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Economics without the lens of co-creation, in the new evolving economy, blurs visibility. We provide a framework that can reshape economic thinking with co-creation at the core. In particular, an individual's experience from co-creation is at the foundation of our economic apparatus. This is consistent with the mounting evidence on the new evolving economy where the conventional firm-centric view is of little relevance. We compare and contrast key elements of our co-creation thinking with conventional economic thinking. We show how fundamental economic concepts, such as surplus and efficiency, must be modified in order to incorporate co-creation experiences. We also posit a principle of co-creative advantage to guide efficient co-creation.

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“It is time to reengage the severely impoverished field of economics with the economy.”

Ronald Coase (2012)

1. Introduction

At the dawn of this millennium, a tribute to Ronald Coase appeared on the economic scene of the New York Times with the opening line: “There was never a new economics to go along with the new economy.” The author of that column, Hal Varian, reminded us of the subtle underpinnings of Coase's nobel-prize winning work as well as the need for “careful analysis of competing forces” in determining the role of the firm in the new “internet” economy. In the new evolving economy, with the advent of the web, mobile technologies of expression, communication, and information, value is increasingly being created jointly by the customer and the firm. Yet, economists continue to artificially assign distinct roles to firms and consumers, with the firm creating value through production and the consumer generating demand. The market is portrayed as an interface for firms and consumers to engage exclusively in exchange of

commodities. Consequently, the relevance of the “nirvana approach”¹ of conventional economic thinking has shrunk with the apparent disconnect drilling down to the process of value creation since value, in the economy as it is becoming, is no longer confined to goods or services but stems from the unique experience of each individual. It is evident that the future, of the evolving economy, is in the hands of *co-creation* --- the practice of joint creation and evolution of value through individuated experiences. In this paper, we embrace the paradigm of co-creation and take a small step forward that can lead to a paradigmatic leap in economic thinking.²

2. Value Creation as Co-Creation

Co-Creation is distinct from a firm-centric view in which consumers become relevant only at the point of exchange, as firms believe that the market can be separated from the value creation process. Rather, co-creation is about joint creation and evolution of value with individuals through interactions.³ Co-creation is not about customization of goods and services, one-to-one marketing, or staging customer experiences around the firm’s offerings.⁴

The vision of value creation as co-creation unlocks novel ways to generate value as consumers and the enterprise engage through purposeful interactions. Value is jointly created by the consumer and the firm through interactions that enable an individual to create unique experiences of value with open and social resources, as well as enterprise network resources. The opportunities to add value expand through individuated co-creation experiences. The focus of co-

¹ The expression “nirvana approach” was used by Harold Demsetz, as early as 1969, to characterize the typical fallacy inherent in conventional economic thinking when comparing an imperfect existing arrangement to a hypothetical idealized system.

² See Ramaswamy and Ozcan (2014) for an elaborate exposition of value creation as co-creation.

³ Prahalad and Ramaswamy (2000, 2002, 2003, 2004a, 2004b), Ramaswamy (2008, 2009, 2010), Ramaswamy and Gouillart (2010a, 2010b), and Ramaswamy and Ozcan (2014) have presented a plethora of compelling examples in this direction.

⁴ See, for instance, Peppers and Rodgers (1993), Pine and Gilmore (1999), and Seybold (1998).

creation is on consumer-enterprise interaction with the objective of jointly creating value, as a large body of convincing evidence continues to accumulate in support of the rapidly changing role of the consumer in the new evolving economy.

To illustrate the power of co-creation in the new Internetnetworked economy, consider the NikePlus experience.⁵ Nike teamed up with Apple and Google to launch NikePlus as a platform to engage runners. The platform was enabled by a smart sensor in the shoe that can communicate with a built-in wireless receiver on the iPod or iPhone. The Run Tracking environment of NikePlus allows the runner to assess her progress by automatically plotting distance, time, pace, and calories burnt. She can map her runs, become a member of the Nike running club, participate in Nike-sponsored events, engage in virtual training, and even share her experience through social networks. The point to be noted is that the runner is at the center, not Nike, and value is a function of her running experience co-created by her with Nike enabling an *engagement platform* (NikePlus). All of this facilitates Nike's accumulation of strategic capital through direct learning from the behavior of customers, rapid generation of new ideas, timely experimentation with new offerings, building deeper relationships and trust with the community, and sustaining stickier brand collateral. In effect, NikePlus offers an engagement platform to open up dialogue with and among the running community through which Nike can identify and act upon new growth opportunities with its enhanced global resource network. The co-creative experience through NikePlus continues to multiply through newer platforms like Nike+Fuelband that is enhanced by a sports-tested accelerometer capable of tracking daily activities including running, walking, basketball, and other physical activities. Similar examples of the triumph of co-creation are

⁵ See Ramaswamy and Gouillart (2010a) and Ramaswamy and Ozcan (2014).

abundant with engagement platforms created by numerous enterprises⁶ spanning agriculture, automotive, consumer durables, electronics, energy, entertainment, fashion, financial services, healthcare, information technology, manufacturing, media, pharmaceuticals, retail, telecommunication, travel, and many other sectors of the economy. In all these cases, central to co-creation is the concept of an engagement platform, an assemblage of persons, interfaces, processes, and artifacts, whose engagement design intensifies co-creating agency in joint value creation.⁷

The increasingly visible hands of co-creation are rapidly replacing what economists, following Adam Smith's (1776) magnum opus *Wealth of Nations*, have construed as the invisible hand of market forces. Experiences stemming from the immediate aftermath of the industrial revolution prompted economists to formalize the invisible hand as working of the price mechanism on premises that split the firm's role from that of the consumer. The real experience of the new evolving economy continues to drift far apart from this dichotomized view of the market while economists, in large numbers, march off with arms that fire obsolete explanations for the incessantly expanding territory of the modern enterprise. As Harold Demsetz (1990) succinctly put it, ever since the publication of *The Wealth of Nations* back in 1776, the principal task of economists has been to formalize the proposition of Adam Smith that the economy could be coordinated by the invisible hand to which Ronald Coase, in his 1991 lecture to the memory of Alfred Nobel, added, "Economists have uncovered the conditions necessary if Adam Smith's

⁶ The list of such enterprises include ABB, Amazon, Apple, Ashoka, BEME, Brother, Caja Navarra, Camiseteria, Cisco, Club Tourism, Credit Agricole, Crushpad, Dassault Systemes, Dell, ERM, GE Healthcare, GlaxoSmithKline, Google, HCL Technologies, Hindustan Unilever, IBM, Infosys, Innocentive, Intuit, ITC, Jabil Circuit, Kaiser Chemicals, La Poste, LEGO, Mozilla, Nestle, Nokia, OASIS, Orange Telecom, Rio Grande do Sul, SAP, SEBI, Shell, Sony, Starbucks, TiVo, Toyota Scion, Wacoal, and many others. See Ramaswamy and Gouillart (2010b) for a discussion of the power of co-creation using these examples.

⁷ See Ramaswamy and Ozcan (2014) for a discussion of the innovation and design of co-creative engagement platforms.

results are to be achieved and where, in the real world, such conditions do not appear to be found, they have proposed changes which are designed to bring them about.”

Let us pause to think: Would Adam Smith have visualized the new economy any differently? It is important to clarify at the outset that, in posing this question, we are not challenging the view that the rational individual acts in self-interest. One does not have to disagree with Adam Smith’s (1776) assessment, “It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address to ourselves, not to their humanity, but to their self-love, and never talk to them of our own necessities, but of their advantages.” By the same token, one does not have to appeal to Adam Smith’s (1759) *Moral Sentiments*, “How selfish soever man may be supposed, there are evidently some principles in his nature which interest him in the fortunes of others, render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it.”

Instead, we are questioning the relevance of the very premises of the theory of value already in vogue. In so doing, we take a cue from co-creation thinking as it holds the key to expanding an economist’s vision to a space where an enterprise can be seen as a nexus of engagement platforms and the economy as a nexus of enterprises, with competition centering on individuated co-creation experiences that yield unique value to each individual in space-time.⁸ We emphasize the fact that a rational individual, by engaging in co-creation, promotes collective interests only to promote self-interest and vice-versa: doing even better for oneself by others doing well. This “win more—win more” vision is increasingly gaining clarity with *wealth-welfare-wellbeing* being continuously created and enhanced in ways that are distinct from what an economist could have experienced through the pre-Internet industrial era. The de-humanization of value, that took

⁸ See Ramaswamy and Ozcan (2014) for a discussion of the co-creation paradigm of value.

place with a perceived split of the firm from the consumer in the industrial era, is being challenged in today's economy. As Amartya Sen (1999) emphasized, "Indeed, it is precisely the narrowing of the broad Smithian view of human beings, in modern economies, that can be seen as one of the major deficiencies of contemporary economic theory". Economists have, so far, continued to model value as a relational property of goods and services. This narrow definition of value is misconstrued and its deficiencies are becoming increasingly apparent in the context of the real experiences of the new evolving economy.⁹ The key point of our departure from conventional economic thinking, starts with restoring the element of individual experience in value. Value is generated from experiences, unique to each individual, that result from an interaction through a platform of engagement. We take this holistic view of expanding the space for creating value and recognize that utility theory¹⁰ is not redundant but can be seen as an emergent property of co-creation experiences. In what follows, we lay out (with parsimonious abstraction) a blueprint for the foundation of co-creation thinking in economics --- a contribution we would like to identify as the conception of Co-Creation Experience Economics.

3. Co-Creation Experience Economics

Consider the value (V_i) derived by an individual i as a function of C_{ij} , representing the vector of individual i 's co-creation experiences on engagement platform j , as well as on the conventional vector of i 's actions (a_i), others' actions (a_{-i}), and controls (c_i) that entail all else affecting the value i derives:

$$V_i = V_i(C_{ij}, a_i, a_{-i}, c_i).$$

⁹ See Ramaswamy and Ozcan (2014) for a discussion on humanization of value.

¹⁰ A fruitful approach of parsimoniously modifying preferences, to show how economics can be applied to study the forces that shape behavior, dates back to the seminal contribution of Becker (1957). While many economists have followed Becker's footsteps, in this direction, a relatively recent application can be found in Akerlof and Kranton (2000).

The arguments of $V_i(\cdot)$ are not only sufficient to capture the standard economic role of own actions and externalities but incorporates co-creation experience as a motivation for individual economic behavior. Consider the following representation of individual i 's co-creation experience on engagement platform j :

$$C_{ij} = C_{ij}(R_{ij}, R_{-ij}, T_{ij}, T_{-ij}, a_i, a_{-i}, c_i),$$

where T_{ij} and T_{-ij} represent time and R_{ij} and R_{-ij} represent resources invested by individual i and others $-i$ (including, though not necessarily limited to, those on platform j), respectively, in the engagement specific to platform j .

Conventional economic thinking would prompt a typical individual i to choose its actions a_i in a way that maximizes V_i , ceteris paribus. This apparently draws the boundaries of the market where the goal of each firm, given its own resource constraints, is reduced to a) the maximum extraction of surplus from individual consumers, and b) the minimum expense of the extracted surplus on individual workers, that specific market structures allow.

Now think co-creation. Imagine the vast potential of co-creative surplus that conventional economic thinking leaves out by simply ignoring the fact that an enterprise can and does, even more so in the modern Internet networked age, release its resource constraints by investing in engagement platforms that co-create value by enhancing the diverse experience of individuals. In an environment of co-creation, the objective of the enterprise(s) providing platform j is to

$$\begin{array}{ll} \text{Maximize:} & V_j = V_j(C_{ji}, C_{-ji}, a_j, a_{-j}, c_j) \\ \{R_{ji}, T_{ji}, a_j\} & \\ \text{subject to} & \bar{T}_j = \sum_i T_{ji} + T_j(R_{ji}) \end{array}$$

while each individual's objective is to

$$\begin{array}{ll} \text{Maximize:} & V_i = V_i(C_{ij}, C_{-ij}, a_i, a_{-i}, c_i) \\ \{R_{ij}, T_{ij}, a_i\} & \\ \text{subject to} & \bar{T}_i = \sum_j T_{ij} + T_i(R_{ij}) \end{array}$$

where C_{ji} is the vector of co-creation experiences of all individuals engaged on platform j ; C_{-ji} is the vector of co-creation experiences of all individuals engaged on platforms other than j ; a_j is the vector of actions of the enterprise(s) providing platform j , a_{-j} is the vector of others' actions; and c_j is the vector of controls entailing all else affecting the value generated on platform j .

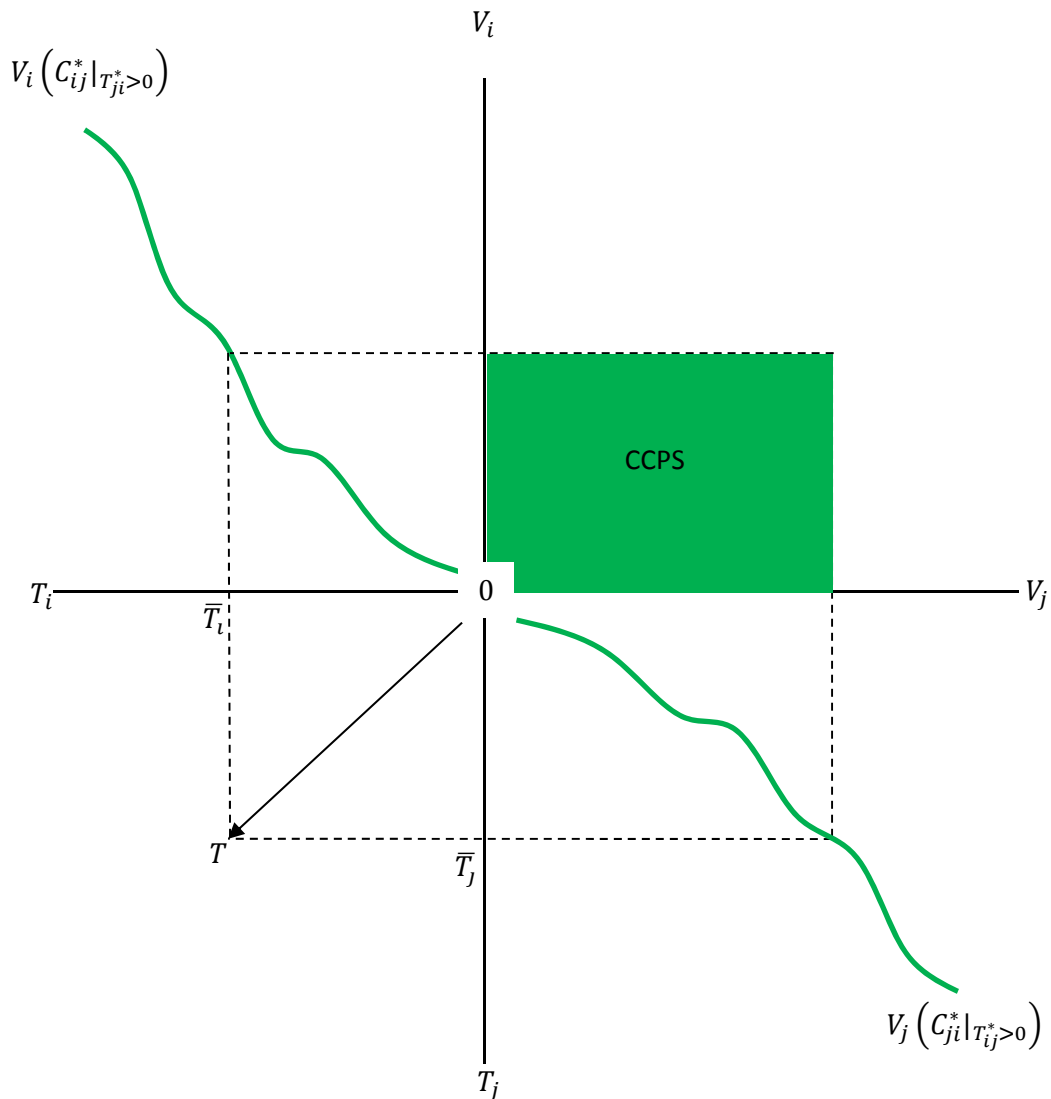
The singular binding constraint is imposed by the arrow of time $T = \{\bar{T}_i, \bar{T}_j\}$ on the optimal choice of any individual or enterprise (participant) with a finite horizon, where \bar{T}_i represents the vector time horizons of individuals and \bar{T}_j represents the vector time horizons of enterprises, within which T_{ji} represents time and R_{ji} represents resources invested, in the co-creation experiences of participating individuals i , by the enterprise(s) providing platform j ; $T_i(R_{ij})$ represents the time invested by individual in acquiring resources R_{ij} ; and $T_j(R_{ji})$ represents the time invested by the enterprise(s) providing platform j in acquiring resources R_{ji} . The solution to this optimization exercise yields a set of co-creation possibilities $C^*(T) = [C_{ij}^* \ C_{ji}^*]$.

Conventional economic thinking is restricted to the set of production possibilities as distinct from that of consumption possibilities. In contrast, the Co-Creation Possibilities Set (CCPS) stems from the locus of co-creative experiences through interactions between individuals and their platform environments, whose boundary is tied to T . A CCPS exists for each commodity in use, as well as any yet to be in use (e.g., concept cars), and can be projected on a two-dimensional graph for any pair of co-creators i and j with scalar co-creation experiences of each.

Figure 1 illustrates, for any given output vector, a CCPS on a 1x1 (one-individual-one-enterprise) engagement platform, where $V_i(C_{ij}^* | T_{ji}^* > 0)$ represents the maximum value for individual i 's co-creation experiences on engagement platform j and $V_j(C_{ji}^* | T_{ij}^* > 0)$ represents the

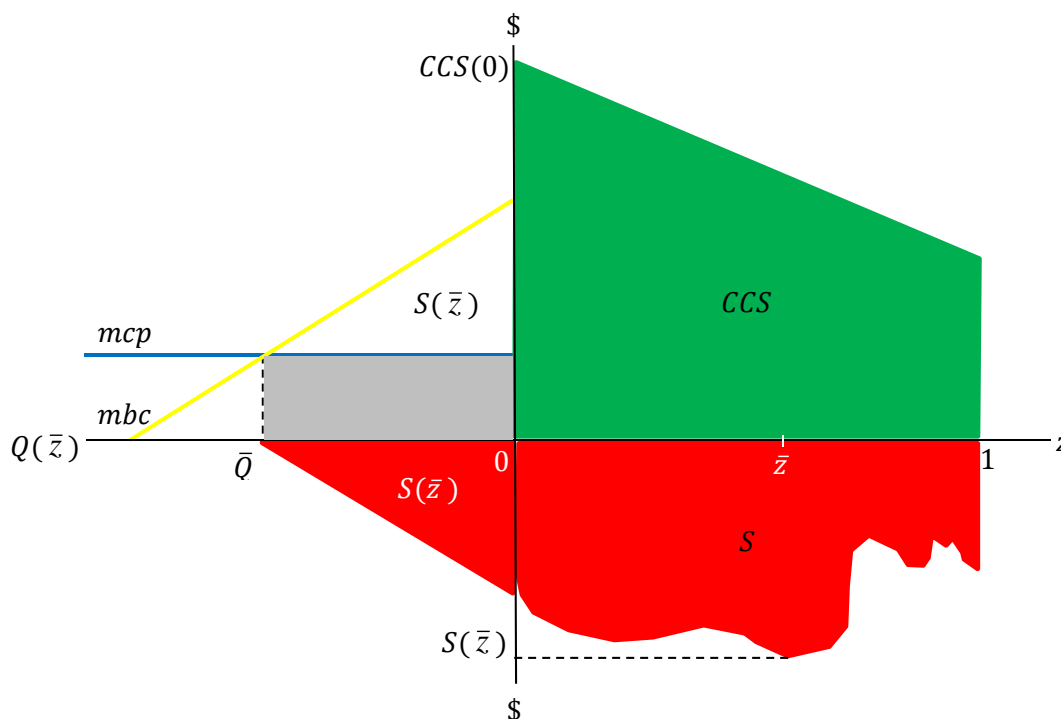
maximum value for co-creation experiences on engagement platform j . For expositional convenience, we assume that the minimum dimension of an engagement platform is 1×1 . The dimensions and volume of the CCPS would increase with a rise in the number of diverse participating co-creators who engage in co-creation as well as the number of co-created attributes (types of co-creation experiences) that enter the vector. Given any number of participating co-creators and co-created attributes, the volume of a CCPS can expand with intensifying co-creative engagements (positive co-creative externalities). When $T \rightarrow \infty$, the CCPS is unbounded.

Figure 1: Co-Creation Possibilities Set on a 1x1 Engagement Platform



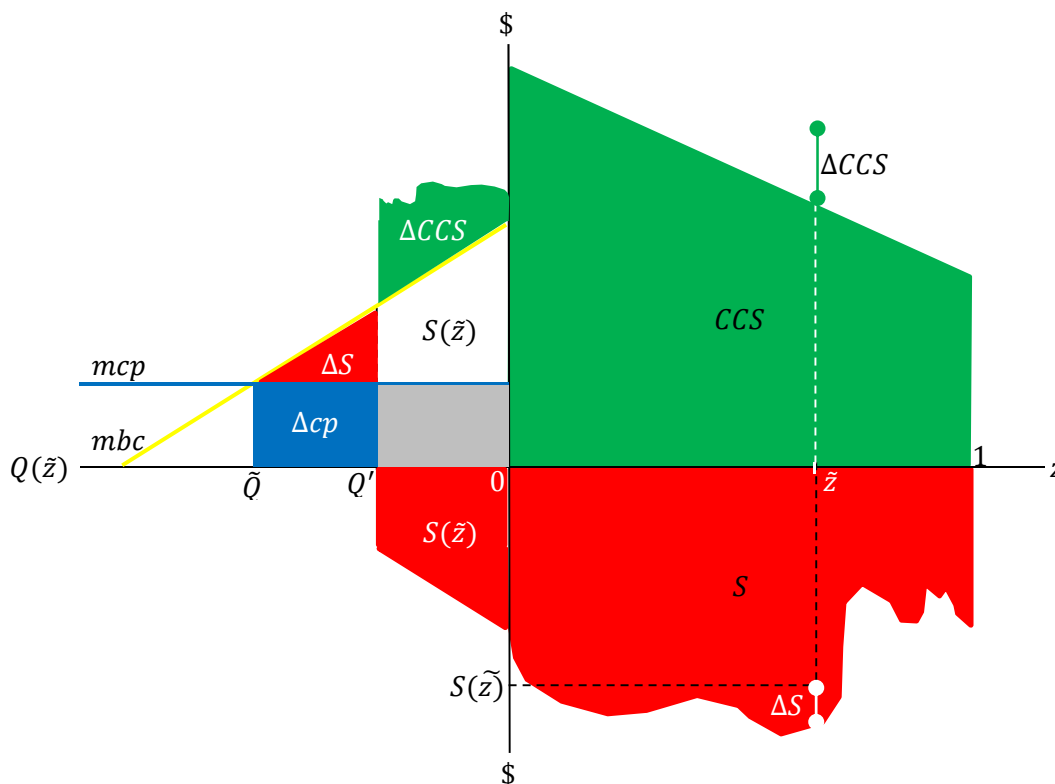
To fix our ideas, let us map our CCPS to familiar territories of conventional economic thinking on surplus. Consider a continuum of commodities, indexed by $z \in [0, 1]$ sorted in descending order of the maximum potential surplus that can be generated, given production, exclusively through co-creation experiences on a 1x1 engagement platform over a finite horizon T . The Co-Creative Surplus (CCS) can then be visualized as $\iint \left[\frac{V_i(C^*(z))}{\lambda_i} - E(i, z) \right] didz$ where λ_i is the marginal value of money and E is the expense of co-creation. In contrast, the conventional definition of surplus is limited to the extent of gains from trade: $S = \iint [mbc(q(i, z)) - mcp(q(i, z))] didz$, that can be generated exclusively through exchange between the consumer(s) and firm(s), where mbc is the marginal benefit from consumption and mcp is the marginal cost of production. For illustration, see **Figure 2**, where $S(\bar{z})$ measures the maximum surplus that the producers of commodity \bar{z} can generate by serving an “efficient” market size: $\bar{Q} = \int q(i, \bar{z}) di$ where $mbc = mcp$.

Figure 2: Surplus with and without Co-Creation



In a co-creative world, an efficient outcome is reached when total surplus $TS = [CCS + S]$ is maximized subject to T . Compare, for any commodity $\tilde{z} \in [0, 1]$, the gains from trade and co-creation, as shown in **Figure 3**. Conventional economic thinking would lead one to believe that Q' results in foregone gains from trade (ΔS) due to inefficiency since $mbc \neq mcp$ violates the normative principle of efficiency by which over-production occurs only for $Q > \tilde{Q}$. However, the saving (on account of any $Q < \tilde{Q}$) in cost of production (Δcp) can be invested in co-creation which can raise gains from co-creation by ΔCCS . As long as $\Delta CCS > \Delta S$, Q' is more efficient than \tilde{Q} .

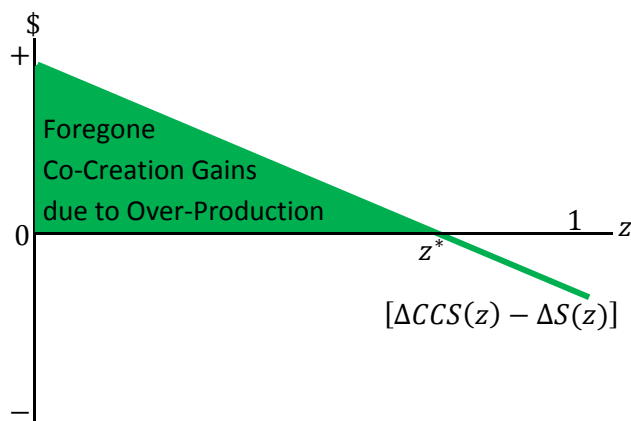
Figure 3: Trade-off between Production and Co-Creation



This immediately points to the inevitable trade-off between production and co-creation, from which emerges gains from co-creation, as distinct from, yet related to the notion of efficiency in

production. This is captured in **Figure 4**, where, after sorting z in descending order of $[\Delta CCS(z) - \Delta S(z)]$, the foregone co-creation gains ($\int_0^{z^*} [\Delta CCS(z) - \Delta S(z)] dz$) due to over-production relative to co-creation is shown, with z^* pinned down by setting $[\Delta CCS(z^*) - \Delta S(z^*)] = 0$ with the marginal value of diverting investment from production to co-creation exactly offsetting the marginal cost of diversion.

Figure 4: Gains from Co-Creation

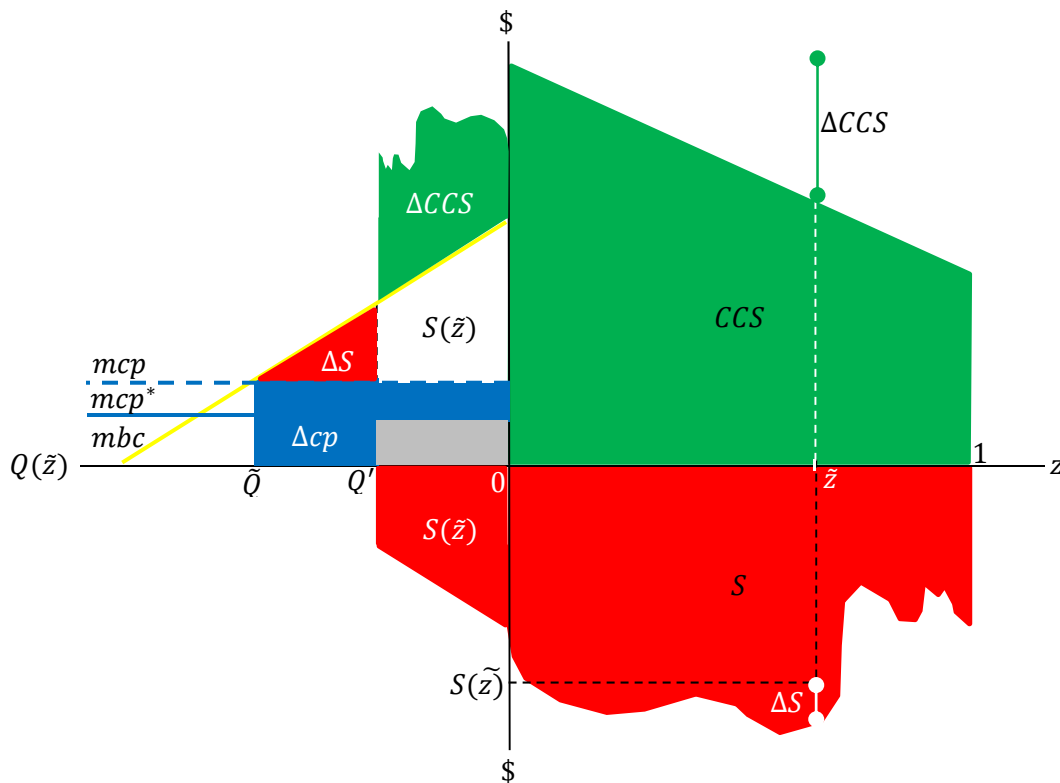


Conventional wisdom suggests that a competitive market yields the maximum surplus while the maximum extraction (of the same surplus) by a producer is possible under perfect price discrimination. In a world of co-creation, this would hold only for $z \in [z^*, 1]$. Diverting investment, $\forall z \in [0, z^*]$, from production to co-creation would enhance the total surplus available for distribution among the co-creators. Over a finite horizon T , an efficient co-creative equilibrium is reached at $[C^*(z) \ Q^*(z)]$ when $\Delta CCS(z) = \Delta S(z) \ \forall z$.

Consider next the magnification effect, on surplus, that co-creation can have through resource leverage, as shown in **Figure 5**. Here, mcp^* is the minimum mcp that can be achieved through leveraging competencies on a platform of co-creation. Co-creative gains can expand by

eliminating relatively inefficient use of resources: raising the magnitude of $\Delta cp (< 0)$ allows more resources and time to be released for raising the magnitude of $\Delta CCS > 0$ by co-creating new experiences or improving current co-creation experiences. Such co-creative gains will inevitably expand through an increase in the diversity of the pool of co-creators as well as an expansion of the T -matrix.

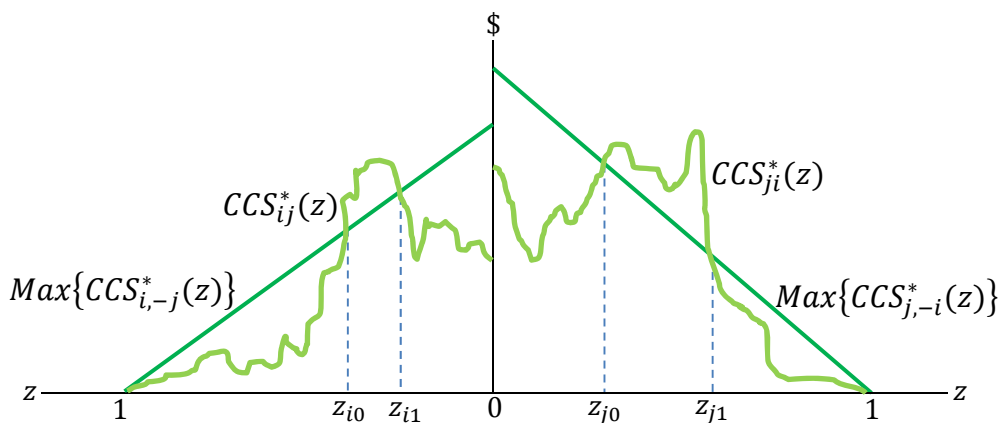
Figure 5: Gains from Co-Creation and Resource Leverage



Finally, it becomes imperative to ask: What determines efficient co-creation? Any two individuals can potentially gain from co-creation but, given the T -matrix, the boundaries of efficient co-creation can be constructed by invoking, what we identify as the Principle of Co-creative Advantage: for any given commodity, efficient co-creation must generate the maximum

surplus. This principle is illustrated in **Figure 6**, where, after sorting z in descending order of $Max\{CCS_{i,-j}^*(z)\}$ in the North-West quadrant and in descending order of $Max\{CCS_{j,-i}^*(z)\}$ in the North-East quadrant, i and j (individuals or organizations) have a co-creative advantage for the subset of commodities $z \in [z_{i0}, z_{i1}] \cap [z_{j0}, z_{j1}]$. An engagement platform that does not satisfy this principle of co-creative advantage, therefore, leaves room for gains from co-creation.

Figure 6: The Principle of Co-Creative Advantage



In sum, economic thinking remains incomplete without the cognizance of co-creation. Conventional economic thinking has left us with normative principles that are increasingly becoming obsolete, and often misleading, in the evolving economy “as is” and the way it “ought to be”. The relevance of economics, in today’s evolving economy, can be restored through co-creation thinking. By recognizing that value is generated from experiences, unique to each individual, a new foundation for economic thinking evolves rather naturally that does not need an artificial segregation of the role of the consumer from that of the firm through the process of value creation. Co-creative surplus emerges as a core concept, that economic thinking must

embrace to identify gains beyond the conventional notion of surplus, with normative rules of Co-Creation Experience Economics guided by the Principle of Co-Creative Advantage.

4. Concluding Remarks

In this paper, we have made an effort to bridge the widening gap between economic thinking and the economy as it is becoming. Through the pre-internet industrial era, value was viewed as a creation of the firm through its product and service related activities: firms created value by optimizing and managing their assets and activities and passed that value down through activity chains to recipients, be they customers, employees, or other stakeholders. The rapidly changing elements of our economy places the individual (consumer) at the center standing in sharp contrast with the firm-centric view that conventional economic theory is yet to let go. The transition from a firm-centric view to a co-creation view is not about making minor changes to conventional thinking. Conventional economic thinking focuses squarely on the exchange of products and services between the company and the consumer, placing value extraction by the firm and the consumer at the heart of the interaction. In the co-creation view, all points of interaction between the enterprise and the consumer are opportunities for co-creating personalized experiences that generate value. Co-creation of value fundamentally challenges the traditional distinction between supply and demand. When the experience, along with the value inherent in it, is co-created, the firm may still produce a physical product but the market transforms into a space of potential co-creation experiences where roles of the company and the consumer converge.

This challenges the basic tenet of traditional economic theory: that the firm and the consumers are separate, with distinct, predetermined roles, and, consequently, that supply and demand are distinct, but mirrored, processes oriented around the exchange of products and

services between firms and consumers. We have shown how economic thinking can be enriched by embedding co-creation experiences at the core. The surplus in the new co-creative economy is not restricted to the surplus that conventional economic thinking identifies with. Consequently, we showed that the normative rule of efficiency (around which much of economic analyses revolves) must be modified to capture co-creation experiences. We formalized a Principle of Co-Creative Advantage that can guide efficient co-creation. We hope that our framework of Co-Creation Experience Economics will form the foundation of co-creation thinking for a new generation of forward-looking economists with a shared vision. The timeliness of our contribution can best be projected with a quote from Ronald Coase (2012), one of the most widely cited centurion Nobel laureates, “Knowledge will come only if economics can be reoriented to study of man as he is and the economic system as it actually exists.”

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