

Continuity of change, preservation of the past in the present, real duration—the living being seems, then, to share these attributes with consciousness. Can we go further and say that life, like conscious activity, is invention, is increasing creation?

—Henri Bergson, *Creative Evolution*

Introduction

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“My purpose,” wrote Ovid two thousand years ago, “is to tell of bodies which have been transformed into shapes of a different kind.”¹ My purpose is to tell of shapes that have been transformed into bodies of a different kind; it is to study the role of ideology in shaping change in international relations and, more specifically, in the international political economy.

Despite many years of inquiry into and theorizing about international relations, we know little and agree on less about the nature, roots, and modes of change.² This situation owes in part to a methodological inclination in favor of positivism/behaviorism—which made us forget history—and to the paradigmatic dominance of neorealism—which too often emphasized structural change.³ As a result, international relations theories of the past forty years have been static and mechanistic, aimed at explaining stability, efficiency, and hierarchy rather than the emergent and new in social systems.

Most of these theories have also been deterministic, in at least two senses. They have tended either to deduce and predict political behavior from national and international political-economic structures (for example, contemporary behavioral international political economy theories, which are strongly influenced by neoclassical economic im-

ages) or to state that structural change occurs, and in fact history develops, in one direction only (for example, Marxist theories). Although international relations theories differ profoundly according to which deterministic view is being advanced, both explain and predict change as resulting from “structures.”

From a paradigmatic and epistemological perspective, structural determinist international relations theories, mainly of the first type, are still considered state-of-the-art.⁴ Whether these theories deal with national security or with international political economy, the argument is generally the same: power and economic structures constrain and determine behavior. Causality is assumed to be linear, cybernetic processes are disregarded, and reflection, learning, and adaptation are considered irrelevant.

The determinist character of these theories has led political scientists and economists to aim at prediction and to assume that the fallibility of the theories has less to do with new or emerging conditions and unintended or unexpected events than with the lack of complete information. To be sure, some successes in prediction have been achieved in studies of security and international systems where military power plays a major determining role.⁵ But even in security affairs, structural determinists have been unable to deal with the unexpected results of force or threat, because these are shaped at the process level. Furthermore, the insufficiency of structural theories is nowhere better demonstrated than in the political-economic area, in which power is only one, albeit an important, variable and in which processes such as policy making and economic development play a fundamental role.

The inability of the discipline to face the shortcomings of structuralism and determinism even in the presence of so much unexplained change and so many prediction failures has to do, I believe, with the very epistemological and metaphysical basis of these theories—which I call “Being.” The image of Being looks for the recurrent, treats human beings as calculators possessing a single system of preferred responses to incentives and constraints, and assumes that the physical and social realms are subject to quasi-mathematical universal laws.

This study will instead be based on the image of “Becoming,” which takes everything in nature and society to be in a permanent process of change and emergence, even that which appears to be stable and

static. Accordingly, international relations must be understood as a human endeavor, based not only on mechanistic and structural “realities” such as gross national product (GNP) growth and military power but also on knowledge, information, ideas, ideologies, creativity, and will.

“The reason that human politics, economics, and warfare present such a mixed group of behaviors,” writes Robert North, “is simple, but fundamental: people are not robots, countries are not merely big machines, and neither domestic nor international affairs are mechanistic. Politics, economics, warfare, and all other essentially social activities are moved by human beings who have minds, emotions, values, preferences, ambitions, and expectations and are thus partly rational, partly irrational—and always subject to change.”⁶ As we learn about what we consider reality, our perceptions and—most important—our images of the future change. It follows, then, that human beings and their actions will frequently surprise us.

But change is also conditioned by our environment. To quote North, “The growth, expansion, competitions and conflicts of society are all human undertakings which would not take place if people did not make them take place. But it is also true that changes in both the natural and social environment affect the way people think, feel, and act, just as the way people think, feel, and act affects the natural and social environment.”⁷ Therefore, social understanding requires both that human beings be placed at center stage in the drama of international political-economic change and that we “come to terms with the developing relationship between Human Ideas and a Natural World, neither of which is invariant.”⁸

A clarification is warranted to close these epistemological remarks. The growth of knowledge in our discipline, the “state of the art,” can be seen as gradual and continuous⁹ or as revolutionary.¹⁰ Thus, the structuralist social scientist, whether Marxist or non-Marxist, follows the mathematician in dealing with a “world that dies and is reborn at every instant.”¹¹ Evolutionists, however, have a sense of duration, a sense that T_2 doesn’t merely replace T_1 , a sense of “real persistence of the past in the present, a duration which is, as it were, a hyphen, a connecting link.”¹² Scientific revolutions do not take place when a group of “radical scientists” one day sits down in a smoke-filled room and decides to “overthrow” the old paradigm. A paradigm emerges gradually, usually very slowly, and evolves into maturity. New

ideas overlap and eventually supersede the old, which in turn simply fade away.

Paradigms and theories viewed in this way “are not ‘true’ or ‘false,’ in any naive sense. Rather they take us farther (or less far) and are theoretically more or less fruitful.”¹³ Unless they are completely useless, they will leave a mark, and the evolution of knowledge will be affected, even if only in an insignificant way. In more practical terms, the philosophy of science from which my indeterministic theoretical ideas take their cue overcomes the naiveté of logical positivism and behaviorism by assuming that no fully demonstrable “truth” of a theory exists. Rather, a theory should be able to be falsified, should be plausible and based on common sense, should definitely advance the knowledge of the field, and the data used should be subject to scientific verification. Finally, when theories are based on metaphysical claims, as they usually are, these claims should be subject to rational criticism. It is because of such metaphysical bases as Being and Becoming that we cannot entirely disprove structural determinist theories any more than we can prove the truth of indeterminist ones.

There is an asymmetry, though, between structural determinist and process-based indeterminist theories. If structural determinists believe their theories to be true, they should be able to explain and anticipate political behavior and to demonstrate how in fact structures are immune to learning and creativity, to sudden changes of mind, and to the combination of factors that can lead to unintended consequences. In the words of Karl Popper: “He who proposes the stronger theory accepts the burden of proof: he must produce arguments in favor of his theory—mainly by exhibiting its explanatory power.”¹⁴

The Problem

A basic epistemological premise of this study, borrowed from Popper, is that human beings in general, and political decisionmakers in particular, are problem solvers. Humans constantly anticipate the future in order to meet desired goals, attempting to close the gap between what they perceive as reality and what they want to be or achieve. Not only do they react to conditions, but they also continually change political and economic interests through their knowledge, imagination, and beliefs. From this perspective, decision making does not mean

simply making choices; it is “essentially an integrative action, . . . it relates the behaviour at different instances of time to expectations; or in other words, it relates present behaviour to impending or future behaviour. And it directs *attention*, by selecting what are relevant objects, and what is to be ignored.”¹⁵

The problem I have chosen to study has been commonly defined in terms of “journeys toward progress,”¹⁶ as Albert Hirschman calls the process leading to material progress, scientific and technological development, and modernization. Social science so far has treated the technological and industrial development of the less developed countries mainly from a microeconomic technological perspective¹⁷ or from the point of view of scientific and technological dependency.¹⁸ Few, though, have linked scientific and technological development to ideas and ideologies of progress, development, and modernization.

The countries under scrutiny are the two largest in Latin America, Argentina and Brazil, whose journeys toward progress in the last two decades have contrasted dramatically. Specifically, I will examine the choices these countries made between a strategy of foreign technological acquisition—mainly from multinational corporations—and one of selected technological autonomy. I will look also at some of their successes and failures in overcoming technological dependency. My analysis of the science and technology policies of Argentina and Brazil in the last twenty years and their development of computer and nuclear energy industries will raise what seems, at least at first, to be a paradox: technological development has occurred in those cases where structural indicators would have shown only a small potential for it.

In explaining this apparent paradox, I will illustrate how the decision to follow the road of selected technological autonomy and the successes achieved are related to the ideologies of the actors involved and to their perceptions of their country's ability to set its own economic and technological objectives. I will then study the role played by ideologically motivated intellectuals—scientists, technologists, and economists, whom I call the pragmatic antidependency guerrillas—and their institutions in establishing viable goals, raising public awareness, and influencing the policymakers.

Case studies showing the achievement of some measure of technological autonomy neither prove its desirability or inevitability nor offer a formula for achieving it. But they might shed some light on how the change occurred: where the ideas came from, how they

evolved, how they penetrated the political realm, how and why it happened.

Cognitive change in Latin America, not among the sellers of technology, is my concern; I will look in depth at the national actor and then at the adaptive (or nonadaptive) behavior of the foreign technology suppliers. Ideas and ideologies of progress and development matter not only because their evolution means changing policies, institutions, and power at the domestic level but because they may lead to changes at the international level as well. Therefore, I will attempt to trace a causal chain starting from ideological and institutional innovations at the domestic level and ending in new and different relations between domestic buyers and foreign sellers of technology. The latter point will be specifically illustrated by the Brazilian computer development case.

The Case Studies

Argentina reached a high level of both scientific and institutional development by the late 1950s. At that time Argentine science was held in high esteem. The scientific and technological communities had some influence on what resources were to be devoted to research activities and considerable influence on where they were to be invested. But Argentina has failed, with a few—though relevant—exceptions, to turn scientific and technological development and its linkages to industrialization into a national goal. Brazil, in contrast, has done so, even though it started much later and at a considerable disadvantage.

Why has Brazil supported a consistent science and technology policy in the last fifteen years and increasingly applied its growing scientific and technological potential to industrial production? And why has Argentina not been able to do the same? After all, as of the mid-1960s, when our description of these two countries begins, Argentina was significantly more developed scientifically than was Brazil. Its per capita GNP was almost three times that of Brazil,¹⁹ and its manufacturing share of the gross domestic product (GDP) was substantially higher.²⁰

It could be argued that although the above is true, Brazil since the late 1960s has had much higher levels of GDP growth than Argentina,

and while it more than quadrupled its manufacturing value added between 1960 and 1977, Argentina's only slightly more than doubled.²¹ Furthermore, whereas after 1964 Brazil experienced relative political stability, Argentina suffered continuous economic and political turmoil.

These are unquestionably important and valid arguments, but they are insufficient. Argentina's manufacturing share of the GDP in 1978 was still substantially higher than Brazil's.²² And even though the political-economic emphasis in Argentina after 1976 was on finance and agricultural exports, still Argentina did not cease to be a modernizing and semi-industrialized country.

Dependency arguments, which I will review in depth later, are not only insufficient but also inappropriate, because Brazil as a later industrializer became more dependent on multinational corporations in its industrialization process than did Argentina. Even if we were to agree that both countries were dependent, using mostly foreign technology, dependency theory could not explain the differences between these two countries, only their similarities.

Clearly something else must be involved, for why has Argentina had a consistent and successful nuclear policy since the 1950s and developed its nuclear power potential into a somewhat self-sufficient enterprise, while Brazil has failed to do so? Certainly budget allocations cannot explain this contrast, in view of the mammoth Brazilian investments in nuclear energy in the mid-1970s. And how do we account for the successes of the National Atomic Energy Commission (CNEA) in Argentina at a time of extreme domestic turmoil, when most other scientific and technological enterprises were being suffocated by negligence and inadequate action? And why, although the two countries both became interested in developing computer technology at a time when Argentina was more advanced than Brazil in sophisticated electronics technology, did Brazil end up with a growing domestic computer industry and Argentina with none?

Why has Brazil been able to maintain its science and technology policy course in spite of the economic and financial crises of the late 1970s and early 1980s, while Argentina could not develop a systematic policy even in the years when it was growing at relatively high rates and was involved in advanced processes of industrialization and import substitution? The answers to these questions are not unique and unidimensional, as we will see.

Summary of Findings

Argentina's leaders in the years under study disagreed about what progress is and what the means to achieve it should be. Whereas a few aimed at eventual technological autonomy through industrialization and scientific and technological development, others concentrated on commodity exports, treating science as a cultural enterprise and hoping for economic development without economic planning and modernization without application of science and technology to industrial production.

Brazil's nationalist ideology of development and industrialization together with its quest for international status became the engine for certain groups, among them many intellectuals and military officers, to put Brazil on the road to modernization. Brazilian planning was much more systematic than was Argentine planning, and although they were only indicative and were not fully implemented, Brazilian plans nevertheless did become part of the learning and policy-making processes. In Argentina, on the contrary, the plans were just documents, formal policy that affected hardly anyone or anything beyond their authors. Although consensus in Brazil about autonomous scientific and technological development was not total, it was nevertheless much stronger than in Argentina. And more important, active lobbying by groups of technocrats and intellectuals succeeded in convincing policymakers and then creating the bureaucratic apparatus and the financial devices to enable the idea to survive.

In Argentina the group that fought to bring about scientific and technological development was only temporarily in government. Ideological and political conflicts did not allow any one group enough time to bring about an irreversible change. While Argentina emphasized basic science, Brazil emphasized technology. While Argentina stressed research as a career and let the researcher follow his own scientific instincts, Brazil stressed engineering graduate studies and, increasingly, a link between research and the industrial productive sector. Similarly, information management and data banks were indispensable to achieving Brazil's goals, but in Argentina the few attempts to set up an information system between 1970 and 1974 were unsuccessful.

In Brazil the state guided development by means of indicative planning and a growing budget for science and technology. Planning created an awareness of and a basic set of expectations about the national

role of science and technology. In Argentina, in contrast, the state changed its approach four times in fifteen years.

To sum up the marked difference between the science and technology policies of the two countries: Brazil opened doors and pursued choices between alternative policies along the interdependence/autonomy spectrum, whereas Argentina opened and closed them.

In the computer field, Brazil made some improbable choices. In fact, analysts considered that the Brazilian domestic computer industry arose at least in part by chance and wrote its obituary before it actually was born. Nevertheless, today it represents approximately one billion dollars in sales, thousands of jobs and substantial domestic benefits in terms of both scientific and technological development and national security. And it materialized in part from the imagination, ingenuity, and voluntarism of some political actors who succeeded in creating irreversible processes that led to political and economic adaptations and initiatives, in spite of the “rational” implausibilities of the industry. In Argentina, meanwhile, a group of scientists in a rapidly growing domestic private industry developed a micro- and a mini-computer. But the venture lacked the support necessary to become competitive and so did not prosper. When the managers of the enterprise were replaced, because of changing political and ideological conditions, the new management considered the operation inefficient and dismantled it.

Nuclear power policy in Argentina was centered in the CNEA, where *de facto* all the political, as well as scientific and technological, decisions relating to nuclear power were concentrated. These processes were influenced by an ideology that satisfied the military and conservative—as well as the populist nationalist—sectors and thus allowed the institution to sail across the murky waters of political and economic turmoil. But in Brazil something went wrong in the evolution of nuclear power. Despite the large investments in the 1970s, Brazil still has no nuclear plant working at full capacity, and the domestic technological and industrial capacity of the sector has not been developed, to the annoyance of both the military leaders, who want military capabilities, and the scientists, who seek the development of an autonomous technological capacity.

To summarize, domestic and international economic and political constraints and opportunities played a very important role in the processes to be described in this study. But these alone are not sufficient to explain scientific and technological policy, actions, and outcomes,

which sometimes did not follow a structuralist-determinist logic. Something was mediating and catalytically intervening in the process. That something I have found to be related to institutions, and to ideologies of progress and development.

Ideology and Change: Are Ideologies Real?

“It is one of the minor ironies of modern intellectual history,” wrote Clifford Geertz, “that the term ‘ideology’ has itself become thoroughly ideologized.”²³ The confusion and, I believe, misinterpretation of ideology owes a great deal to Karl Mannheim and his sociology of knowledge. Mannheim’s principal thesis was that “there are modes of thought which cannot be adequately understood as long as their social origins are obscured.”²⁴ Thus he distinguished between ideologies, as defensive intellectual justifications for the existing social order, and utopias, erected by social progressives to critique and attack the status quo.²⁵ The sociology of knowledge thus became a relativist enterprise of differentiating the social facts that lead to truth from the cynical ideas, or ideology, used to cover up for the status quo and its interests.

This naive interpretation of ideology as some obscure force opposed to social reality is typically a given in structural determinist Marxist and non-Marxist theories of international relations. From the structural determinist point of view, the “battlefield image of society,” as Geertz called it, takes ideology as part of the “strategy” of dealing with the enemy in the universal struggle for advantage. Thus, a clash of principles is nothing but a disguise for a clash of interests.²⁶ For Marxists, ideology, as an object of the superstructure, usually means “false consciousness.” Marx even turned mental processes into “ideology.” For him, “the notion that ideas as such govern the history of mankind and direct its evolution appeared an aberration—a professorial construction.”²⁷ Thus, ideology has come to represent everything at the “wrong” end of the spectrum, and all beliefs and preferences have been robbed of any legitimate explanatory role. I argue, rather, that ideas and ideologies, which are specific types of ideas, do matter, that they are real and causally relevant because they have real consequences. As they change, both attention to problems and sectors

and the allocation of resources change as well, in turn causing policies to change and institutional developments to occur. However, ideologies are only one powerful factor influencing the policy of technological development and the management of relations with foreign technology producers. Our task will be to understand how this factor interacts with structural constraints and opportunities to produce particular outcomes.

Ideologies are powerful because they tell actors, including institutions and groups within institutions, what their goals are, how important these goals are compared to others, and how to seek them, as well as who their friends and enemies are and why. Ideologies are important for political-economic behavior because they “have origins that cannot be reduced to material developments, . . . [they] can have substantial and independent effects,”²⁸ and they can have the “obvious potential to develop into potent political forces. This happens when a set of political doctrines is adopted by a group of people, assumes a critical position in their belief systems, and then becomes a guiding force behind their actions.”²⁹

A cognitive explanation here should by no means be seen as the alternative to an institutional explanation, for the actors I describe succeeded or failed within and through institutions. Indeed, since institutions are carriers for certain ideologies, constellations of collective understanding or consciousness cannot help but become integrated into institutional designs, thereby becoming preconditions for institutional change, even if the institutions later cease to depend directly on the original constellations or if the constellations continue in new or different institutional designs.

An explanation based on ideas and ideologies may involve significant epistemological dangers. For example, the claim that ideas matter may be taken as obvious, or, if stated too strongly, it can become a truism.³⁰ Therefore, I must first explain the theory and logic behind my assertions. In the rest of this chapter I will explain why ideology should be considered one important causal social variable and how some international political-economic change can be traced to domestic ideological and institutional innovation. This discussion is philosophical and theoretical in nature and may be of lesser interest to those concerned primarily with the empirical material and the application of the most general aspects of the theory to case studies. Nevertheless, I believe that the theoretical discussion is essential to an understanding of the assumptions behind the catalytic, process-

oriented, and indeterminist nature of international political-economic change. The remaining three theoretical chapters will describe and explain the choices, ideologies, and actors involved in the processes under scrutiny.

In the empirical portion of the study, parts II and III, I will examine whether ideology indeed was or was not applied in the subject cases.

Indeterminism

Yehuda Elkana has likened determinism to Greek tragedy, where fate is identified with the order of nature, events are seen as inevitable,³¹ and human beings have only minor influence. Indeterminism is likened instead to Epic theater. "It [the event] can happen this way, but it can also happen quite a different way." The historical question "is not what were the sufficient and necessary conditions for an event that took place, but rather, what were the necessary conditions for the way things happened, although they could have happened otherwise."³² In social life, certain events may well have happened differently or not at all. This can certainly be said about Brazil's surprising achievement in establishing its own computer industry and about Argentina's success with nuclear energy, both against great odds.

Popper dismisses determinism on three grounds: scientific knowledge, he argues, is not absolute but approximate; there is an asymmetry of past and future; and the effects of knowledge cannot be anticipated. With regard to the asymmetry of past and future, Popper draws a parallel between scientific determinism and a motion picture film: The "picture or still which is just being projected is *the present*. Those parts of the film which have already been shown constitute *the past*. And those which have not yet been shown constitute *the future*."³³ This analogy indicates a belief by scientific determinists that future reality already exists somehow and that it can be unveiled by means of scientific methods. This belief, according to Popper, destroys a fundamental asymmetry in our experiences and is in striking conflict with common sense. "All our lives, all our activities are occupied by attempts to affect the future. . . . In contrast to the past which is closed, as it were, the future is still open to influence; it is not yet completely determined." Thus Popper's third argument for dismissing determinism: we cannot predict scientifically results that we will obtain in the course of the growth of our own knowledge.³⁴

Popper's propensity theory, though insufficient and controversial,³⁵ most nearly satisfies the needs of indeterminism and provides us with a research program in which change is the object of study. The main thrust of the propensity theory is that change consists of the realization of some actual propensities; such realizations in turn consist of new, and different, potentialities.³⁶ I distinguish, as Popper did in the realm of science, between propensity and potential or probability in order to drive home the distinction between determinism and indeterminism. While the determinist sees the future as already determined in a structural reality (to which actors react), the lack of perfect knowledge compels him to make predictions about future events in terms of a range of probabilities. The indeterminist, however, sees the future as actively created and discovered, and this can happen only at the process level.

The premises of indeterminism and propensity support the view that what happens at the level of process is of fundamental importance. Furthermore, these premises help to explain that this study is not merely trying to substitute one determinism for another. Ideological resources are taken not as determinants of change but as real propensities for change, whether or not it occurs. Realization of change is not necessary but depends, among other things, on the existence or absence of other resources—political, institutional, or economic—and on their interaction at the process level. It is this interaction and human intervention in these processes that make outcomes so difficult to predict, even when using statistical probabilities.

Body and Mind: Popper's Worlds 1, 2, and 3

A theory that holds ideologies to be real and that takes them as causal variables requires that we raise the "body–mind" question. Is ideology just a mental factor, and if so, why should we consider it as real? Can ideology or other cognitive factors such as scientific knowledge have consequences that were not *thought* or perceived by the individuals who devised and sustained them?

The body–mind dilemma has not been solved by the greatest philosophers, and I make no claim to have solved it. Rather, I intend to show that social scientists cannot keep apart the "body" and "mind" that Descartes so artificially separated centuries ago and that integrating them does not require us to reduce social phenomena to behav-

ioral psychology or psychoanalysis. I study the beliefs and perceptions of political actors not to assess their mental health but because they have real, sometimes intended and other times unintended, consequences and are thus an inseparable part of the social phenomena we explore. The human mind has the capacity not only to adapt itself to a structural situation but also to change it by affecting the future through choices, policies, and institutions that result from awareness and reflection. “The self-reflective human mind,” as Erich Jantsch wrote, “is capable of conceiving many visions of reality and even of inventing the tools for the corresponding transformations of reality.”³⁷

About twenty years ago, to tackle the body–mind dilemma, Popper introduced a theory that divided the universe into what he called World 1, World 2, and World 3. Popper’s theory is useful for my analytical account at this point because World 3 helps explain how ideologies, in interaction with institutions, create propensities for change.

World 1 is the world of physical objects, forces, organisms, brains, rocks, and trees. World 2 is the psychological world—the subjective realm of our minds. “It is the world of feelings, of fear and hope, of dispositions to act, and of all kinds of subjective experiences, including subconscious and unconscious experiences.”³⁸ Beliefs and perceptions are thus an intrinsic part of World 2. World 3 encompasses the products of the human mind, such as language, books, theories, policies, and plans, and is to a remarkable extent autonomous.³⁹

Books are one example of World 3 objects. The thoughts contained in a book transcend the physical reality (World 1) of the paper on which they are printed, and because a book can convey information and formulate and communicate a theory, it also transcends the subjective (World 2) mind of the author. Thus a World 3 book can have an autonomous effect on the physical environment and its inhabitants (which are World 1 objects) well beyond the physical death of the individual who conceived it.

What is Popper’s philosophical basis for accepting the real existence of World 3? He argues after Alfred Landé that something is real if it can be kicked and can, in principle, kick back.⁴⁰ According to Popper, World 3 kicks back. Its objects are abstract, but real, because they have real intended and unintended consequences. When World 2—subjective—beliefs or interpretations of reality are communicated and affect or effect some action, they can acquire a World 3 status and kick back—that is, they can have real consequences. This frequently happens within institutional frameworks.

Social institutions can therefore be seen as World 3 objects. Although institutions belong to the physical world (they are composed of people and can be found in the telephone book) as much as to the subjective worlds of individuals who devise and constitute them, their essence lies also in the formulated and communicated outcomes of thought, such as institutional ideologies, roles, and functions. Once these are created, they may have a life of their own. They may not be visible, but they are intelligible and may have important real consequences. For example, as institutional ideologies become the collective consciousness of a group, they help select the goals and means for social action and may even help produce the means. In this case, institutions are but “carriers” for a particular collective understanding that has consequences of its own.

Social theories may play an important role in producing collective understandings within a group, community, or institution and in this way shape the social reality they come to explain. While theories may not be reality itself,⁴¹ as long as they are believed to be true they may become instruments for social action that identify the problems and their solutions.

Therefore, social theories, when used as models *for* something rather than *of* something, may become reasons for behavior—ideological mind products in the World 3 sense whose consequences may not be foreseen at the time of their conception. Such a transformation happened with dependency theory, especially with what I call pragmatic antidependency. The theory was a “descriptive model of” truth, but it also became a strategy, or “model for,” the shaping of reality and thus had real social and material consequences. As for the scientists, engineers, and economists who became involved in the policy-making processes, they provided their institutions with not only the know-how and “know-what” but also the “know-where-to”; in other words, they provided the beliefs, expectations, and goals that showed the way.

Ideology as Collective Understanding

To end this section, I should explain how I have arrived at a World 3 definition of ideology. But first we must go back to the World 2 classification. I define ideology at the individual, and thus subjective, level as a set of beliefs and expectations about politics, economics, and society. Beliefs and expectations are based on the perception of reality, not on

reality itself. Because people have different ways of understanding, evaluating, decoding, and giving meaning to their surroundings, their reactions, experience, and knowledge will be characteristically different.⁴² From the individual viewpoint, then, the actor attaches the stigma “real” to social situations that are both *perceived* and *interpreted*, and these situations are then real in their consequences for what people do.⁴³

The above subjective definition of ideology is consistent with Peter Berger’s “reality constructionist” approach. Reality, Berger believes, is socially constructed, meaning that “real” experiences—for example, economic dependency—occur in socially allocated situations and are perceived and interpreted in terms of socially derived, validated, and differentiated meanings.⁴⁴ Thus, certain beliefs of what reality is may with the passage of time be accepted as objective reality.⁴⁵

When defining ideology in its World 3 meaning, we have to deal with the concept of collective consciousness. My use of this concept should be distinguished from Émile Durkheim’s, which described how a structure, or “whole,” constrains the individual and argued that individual mentality is a reflection of collective modes of thought.⁴⁶ I argue the opposite: that actors socially and institutionally coordinate their beliefs for some purpose.

I take collective consciousness to be collective understanding. More formally, I use Stephen Toulmin’s fourth meaning of consciousness, or *con-scientia* (etymologically: joint [con] knowing [sci]). Beyond “sensitivity, attentiveness, and articulateness of individuals [the latter meaning the translation of attentiveness into an explicit motive or intention], we should have recognized that the concerted plans of multiple agents manifest yet another, fourth aspect of consciousness. Agents who act as partners in a shared project, carried out jointly, with the intention of collaborating, and with each having full knowledge of the other’s role in the project, are engaged in a ‘conscious’ collaboration. They act as they do ‘consciously’—i.e., in the light of their mutual understandings.”⁴⁷

From this perspective, ideology transcends the subjective world by becoming part of a collective set of group beliefs. Applying this fourth aspect of consciousness to ideological, political, and economic change, joint understanding can occur only between individuals who are in direct interaction and are aware of each other’s roles. Therefore, again following Toulmin, we can say that political-ideological change occurs not in the opinions of individuals but in the collectivity of beliefs, tra-