

The Economics of Ayahuasca: Money, Markets, and the Value of the Vine

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Introduction

The field of ayahuasca studies has emerged as a thoroughly interdisciplinary academic pursuit in the early 21st century, with research occurring in areas such as ethnobotany, neuropsychology, psychiatry, religious studies, anthropology, and drug policy studies. In each of these domains, the object of research—ayahuasca—is represented through a variety of social constructions: an Amazonian vine, a traditional medicine, a religious sacrament, a plant teacher, and a “drug” (Tupper, 2011). However, in this chapter, I consider ayahuasca as a different kind of socially constructed artifact: a material commodity, increasingly circulating in a global supply chain of monetary exchange. In so doing, I invoke an academic field that has not yet taken much interest in ayahuasca, that of economics. My discussion covers how ayahuasca is emerging as an object of exchange in the modern transnational economic sphere, and takes an exploratory turn into how this emergence may present a challenge to contemporary mainstream economic knowledge and thought.

Before proceeding, I will provide some further context for my interest in the economics of ayahuasca, as I am not a trained economist. My initial forays into this convergence of topics were prompted by a colleague, a Canadian métis woman working in the field of aboriginal health. At that time, I was researching and writing about the globalization of ayahuasca, and she asked me some questions that I had not (or had only superficially) considered previously. One was to ask how ayahuasca drinking was in any way different from going to a 3-D movie, a rave party or a theme park. Her observation was that ayahuasca drinking—as it was manifesting in western Canada in the early 2000s, with people spending considerable sums of money to purchase a novel experience—seemed to fit rather well with the modern Western consumerist mind-set. My response was that it seemed phenomenologically different—there was something profoundly meaningful, often spiritual or mystical, to be realized through ceremonial ayahuasca drinking, which I believed most drinkers would readily distinguish from those other kinds of consumer activities. However, I understood the reasoning behind her question, and had to admit that my anecdotal testimony on the matter might not be persuasive.

My colleague also asked whether the commodification of ayahuasca might not profane something sacred. She pointed out that from her knowledge of both historical and contemporary Canadian First Nations cultural practices, negotiating a monetary exchange for a spiritual or healing ceremony was considered gauche or even taboo. To be sure, a participant in a healing or spiritual ritual would be expected to offer something to the ceremony leader in exchange, but traditionally it would be something like a bundle of tobacco, a bundle of corn, a chicken, or the like. According to her, a spiritual leader with

integrity to traditional mores would neither ask for nor accept money from someone attending a ceremony.

I reflected on these issues at some length, recognizing that ayahuasca drinking in the global north is, in a number of respects, a bourgeois phenomenon—local ceremonies typically cost at least a few hundred dollars per person,¹ and a plane ticket to the Amazon was even less affordable. Moreover, it was unclear how this cultural phenomenon was not just another form of neo-colonial extraction of material or cultural resources from an economically disadvantaged part of the world, with precious little in the way of equitable compensation going back to the people and communities from which it came (Meyer & Royer, 2001). Yet most of the individuals I knew who were involved in leading ayahuasca ceremonies seemed to be doing so from a calling to heal rather than from an entrepreneurial capitalist mind-set.² They demonstrated a sincere respect for the traditions in which they were immersing themselves, and had entered into formal apprenticeships with *maestros* of an indigenous tradition. They had undertaken multiple long and arduous *dietas* (periods of strict dietary, sexual and social abstinence), and had accumulated impressive repertoires of *icaros* (chants and songs) as part of their training to develop the necessary expertise in navigating the ethereal worlds of ayahuasca. After many years of preparation, they were now leading ceremonies themselves in places such as Canada, the United States and Europe, assuming a duty of care for participants that entailed a mindfulness for the difficulties or challenges individuals may present before, during and after drinking the brew. Further, in some countries they risked potential arrest and imprisonment for what some governments characterized as importing, possessing and distributing an illicit “preparation” of dimethyltryptamine (i.e., they were drug traffickers in the eyes of authorities) (Labate & Jungaberle, 2011). Yet, despite this, ceremony leaders were devoting themselves to organizing and conducting events to provide safe spiritual or therapeutic encounters with ayahuasca for family, friends and acquaintances.

My initial reaction was that it seemed unreasonable to expect people undertaking a vocation to lead ayahuasca ceremonies to offer such services without compensation—surely they deserved to receive something of value in exchange for providing something of such benefit. Further, while some would offer sliding-scale fee structures or work-trade arrangements for low-income clients, I understood that they could not maintain their practices and lives without generating an income by some means or other. As I reflected longer, however, I had an inkling that the issue was not fundamentally one of reciprocity; rather, I wondered whether these various concerns might not be related to the only universal medium of exchange in the modern world, and something to which I had never previously given much thought, money.³ From this insight, I started to think further about the coins in my pocket and the pieces of paper in my wallet, which I had hitherto naively assumed were symbols of value, beneficently minted and printed by governments to facilitate the exchange of goods and services. I began to do further research into the history and nature of money—its key functions as a medium of exchange, unit of account and store of value—and to consider more deeply how the transnational expansion of ayahuasca was not simply a cultural phenomenon, but crucially also an economic one.

As I began my research, it became apparent that an economic analysis of ayahuasca could take a number of directions, as the field of economics is broad and has numerous sub-disciplines. In this chapter, I take a philosophical and sociologically-informed approach to considering basic economic concepts such as value and exchange, and explicitly draw on principles of cultural-historical psychology to explore how both ayahuasca and money are example of “cognitive tools.” With respect to economic theory, my ideas are grounded in the perspective of ecological economics, which is still comparatively marginal in contrast to the politically entrenched neo-classical school of economics. The neo-classical economic approach—which relies on rational choice theory to explain utility maximization by individuals and firms and the determination of prices, outputs, and income distributions through calculations of market-based supply and demand—currently dominates the majority of university economics departments, mainstream business news reporting, and treasury departments or finance ministries of governments (Keen, 2011). By contrast, ecological economics explicitly repudiates many of the postulates and axioms of its hegemonic cousin, particularly in its acknowledgement of limits to growth and its attempts to account for “externalities” such as non-renewable resource depletion, pollution and global climate change (Jackson, 2009). Most importantly for what follows, neo-classical economic theories do not account for the role of the banking system in money creation (Keen, 2011). In this chapter, I explore not only economic aspects of ayahuasca’s globalization and commodification, but also what ayahuasca may reveal about mainstream economic thought, its primary unit of measurement (i.e., money), its status as an academic science, and relationship of both ayahuasca and economics to human flourishing and ecological sustainability.

Commodification through globalization

Much of what has been written about the globalization of ayahuasca has focused primarily on the cultural aspects of its emergence in the modern public and political spheres. However, the increase in ayahuasca drinking among people from the global north—and consequently their relationships to Amazonian indigenous and mestizo peoples—has been as much an economic phenomenon as a cultural one. This is true especially insofar as the brew, its constituent plants, and many of the ceremonial practices surrounding it have become goods or services embedded in relations of monetary exchange, and thus increasingly subsumed within the broader global financial system. Unlike the traditional indigenous and mestizo contexts of ayahuasca use in the Amazon, where gift economies and informal customs of reciprocity stubbornly prevailed as the primary form of socio-economic interaction,⁴ contemporary globalized drinking practices are increasingly predicated—either implicitly or explicitly—on exchanges of money.

The commodification of ayahuasca is most overt in the public markets of Amazonian urban settlements, where vendors supply both local people and international tourists with bottles of prepared ayahuasca to take home. Commodification is just as evident in the provision of indigenous-style or hybrid ceremonies catering to seekers and tourists, whether in or outside the Amazon region, and cash is the preferred medium of

exchange (Losonczy & Cappelletti, 2014). It is also implicit in relations between mestizo or indigenous “*maestro*” *ayahuasqueros* and their *gringo* apprentices, who are seen as a lucrative source of income for individuals and their families (Brabec de Mori, 2014; Labate, 2014a), in some cases providing capital and business acumen to establish ayahuasca retreat centres (Fotiou, 2014). Moreover, since the criminal prohibition of the ayahuasca brew (construed as a preparation of DMT) in some jurisdictions means that its importation carries considerable risks, as with other contraband substances, both artificial scarcity and added supply-side costs translate into expectations for greater monetary compensation by those who do engage in procuring and providing it to others. (Kopp, 2004)

The Brazilian ayahuasca churches’ doctrines illustrate some of the spiritual concerns about the involvement of money in their practices, through the explicit repudiation of the commodification of their sacraments (Soares & de Moura, 2011). However, even these groups are not able to fully abjure monetary exchanges and the impositions of the modern global economy (Dawson, 2013). For example, although the UDV has strict policies of non-commercialization, as with many kinds of religious organizations, it “collects regular dues or tithes paid to the institution by every member of the congregation, [and] pays an administrative staff” (Labate, 2012, p. 22). Likewise, while an implicit gift/reciprocity symbolic logic governs both cosmology and participatory dynamics in the Santo Daime, and in principle “[e]ntrance . . . is ‘free’” (Cemin, 2010, p. 62), to become a Daimista also “implies a moral obligation . . . [including] payment of a tithe (when it occurs)” (p. 62). As Schmidt recounts, old-timers in the village of Céu do Mapiá in Amazonas, Brazil—headquarters of the CEFLURIS/ICEFLU branch of the Santo Daime church—lamented the decline of a reciprocity-based system of local trade and exchange that had been in place for many years, displaced by the increased use of money and dependency on cash introduced through influxes of wage-earning urban Brazilian and even more affluent international members visiting on pilgrimages (Schmidt, 2007, pp. 77-79). Thus, the pervasiveness of free market capitalism and its corresponding commodifying logic in late modern life means it is exceedingly difficult for all contemporary forms of ayahuasca drinking not to be enmeshed in the ubiquitous web of markets and monetary exchanges.

To the extent that it is overtly commodified (especially in non-religious contexts), ayahuasca might be seen as just the latest in a long list of psychoactive plants whose appropriation and trade have been significant forces in the history of Euroamerican colonialism and empire. For example, tobacco, coffee, tea, cacao, coca, the opium poppy and sugar cane (for rum production, as well as a sweetener) all became commodities for early mercantilists and colonialist governments to profit from, with consumption patterns de-contextualized from the traditions in which their uses were formerly grounded (Matthee, 1995). In the case of tobacco, its sacred status among Amerindian peoples for spiritual, medicinal and ceremonial purposes contrasted significantly with its adoption by Euroamerican consumers, whose appetites for smoking, snuffing and chewing tobacco products appeared unlimited and profane by comparison (Gately, 2001). Further, the scientific reductionist impetus to isolate particular components of plants such as sugar cane, opium poppy and coca leaf led to the development of easily extractable and

marketable white powders, the lure of which still drives considerable economic activity today in the legal market for sugar and the ubiquitous illicit markets for heroin and cocaine.

Unlike the dopamine-mediated neuropsychologically reinforcing effects that make these other plant-based commodities both popular and lucrative, ayahuasca's unpredictable and sometimes harrowing psychoactive properties make it unlikely ever to become an object of such insatiable consumption as modern stimulants and anodynes. Nevertheless, clearly among those who do try ayahuasca, a significant proportion experience something valuable—be it therapeutic, spiritual, educational or simply aesthetic—and seek further occasional or regular encounters with it (Shanon, 2002). A recognition of such potential demand for their sacraments and concerns about future sustainability of their congregations' needs for a secure supply has led Brazilian churches such as the UDV and the Santo Daime to commit to significant cultivation policies and projects (Labate, 2014b; Soares & de Moura, 2011). On the other hand, harvesting of wild *Banisteriopsis caapi* and *Psychotria viridis* from Amazonian regions remains a significant source of plant material for the global marketplace, and a growing interest in traditional herbal remedies, along with ayahuasca's growing repute as a therapeutic agent, means that some profit-minded purveyors will be inclined to commercialize it for their personal economic benefit.

An illustrative historical case in point is an ayahuasca patent involving an American who in 1986 obtained intellectual property rights from the United States Patent and Trademark Office (PTO) on a *B. caapi* vine (Centre for International Environmental Law, 2003). This ayahuasca patent case raises a number of questions about the concept of intellectual property and the monetization of knowledge it entails, especially insofar as such claims may be applied to life-forms such as plant species, as well as to cultural artifacts such as images, songs, dances and rituals.⁵ However, beyond the general issues of whether ayahuasca might qualify as a patentable cultural artifact of the indigenous peoples of the Amazon, or whether its adoption as a sacrament by syncretic autochthonous Brazilian religions effectively puts it in the public domain, it behooves us to ask what the respective economic values are of ayahuasca's constituent plants, the prepared brew and the ritual knowledge of its administration.

On the surface, these questions might be most appropriately answered empirically, by engaging in ethnographic work in various settings and eliciting information about relative monetary costs of cultivation or harvesting of the constituent plants, production of the brew, distribution both within the Amazon region and internationally, and ceremonial participation in different parts of the world; and further work on the economics of ayahuasca might benefit from such research, which I hope this chapter may stimulate. However, my purpose here is to delve more deeply into the philosophical underpinnings of how such a research endeavour—i.e., determining the relative monetary value of ayahuasca—is framed and what it may obscure or occlude. In particular, I want to consider how the economic aspects of ayahuasca's globalization represents an interface between one ancient and powerful cognitive tool with another, money. However, before turning to this question I will elaborate on some of the ways in

which ayahuasca currently functions politically, and could conceivably evolve in the future, as an object of commercial and economic relations.

The Political Economy of Transnational Ayahuasca Drinking

The reception of ayahuasca drinking beyond the Amazon by different governments has been influenced by not only political but also economic factors. In some instances, such as in South American countries whose jurisdictions include Amazonian territory and local traditional ceremonial uses of the brew, some forms of ayahuasca drinking have been legally accommodated. However, in most cases government policies are oriented to accepting indigenous cultural or syncretic religious practices, and as far as I know none has explicitly promoted the production and purveyance of ayahuasca as an economic activity that could contribute to the gross domestic product. For example, in 2006, the Brazilian government convened a multidisciplinary working group that included members of several Brazilian ayahuasca churches to craft policy recommendations to legitimize ayahuasca drinking for religious purposes (MacRae, 2010). Adopted in 2010, the policy repudiates and forbids the commodification and sale of the brew, declaring that “the cultivation, preparation and ministration for the purposes of generating profit is incompatible with the religious use [of ayahuasca]” (Boiteux, 2011, p. 269). However, it also explicitly makes exception for monetary exchanges involving production and distribution of the brew, including “the harvesting of plants, their transport and preparation, taken as ‘maintenance costs,’ which should be supported by the user community” (Boiteux, 2011, p. 269). Along similar lines, the government of Peru in 2008 declared traditional knowledge and uses of ayahuasca a cultural patrimony, which it “explicitly differentiates . . . from ‘decontextualized, consumerist, and commercial western uses’” (Beyer, 2009, p. 375). However, despite such avowed anti-commercial policies, most countries with Amazonian territory within their jurisdictions (including Brazil, Peru, Ecuador, Bolivia and Colombia) are receiving regular influxes of northern tourists seeking—and bolstering local economies through their willingness to pay for—experiences with the brew.

In other countries where ayahuasca has been legally accommodated through religious freedom arguments in courts, such as the United States, the Netherlands, Spain and Italy, this has been primarily through litigious efforts of diasporic chapters of the Brazilian churches, the Santo Daime and UDV (Labate & Jungaberle, 2011). In some of these cases, government prosecutors attempted to suggest that allowing importation of the sacramental tea for religious purposes posed a significant risk that it would be diverted to illegal markets (Bronfman, 2011, p. 291). However, as church doctrines prohibit the explicit commodification of their sacraments, the concerns about diversion and “trafficking” of ayahuasca have been deemed unmerited by some legal bodies, allowing for legal permissions to import and distribute of the brew for non-commercial religious purposes (Labate, 2012).

Despite the religious motivations for seeking legal redress to accommodate the importation and distribution of ayahuasca for use in ceremonial contexts, in some places

these rulings have led to broader interpretations that have also enabled commercial trade in the common source plants for ayahuasca. For example, a number of “smart shops” or ethnobotanical retail outlets sell *B. caapi* and *P. viridis*, along with an assortment of other “ayahuasca analogue” plants and a variety of other psychoactive flora. Further, as with an increasing amount of commercial activity in consumer markets of all types, marketing of ayahuasca source plant materials is now firmly established in cyberspace. Online companies engaged in this trade operate as any aspiring entrepreneurial enterprise ought to: attempting to expand their customer base, competing for market share with product quality, advertising, sponsorships, and offering enticements or perquisites such as bulk purchase discounts or free shipping. In early 2015, exclusive of additional shipping costs, one website advertised prices ranging from US\$14.50 to \$16.50 for a 50-gram package of *B. caapi* (depending on the variety, and whether the vine is whole or shredded), and around US\$23.00 for 50 grams of *P. viridis* (Azarius, 2015), with others selling “kits” (i.e., combination packages containing samples of both plants, promoted as “enough ingredients for 1 trip”) for amounts ranging from US\$17.75 (High Street, 2015), to \$23.75 (Elephantos, 2015).⁶ In some cases, plant samples may be labeled with cautions that they are not intended for human consumption, although other distributors provide advice such as recipes and brewing instructions, descriptions of typical physical and psychoactive effects, and harm reduction information through point-of-sale pamphlets or business websites.

The burgeoning online marketing and commercial trade in ayahuasca source plants has been identified by the International Narcotics Control Board (INCB) as among recent examples of “plants . . . used outside of their original socio-economic context to exploit substance abusers” (International Narcotics Control Board, 2011, para. 286). The INCB is the quasi-judicial body of the United Nations responsible for ensuring compliance with international drug control conventions, including the *1971 Convention on Psychotropic Substances*, in which dimethyltryptamine (DMT)—one of the primary psychoactive components of ayahuasca brews—is scheduled as a controlled substance. Although the 1971 Convention explicitly excludes plants containing scheduled substances such as DMT (Lande, 1976), and the INCB itself has affirmed that interpretation of the treaty in communication with states parties inquiring about ayahuasca (Schaepe, 2001), the Board’s 2010 Annual Report nevertheless recommended “that governments should consider controlling such plant material at the national level where necessary” (International Narcotics Control Board, 2011, para. 287). Elsewhere, Labate and I have argued that the Board’s recommendation conflates and misrepresents widely diverse plant materials and their effects, fails to distinguish between “use” and “abuse” of psychoactive substances, and appears to assume that cultural practices involving substance use are static and immutable (Tupper & Labate, 2012). However, given the geopolitical economic influences on the establishment of the international drug control system (McAllister, 2000), there may also be economic undercurrents to the INCB’s recommendation for “control” of plants and preparations such as *B. caapi*, *P. viridis*, and the ayahuasca brew.

While control over Schedule I substances (or preparations thereof) has historically been achieved by severely restricting access for medical/scientific research and while

individuals without the authorization to possess or distribute can be subjected to harsh criminal penalties, it is conceivable that an emerging evidence base for the therapeutic value of psychedelic drugs through burgeoning scientific research could change political circumstances. However, the economic paradigm in which contemporary biomedical and pharmaceutical drug research is entrenched means that “control” of ayahuasca—or a novel “pharmahuasca” product superficially enough like it (Ott, 1999)—could take a significantly different form, one that more closely resembles that of conventional pharmaceutical drugs such as opioids, SSRI antidepressants or benzodiazepines. While the ayahuasca patent case discussed above has expired, an intellectual property claim for a preparation of DMT, harmine and tetrahydroharmine (in proportions approximating those of the traditional ayahuasca brew) is theoretically feasible, allowing an enterprising pharmaceutical firm the opportunity to conduct research that might ultimately be commercially successful and pay significant financial dividends.

It is not difficult to imagine how changing socio-political circumstances in the future might lead to a regime of “control” whereby even the traditional plant-based ayahuasca brew becomes fully embedded within the capitalist market logic. In such a system, one might see genetic engineering and patenting of new varieties of source plants, monoculture cultivation and industrial-scale harvesting, international trade standards applied to the brewing process and product, a system of classification and appellation protected by trademarks (not unlike with regionally-based names for wines or cheeses), brews branded with clever logos and packaging (likely invoking indigenous cultural origins to convey authenticity), and the establishment of derivatives markets for trading options on *B. caapi* and *P. viridis* futures, fluctuating based on uncertain climatic circumstances and growing conditions. Certainly, other plant-based psychoactive consumer products—such as coffee, tea, cacao, tobacco, alcoholic beverages, and most recently in Uruguay and some U.S. states, cannabis—have in many respects met a not dissimilar fate. But anticipating, and perhaps influencing, the economic future of ayahuasca may benefit from some reflection on the ubiquitous medium of modern economic relations, money.

Ayahuasca and Money: The Economic Interface of Cognitive Tools

The question of how to assess the value of ayahuasca in modern economic terms implies that there is a perceived commensurability between the brew (and often inextricably linked, its provision by skilled ceremonial leaders) and the currencies for which it may be exchanged, such as the euro, the US dollar, the Brazilian real or the Peruvian Nuevo sol. However, in order to explore this matter, I want first to digress briefly into how these two kinds of things—ayahuasca and money—may derive value through a common characteristic they share as human cultural artifacts, that of cognitive tools.

The concept of cognitive tool invoked here is that of early 20th century Russian psychologist Lev Vygotsky, a specialist in child development and learning, and one of the founders of the cultural-historical school of psychology. The cultural-historical perspective differs from other disciplinary approaches to psychology in that it does not

deny the specifics of the individual's cognitive skills and abilities, but rather situates them in a broader social context. Specifically, it considers how the mind—and as recent neuroimaging technology corroborates, its neurobiological substrate in the brain (Hanakawa, Honda, Okadac, Fukuyama, & Shibasaki, 2003)—changes with the use of specific kinds of cognitive tools with which the individual acquires facility through socialization and enculturation. Vygotsky postulated cognitive tools as being human symbolic, mnemonic and behavioural techniques or activities that “are directed toward the mastery of mental processes—one's own or someone else's—just as technical devices are directed toward the mastery of processes of nature” (Vygotsky, 1997, p. 85). As examples of cognitive tools, he identified “language, different forms of numeration and counting, mnemotechnic techniques, algebraic symbolism, works of art, writing, schemes, diagrams, maps, blueprints, all sorts of conventional signs, etc.” (Vygotsky, 1997, p. 85). To this list, however, I would add both ayahuasca (and psychedelic substances more generally) and money, and the elucidation of these additions to the inventory of cognitive tools provides some insight into the economic structures and stresses that are attending the brew's emergence as a global commodity in the 21st century.

The characterization of ayahuasca as a cognitive tool is a theme I have developed previously in other work on entheogenic education (Tupper, 2011), and on psychedelic science (Tupper & Labate, 2014). Briefly, acknowledging psychoactive substances as tools reflects their capacity to mediate between one's mind and one's environment, and to effect a purposeful change on one's mind/body or psychosomatic state (Roberts, 2013). As commentators on Vygotsky's notions of cognitive tools have noted, “tool use has . . . important effects upon internal and functional relationships within the human brain” (John-Steiner & Soubberman, 1978, p. 133), an observation that certainly holds with respect to the utility of psychoactive substances. Thus, ayahuasca as a cognitive tool (i.e., a technology for affecting neurochemistry, altering consciousness and possibly re-shaping neural architecture) is a helpful explanatory heuristic not only for positing the brew's capacity to stimulate novel ways of thinking, but also for perceiving its use value as derived through its utilitarian functions in healing, cultural and religious contexts.

It also bears noting that the phenomenology of the ayahuasca experience itself may stimulate reflection on the concept of value, especially inasmuch as it can evoke the sensibility of being a divine gift. It is not uncommon for drinkers to feel as though the brew bestows a kind of gratuitous and beneficent grace, a sense of one's being given a profound form of healing and learning for which no compensation is adequate (Brissac, 2010). Indeed, the Brazilian church Santo Daime takes its name from a colloquial Portuguese phrase “*dai-me*,” meaning “give me,” illustrating the nature of the earliest ayahuasca experiences of its founder, Mestre Raimundo Irineu Serra (Shanon, 2002, p. 21). In this respect, the gift sensibility inherent in the ayahuasca experience, especially in the context of a discussion of economics, hearkens to the kinds of pre-monetary economic relations that once characterized the human condition (Mauss, 1967).

The concept of “money” as a cognitive tool requires some further explanation, which in next section I illustrate through a cursory overview of some successive key

innovations in human cultural and intellectual development. In particular, I aim to show how the particular kind of money with which the vast majority readers are solely familiar—i.e., debt-based fiat currencies—is a function of a “ratchet effect” of various other cognitive tool innovations over the past 12,000-15,000 years (Tomasello, 1999). The digression on the evolution of the modern form of money helps set the stage for further elaboration of how the ayahuasca-money interface may illuminate aspects of the economic landscape for the brew’s globalization today. It is important to note, however, that I do not mean to impose an implicitly prescriptive narrative of “progress” from primitive to civilized among those cultures which adopted these successive innovations; rather, I am merely attempting to describe a sequence of gradual cultural adaptations in the evolutionary trajectory of a uniquely powerful cognitive tool, money.

Money, Debt and Economic Knowledge

A common point of origin for the connection between ayahuasca and money begins with flowering plants, and in particular their seeds, whose generative capacities were first identified and exploited by humans approximately 10,000 years ago. The discovery of the power of the seed and the advent of agriculture shifted human cognitive frames with respect to time, the future, and nature, and in so doing also transformed social organization, power, and economics (Harari, 2014). For those cultures that adopted the agricultural technology of domesticating plants (and concomitantly animals), among the key changes wrought was a shift from (semi)nomadic hunting-gathering societies to sedentary agrarian and proto-urban ones (Wright, 2004). Importantly, the early adopters of agriculture established hierarchical forms of social organization, in which entirely new classes of people emerged. For the first time, some members of society—such as priests, civic administrators and scribes—were not involved in the acquisition or production of their own food. It also inaugurated the concepts of private property—including not just land, but also accumulations of grain and chattel—and quantifiable credit/debt (Graeber, 2011). Crucially, the latter innovation of credit in its earliest forms allowed for the levying of interest payments, which through the compounding function could inexorably grow to impose an insurmountable liability on the borrower. Yet even within those primordial structures of credit it was recognized that debt burdens often became so onerous that jubilees (i.e., mass nullifications of debt) were regular political occurrences (Chirichigno, 1993). Similarly, the charging of interest on loans, or usury, was historically condemned as an odious or sinful practice in a number of religious doctrines (Visser & McIntosh, 1998).

The economic institutions of early agricultural societies led not simply to formal mechanisms of credit and debt, but also (crucially for the development of money) to their quantification and documentation. While reading, writing and arithmetic are clear landmarks in the evolution of human communication and thought, the earliest instances of literacy and numeracy systems seem to have been for recording and tabulating debts and interest accruals (Homer & Sylla, 2005). Monetary tokens, such as shells or stamped ingots or coins, were developed secondarily to rudimentary credit accounting (Graeber, 2011), instantiated through early symbolic systems in the form of ideographic scripts that were the direct antecedents to the first alphabets. Vygotsky regarded literacy and

numeracy as foundational types of cognitive tools—and subsequent research on oral vs. literate cultures has clarified the importance of these innovations on both individual and collective forms of thought (Ong, 1982)—but it is essential to recognize that money has a similarly powerful effect on human cognition, including personal motivations, social relations and economic calculations.

Two more crucial notches on the developmental ratchet of cognitive tools underlying the contemporary economic structures attending the globalization and commodification of ayahuasca are the inventions of Hindu-Arabic numerals and the double-entry bookkeeping system. Many different kinds of numerical systems had been used for market transactions and more abstract arithmetic and geometry in various pre-modern cultures, but the Hindu-Arabic numeral system—i.e., the positional notation system using digits of zero through nine, invented in India and the Middle East around 600-800 CE—proved to be uniquely favorable for both applied and theoretical mathematics (Kaplan, 1999). In particular, 14th century Venetian merchants adapted the decimal positional notation system of Hindu-Arabic numerals into a new way of recording of business transactions, today known as double-entry book-keeping, the *sine qua non* cognitive tool of modern accounting and banking (Gleeson-White, 2011). The widespread uptake of Hindu-Arabic numerals and double-entry bookkeeping in early modern Europe was roughly coincident with the Renaissance, through which ancient learnings in geometry and algebra produced other mathematical advances such calculus, probability theory and statistics (Hacking, 2006). Among the early adopters of these intellectual pursuits were natural philosophers, or proto-scientists, seeking to quantify, measure and theorize about natural processes, whose efforts led to the quintessential epistemic construct of modernity, the “fact” (Poovey, 1998). At the same time, other early adopters of these tools were the early modern forebears of today’s global financial system, including goldsmiths, bankers, insurance agents, stockbrokers and market speculators.

In particular, goldsmiths and bankers in the 17th century learned to apply the double-entry bookkeeping method and its fundamental principle of credit-debit balance to *de facto* money creation through the concept of fractional reserve lending. The fractional reserve concept allowed a bank to issue loans in the form of depository notes (which could be redeemed for gold bullion) in greater quantities than it held in bullion reserve in its vaults. These notes then began to circulate in the marketplace, and bankers discovered they could profit tremendously from the accruals generated through the compound interest function. However, the fractional reserve lending process only ever creates “money” in form of principal; obligatory interest payments have nowhere to come from than the same pool. The result is that loan defaults and foreclosures, or seizures of collateral assets, for an unfortunate few are inevitable, and the perpetual transfer of real wealth from debtors (deemed self-evidently culpable for their losses through financial ineptitude) to creditors is built into the system. Over time, the symbiotic power relationship between the banking sector and the state was consolidated in the form of a fiat currency, or a state-backed monetary unit (enforced as a monopolistic form of legal tender, but still able to be privately created through debt issuance). At the same time, new kinds of data, calculations and statistical methods were being assiduously applied in the

branch of moral philosophy known as “political economy,” leading ambitious theorists to regard the emerging discipline of economics as a science no less rigorous than astronomy or physics (Hadden, 1994).

Before returning to how the cognitive tool of money relates to the economics of ayahuasca, a few more points about how these early modern innovations in banking undergirded neoliberal systems of governance that evolved between the 18th and 21st centuries.⁷ The fractional reserve banking model created convenient forms of paper money, but it was also inherently unstable due to periodic crises of confidence among depositors who could demand *en masse* the redemption of their paper notes for sums of gold that never existed (known colloquially as a run on the bank). To protect against such economic catastrophes, governments created central banks to set reserve requirements, be lenders of last resort and instill public confidence in the banking and monetary systems. While its central bank nominally controls a nation’s money supply, the deregulation of banking in many countries in the late 20th century—and the consequent rise of the “shadow” banking system—produced an exponential growth of commercial and investment bank-issued credit-based money. In particular, new “derivative” financial instruments such as collateralized debt obligations, credit default swaps, and mortgage backed securities have created unprecedented amounts of leveraged debt in the global financial system.

The 20th century also saw the establishment of free-floating international currency exchange and the decoupling of fiat currencies from commodities (the “gold standard” having previously served as a real-world check on credit expansion) (Prins, 2014). Thus today, the vast majority of global money supply—the currencies through which ayahuasca is commodified and exchanged—exists only by virtue of massive amounts of credit market debt that inexorably transfers wealth to creditors and widens the gap between rich and poor. Furthermore, as the 2008 global financial crisis demonstrated, the underlying structures of the world’s economic system remain deeply unsound and the so-called “recovery,” achieved through the imposition of austerity measures and quantitative easing monetary policies, has arguably only postponed an inevitable reckoning (Martenson, 2011). Thus, it seems that ayahuasca’s egress from the Amazon and its growing transnational use as a powerful cognitive tool in the early 21st century has coincided with a dire global economic situation evolving out of the gradual ratcheting of other kinds of cognitive tools—numeracy and literacy, money and debt, double entry bookkeeping and fractional reserve banking—over the past 10,000 years.

Conclusion

The ideas about the economics of ayahuasca presented in this chapter attempt to elaborate some of the themes that have arisen in my critical reflections on the commodification and commercialization associated with various aspects of the brew’s transnational expansion over the past few decades. Following challenges presented by a work colleague about whether ayahuasca’s ostensible sacredness might not risk profanation by the brew becoming simply another appropriated material commodity and dissociated consumer experience in the modern world, I was impelled to reflect on

concepts such as value, reciprocity, and the nature of money. As the previous section outlined, what I discovered is that many of the economic issues attending the globalization of ayahuasca point to deeply troubling questions about the debt-based foundation of modern fiat currencies, the structural sustainability of the monetary system, and the crucial inter-relationship (or current lack thereof) between ecology and economy.⁸ In fact, it is difficult not to conclude that the goal of inexorable and interminable growth explicit in modern neoliberal political discourses represents a mass *folie à plusieurs*, whereby humans on planet Earth collectively display no more intelligence than paramecia in a petri dish.

Fortunately, cogent criticisms of the late modern economic status quo have been proliferating in alternative and online media since the 2008 global financial crisis.⁹ More importantly, these discussions are focused not just on what is currently broken, but also on new ways to conceive of and promote human well-being, social prosperity, economic reciprocity, and ecological sustainability. In some cases, the voices are those of concerned elders reinforcing demands for environmental action that they have been making for decades; in others, innovative ideas are being put forward by a new generation of social activists who are rejecting the dogmas of mainstream neo-classical economic theory and calling for radical reconsideration of the perpetual growth paradigm. In particular, there is an emerging recognition that the construct of debt-based fiat money is an outmoded relic, and that more effective mechanisms of reciprocity, media of exchange, measures of value, and units of account are both possible and desirable (Lietaer et al., 2012).

To conclude, ethnobotanist Dennis McKenna has mused about the possibility that the vine may be serving as an “emissary of trans-species sentience, to bring us this lesson: You monkeys only *think* you’re running things” (McKenna, 2005, p. 232 – italics original). Perhaps nowhere is such a lesson more applicable than in the boardrooms of central banks and government treasury departments, where the pursuit of economic growth is fetishized as an axiomatic necessity, and tragic social and environmental costs are dismissed as unavoidable and thus tolerable externalities (Kallis, Kerschner, & Martinez-Alier, 2012). One cannot help but wonder whether significantly expanded ayahuasca drinking at a population level might have an antidotal effect on such myopic agendas. Indeed, Benny Shanon reports that enhanced ecological appreciations and sensibilities are a common phenomenon among many ayahuasca drinkers, a “recognition [that] makes people further appreciate the link between humankind and nature” (Shanon, 2002, p. 168). More poignantly, Brazilian anthropologist Arneide Cemin relates from her fieldwork among Santo Daime (Alto Santo branch) members: “Daime is considered to be the greatest wealth. It has even happened that people who exercised the profession of gold-prospecting and have come to Rondônia motivated by the search for gold, have said that ‘in fact the gold was Daime and that thanks to God’ they found it” (Cemin, 2010, p. 59). Thus, it may be that one of ayahuasca’s greatest potentials as a cognitive tool, or entheogenic “plant teacher,” is its capacity to illuminate for us what is truly valuable for individual and collective flourishing, which we would be mistaken to think includes—or can be measured by—our current form of money.

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¹ In North America, prices for neo-shamanic ayahuasca ceremonies range from US\$75 to \$250 dollars per person, although some practitioners will accommodate low-income participants on a case-by-case basis.

² Although, as illustrated by the diverse and complex motivations people may have for pursuing a university-based medical degree, these are not necessarily mutually exclusive.

³ Anthropological perspectives on money illustrate a plurality of approaches to understanding its various forms, functions and evolution (Hart & Ortiz, 2014). In this chapter, my discussion focuses on the contemporary modern fractional reserve-based fiat currencies that comprise the vast majority of the global money supply (Lietaer, Arnsperger, Goerner, & Brunnhube, 2012).

⁴ As anthropologist Brabec de Mori notes, “[t]he Shipibo system of [cosmological] assessment is based on an animist world conception, with reciprocity being the most important principle for keeping the world in order” (Brabec de Mori, 2014, p. 217).

⁵ I have explored some of these issues elsewhere (Tupper, 2009), so will not revisit them here.

⁶ I have not personally ordered or tried any of these products, so cannot comment on the quality of the service or the plant materials.

⁷ The history, evolution and current state of modern banking is far too complex to adequately cover here. For a clearer and more thorough overview of these topics, I recommend the “Occupy Finance” pamphlet (The Alternative Banking Group of Occupy Wall Street, 2014).

⁸ The shared etymological root of the words “economy” and “ecology” (both deriving from the classical Greek word *oikos*, or “household”) indicates the conceptual alignment these disciplinary topics might be expected to have. However, with respect to mainstream political discourse and action, they seem no more related to one another than a similar set of cognate terms, “astronomy” and “astrology.”

⁹ In particular, check out “The Keiser Report” on the Russia Today television network, in which incendiary hosts Max Keiser and Stacy Herbert deconstruct financial news headlines, ridicule mainstream politicians and bankers, and conduct incisive interviews with a wide range of guests on matters of contemporary economic and political affairs (Russia Today, 2015).