BNDES and FINEP in Inova Empresa, or Enterprise Innovation, to support individual innovative firm projects, and continued to be implemented while Platform studies were prepared.

The Knowledge Platform Plan was approved in July 2014, just as the political campaign for the nation's presidency was ramping up. The platform for the aircraft industry was completed, but the minister decided not to launch it because political dramas over the presidency were pre-occupying the country. 'You need planning, not for short periods, but for the long term,’ reflected Campolina in a recent conversation. ‘These ideas are still very alive. I am confident they will be implemented in some form in the future.’

At the end of the first term of Dilma's presidency, Campolina asked permission to step down. He wanted to return to academic life and a deferred visiting fellow appointment at the London School of Economics and Political Science (LSE), where he conducted research from January to July 2015.
CONTINUING INTELLECTUAL ACTIVITY IN RETIREMENT

Campolina continues to serve on boards and in advisory roles. But he is most drawn to his study: to read, think, research and write on his favourite subjects: Brazilian and Latin American regional development. He recently published an article (Diniz, 2015) on the thinker Herminio Martins, a sociologist of science at Oxford, whose work critiqued (1) narrow concepts of scientific and technological progress without considering social, political and environmental consequences; and (2) prevailing policy focus on science and technology for military and economic competitiveness goals rather than a fuller set of aspirations for humanity. Campolina continues to serve as a vice-president of the Regional Studies Association (RSA) and on the Editorial Board of Area Development Policy, from 2016 a new journal in the Regional Studies suite. He is working on an argument that our notion of development should be broadened from a narrow focus on economic development to include cultural and environmental values, analysis, and policy prescriptions.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

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