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The Principle of Co-Creative Comparative Advantage

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The Principle of Co-Creative Comparative Advantage

The principle of comparative advantage has long been at the center stage of most models of trade. In the new evolving economy, with the conventional firm-centric view rapidly losing its relevance, the vision of this principle weakens without the lens of co-creation. We provide a framework that can align economic thinking on the principle of comparative advantage with co-creation experience embedded at the core. We show how patterns of specialization and the resultant gains from trade, within or across borders, must be affected by co-creation experiences. In particular, an individual's experience from co-creation is at the foundation of what we posit as the principle of *co-creative* comparative advantage.

"Ricardo was the greatest mind that found economics worthy of its powers." *Roy Harrod* (1951)

1. Introduction

The Principle of Comparative Advantage was the quick pick, from the most celebrated of economic theories, when Paul Samuelson was challenged to identify one law of economics that is both true and non-trivial. This widely used principle, originally proposed a couple of centuries back by David Ricardo and subsequently reformulated by neoclassical economists in ways that fit into their frame of marginal analyses, provides the basis for most established models of trade.[1] Much work on international trade continues to glorify this principle by illustrating gains from trade that are attributable to specialization along the lines of comparative advantage. A wide variety of adaptations of this principle, identifying sources of gains from trade due to asymmetries ranging from countries to firms, have gained significant mileage.[2]

However, in the new evolving economy, looking at the principle of comparative advantage through conventional lenses blurs visibility as value is increasingly being created jointly by the customer and the firm: 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.[3] This is apparent as the conventional formulation of Ricardo's principle of comparative advantage, which took a cue

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[1] See Sraffa and Dobb (1952).

[2] Ruffin (2002) offered a historical account engaging careful introspection and a logical re-examination of Ricardo's discovery of the principle of comparative advantage, as well as thought-provoking analyses of later reconstructions of the principle that have often led to "misunderstandings" stemming from "a confused tangle of claims of priority, error, incompleteness, and attribution". Neary (2007) identified patterns of specializaton and trade, in line with the Dornbusch, Fischer, Samuelson (1977) continuum of the Ricardian principle of comparative advantage, when cross-border mergers are triggered. Costinot (2009) identified, by any standard, the most unifying set of conditions sufficient for determining patterns of international specialization in a multi-factor generalization of the Ricardian principle of comparative advantage.

[3] Note that co-creation is not confined to endogenous product creation that is driven by close interaction with consumer experiences, but rather endogenous and joint human experience creation that is driven by close individual (consumer) desirable interactions. See Prahalad and Ramaswamy (2000, 2004), Ramaswamy and Gouillart (2010), Ramaswamy and Ozcan (2014) and Chakrabarti and Ramaswamy (2013).

from Adam Smith's (1776) magnum opus *Wealth of Nations* [4], hinges on an artificial assignment of distinct roles to firms and consumers with the firm creating value through production and the consumer generating demand. This "nirvana approach" portrays the market as an interface for firms and consumers to engage exclusively in exchange of commodities.[5] In sharp contrast, 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, in the new evolving economy.

Consider, for illustration, a website that allows access to tools for designing toys. This can provide a platform for individuals to generate value through the experience of designing toys. This can, also, potentially add to product variety. However, limiting attention to product variety (artifact) would overlook the essence of co-creation experiences that transcend the artifact. The designing of a toy, by an individual on a manufacturer's platform, need not necessarily lead to a new variety of a toy being manufactured. The experience of co-creating a new design still generates value. The traditional distinction between the consumer and the producer remains valid only at the point of exchange, but is of no relevance when an individual shares the same platform with another individual to co-create an experience with or without an eventual exchange of an artifact. A toy manufacturer is a producer only of the toys it produces. The customer is a consumer only of the toys it purchases. An individual, who neither manufactures a new variety of toy nor purchases it, still generates value through the experience of co-creating a design on the platform provided by a toy manufacturer. The distinction between value generated through the

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[4] Chipman's (1965) account, which attributed the first complete statement of Ricardo's principle to Mill (1844), was reflective of the sentiment contained in a historic remark by Torrens (1815): "Adam Smith is, with the single exception of Ricardo, our highest authority on economical questions."

[5] 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.

experience of co-creation and value generated through the provision of artifacts (goods and/or services) draws the boundaries of conventional business interaction.[6]

Our work stems from the conception of Co-creation Experience Economics as distinct from the conventional firm-centric view in which consumers become relevant only at the point of exchange.[7] Conventional economic thinking presumes that the market can be separated from the value creation process. In sharp contrast, 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-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. Co-creation is neither about diversification, nor is it about customization of goods and services, one-to-one marketing, or staging customer experiences around the firm's

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[6] An analogous example can be drawn from consulting arrangements between firms. This can provide a platform for individuals to generate value through the experience of designing solutions. However, limiting attention to the solution (artifact) would overlook the essence of co-creation experiences that transcend the artifact. The designing of a solution, by a consultant, need not necessarily address the problem faced by a hiring firm. The experience of co-creating a "solution" still generates value. The value generated through the co-creation experience of designing a solution (that may or may not address a problem), as distinct from the value generated through addressing (fully or partially) a problem, does not fit into existing economic frameworks. When the same consulting firm engages in co-creating solutions for multiple customer firms, it is possible that the intellectual capital (artifact) developed in the process of designing a solution for one firm can be invested (for a price, an economist would label as "return") in another firm but that artifact (intellectual capital) is distinct from the co-creation experience of individuals engaged in designing solutions. The return (price) on any investment of the intellectual capital (artifact) does not reflect the value generated through the co-creation experience of individuals engaged in designing solutions. We thank Wallace Hopp for motivating this example and his valuable comments. See Chakrabarti and Ramaswamy (2013).

[7] See Chakrabarti and Ramaswamy (2013) for the foundations of Co-creation Experience Economics.

offerings. [8] Co-creation, instead, is about joint creation and evolution of value with individual experiences through interactions.[9]

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. The timeliness of our contribution is apparent from the mounting evidence 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. [10] In what follows, we recognize the seminal contribution of Ricardo and embrace the concept of co-creation to take a small step forward that can lead to a paradigmatic leap in economic thinking on fundamental principles that govern gains from trade in today's Internetworked economy.[11]

2. Revisiting Ricardo

Ricardo's original exposition of the principle of comparative advantage was in terms of 2 countries (England and Portugal) which could make 2 goods (cloth and wine) using only 1 factor (labor) of production.[12] In this 2x2x1 world, production of each good required a fixed amount of labor per unit of output and labor could move freely between industries but not between countries. Comparative advantage would correspond to a cross-country comparison of the ratio of unit labor requirements (i.e. how many workers each country needed to make a unit of each good, as summarized in the table below).

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[8] See, for instance, Peppers and Rodgers (1993), Pine and Gilmore (1999), and Seybold (1998).
[9] See Prahalad and Ramaswamy (2004a, 2004b) and Ramaswamy (2009).
[10] See Prahalad and Ramaswamy (2000, 2002, 2003, 2004a, 2004b), Ramaswamy (2008, 2009, 2010), Ramaswamy and Gouillart (2010a, 2010b), and Ramaswamy and Ozcan (2014) for theoretical, conceptual, practical, and empirical arguments and examples in this direction.
[11] See Chakrabarti and Ramaswamy (2013).
[12] Haberler (1930) was among the first to visualize that opportunity cost, at the margin, was at the heart of the principle of comparative advantage.

	Cloth	Wine
England	100	120
Portugal	90	80

England would need 100 laborers to produce the same amount of cloth that Portugal could produce with 90 laborers, in Ricardo's world, while Portugal would need 80 laborers to produce the same amount of wine that England could produce using 120 laborers. Ricardo then demonstrated how it could be to the advantage of both nations to follow his principle of comparative advantage if each were to specialize and trade: exchanging 1 unit of cloth for 1 unit of wine, for illustration, would allow England to obtain each unit of wine with the effort of only 100 workers (instead of 120) and Portugal to obtain each unit of cloth with the effort of only 80 workers (instead of 90).

Beyond these "four magic numbers" [13], in a 2x2x1 Ricardian world, $\frac{p_g}{p_{-g}} \in \left(\frac{a_g^c}{a_{-g}^c}, \frac{a_g^{-c}}{a_{-g}^{-c}} \right)$ would yield mutual gains from trade between countries c and $-c$, through complete specialization in the production of goods g and $-g$, respectively, where a_g^c is the unit labor requirement for good g in country c and $\frac{p_g}{p_{-g}}$ is the price of good g relative to $-g$ in an Integrated World Equilibrium (IWE) which each country would face with free and frictionless trade allowing perfect mobility

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[13] See Samuelson (1972).

of goods. An IWE would yield gains from trade for country c, through complete specialization in the production of good g, since

$$p_g \left(\frac{1}{a_g^c} \right) \left(\frac{1}{p_{-g}} \right) > \frac{1}{a_{-g}^c}$$

which compares the quantity of the other good $(-g)$ country c can purchase from the proceeds of what it can produce of good g using one unit of labor, with what it can produce of good $-g$ using the same unit of labor. Analogously, the same IWE would yield gains from trade for c's trading partner $(-c)$, through complete specialization in the production of good $-g$, since

$$p_{-g} \left(\frac{1}{a_{-g}^{-c}} \right) \left(\frac{1}{p_g} \right) > \frac{1}{a_g^{-c}}$$

This laid the foundation for mutual benefits from specialization along the lines of comparative advantage that conventional economic thinking claims as inevitable in Ricardo's world of trade as he is construed to have envisaged an increase in the "amount and variety of the objects on which revenue may be expended."

3. The Principle of Co-Creative Comparative Advantage

Let us now pause to think: Would David Ricardo have formulated the principle of comparative advantage any differently in the new evolving economy? It is important to clarify at the outset that, in posing this question, we are not challenging the view that trade can lead to mutually beneficial gains. Instead, we are questioning the relevance of keeping the principle of comparative advantage tied to an obsolete theory of value, restricted to the relational property of goods and services, the deficiencies of which are becoming increasingly apparent in the context

of the real experiences of the new evolving economy.[14] The conspicuous neglect of the mounting evidence on the power of co-creation, in unlocking novel ways to generate value as consumers and the enterprise engage through purposeful interactions, inevitably attracts more skepticism about the relevance of the principle of comparative advantage than it deserves.

Consider the element of value as generated from co-creation experiences resulting from individual interactions through engagement platforms, in the principle of comparative advantage. Suppose V_i is the value 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:

$$V_i = V_i(C_{ij}, A_i, A_{-i}, c_i).$$

The arguments of $V_i(.)$ 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.[15] 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.

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[14] See Chakrabarti and Ramaswamy (2013).

[15] 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, relatively recent applications can be found in Becker and Murphy's (2009) insightful analysis of the role of social interactions in enriching the domain of inquiry of economists as well as the way economists conceptualize individual decision making.

Conventional economic thinking would introspect that a typical individual i chooses 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 visualize the vast potential of co-creative surplus[16] that conventional economic thinking leaves out by simply ignoring the fact that an enterprise can and does, even more so in the modern Internetworked 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

$$\text{Maximize:} \quad V_j = V_j\big(C_{ji}, C_{-ji}, A_j, A_{-j}, c_j\big)$$
$$\{R_{ji}, T_{ji}, a_j\}$$
$$\text{subject to} \quad \overline{T_j} = \sum_i T_{ji} + T_j(R_{ji})$$

while each individual's objective is to

$$\text{Maximize:} \quad V_i = V_i\big(C_{ij}, C_{-ij}, A_i, A_{-i}, c_i\big)$$
$$\{R_{ij}, T_{ij}, a_i\}$$
$$\text{subject to} \quad \overline{T_\iota} = \sum_j T_{ij} + T_i(R_{ij})$$

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 $T = \{\overline{T_\iota}, \overline{T_j}\}$ on the optimal choice of any individual or enterprise (participant) with a finite horizon, where $\overline{T_\iota}$

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[16] See Chakrabarti and Ramaswamy (2013).

represents the vector time horizons of individuals and $\overline{T}_j$ 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}. This optimization exercise yields a set of co-creation possibilities $C^g(T) = \begin{bmatrix} C_{ij}^g & C_{ji}^g \end{bmatrix}$, $\forall g$. It follows, for any individual i located in country c, $\frac{p_g}{p_{-g}} \in \left(\frac{a_g^c}{a_{-g}^c}, \frac{a_g^{-c}}{a_{-g}^{-c}} \right)$ would not suffice for gains from specialization in the production of g unless

$$V_i \left(p_g \left(\frac{1}{a_g^c} \right) \left(\frac{1}{p_{-g}} \right) \right) > V_i \left(\frac{1}{a_{-g}^c}, C_{ij}^{-g} \right)$$

Analogously, for any individual $-i$ located in country $-c$, $\frac{p_g}{p_{-g}} \in \left(\frac{a_g^c}{a_{-g}^c}, \frac{a_g^{-c}}{a_{-g}^{-c}} \right)$ would not suffice for gains from specialization in the production of $-g$ unless

$$V_{-i} \left(p_{-g} \left(\frac{1}{a_{-g}^{-c}} \right) \left(\frac{1}{p_g} \right) \right) > V_{-i} \left(\frac{1}{a_g^{-c}}, C_{-ij}^g \right)$$

This yields our Principle of Co-Creative Comparative Advantage: an IWE would support mutual gains from trade for countries c and $-c$, irrespective of the location of the engagement platform j, through complete specialization in the production of goods g and $-g$, respectively, *iff*

$$\sum_{i \subset c} V_i \left(p_g \left(\frac{1}{a_g^c} \right) \left(\frac{1}{p_{-g}} \right) \right) > \sum_{i \subset c} V_i \left(\frac{1}{a_{-g}^c}, C_{ij}^{-g} \right)$$

$$\sum_{-i \subset -c} V_{-i} \left(p_{-g} \left(\frac{1}{a_{-g}^{-c}} \right) \left(\frac{1}{p_g} \right) \right) > \sum_{-i \subset -c} V_{-i} \left(\frac{1}{a_g^{-c}}, C_{-ij}^g \right)$$

This Principle of Co-Creative Comparative Advantage not only embeds co-creation in Ricardo's vision of a rise in "the sum of enjoyments" through an increase in the "amount and variety of the objects on which revenue may be expended", but also identifies distinct possibilities where mutual benefits from specialization in the production of goods g and $-g$ (in line with the conventional concept of comparative advantage) will not be ensured by $\frac{p_g}{p_{-g}} \in \left(\frac{a_g^c}{a_{-g}^c}, \frac{a_g^{-c}}{a_{-g}^{-c}} \right).$

No less critical, for a complete understanding of this Principle of Co-Creative Comparative Advantage, is the observation that deviations from conventional lines of specialization leave sufficient room for gains from co-creative trade. An individual i located in country c gains, irrespective of the location of the engagement platform j, from co-creation of $-g$ as long as

$$V_i \left(\frac{1}{a_{-g}^c}, C_{ij}^{-g} \right) > V_i \left(p_g \left(\frac{1}{a_g^c} \right) \left(\frac{1}{p_{-g}} \right) \right)$$

and
$$V_i \left(p_{-g} \left(\frac{1}{a_{-g}^c} \right) \left(\frac{1}{p_g} \right) \right) > V_i \left(\frac{1}{a_g^c}, C_{ij}^g \right)$$

An individual $-i$ located in country $-c$ gains, irrespective of the location of the engagement platform j, from co-creation of g as long as

$$V_{-i} \left(\frac{1}{a_g^{-c}}, C_{-ij}^g \right) > V_{-i} \left(p_{-g} \left(\frac{1}{a_{-g}^{-c}} \right) \left(\frac{1}{p_g} \right) \right)$$

and
$$V_{-i} \left(p_g \left(\frac{1}{a_g^{-c}} \right) \left(\frac{1}{p_{-g}} \right) \right) > V_{-i} \left(\frac{1}{a_{-g}^{-c}}, C_{ij}^{-g} \right)$$

Consequently, contrary to a conventional interpretation of the principle of comparative advantage, an IWE relative price $\frac{p_g}{p_{-g}} \in \left(\frac{a_g^c}{a_{-g}^c}, \frac{a_g^{-c}}{a_{-g}^{-c}} \right)$ would support mutual co-creative gains from trade, irrespective of the location of the engagement platform j, through complete co-creative specialization of country c in good $-g$ and country $-c$ in good g, as long as

$$\sum_{i \subset c} V_i \left(\frac{1}{a_{-g}^c}, C_{ij}^{-g} \right) > \sum_{i \subset c} V_i \left(p_g \left(\frac{1}{a_g^c} \right) \left(\frac{1}{p_{-g}} \right) \right)$$

$$\sum_{i \subset c} V_i \left(p_{-g} \left(\frac{1}{a_{-g}^c} \right) \left(\frac{1}{p_g} \right) \right) > \sum_{i \subset c} V_i \left(\frac{1}{a_g^c}, C_{ij}^g \right)$$

$$\sum_{-i \subset -c} V_{-i} \left(\frac{1}{a_g^{-c}}, C_{-ij}^g \right) > \sum_{-i \subset -c} V_{-i} \left(p_{-g} \left(\frac{1}{a_{-g}^{-c}} \right) \left(\frac{1}{p_g} \right) \right)$$

and $$\sum_{-i \subset -c} V_{-i} \left(p_g \left(\frac{1}{a_g^{-c}} \right) \left(\frac{1}{p_{-g}} \right) \right) > \sum_{-i \subset -c} V_{-i} \left(\frac{1}{a_{-g}^{-c}}, C_{ij}^{-g} \right)$$

Country c gains from specializing in good $-g$ while the other country stands to gain from diversification (i.e. produces both goods) *iff*

$$\sum_{i \subset c} V_i \left(\frac{1}{a_{-g}^c}, C_{ij}^{-g} \right) > \sum_{i \subset c} V_i \left(p_g \left(\frac{1}{a_g^c} \right) \left(\frac{1}{p_{-g}} \right) \right)$$

$$\sum_{i \subset c} V_i \left(p_{-g} \left(\frac{1}{a_{-g}^c} \right) \left(\frac{1}{p_g} \right) \right) > \sum_{i \subset c} V_i \left(\frac{1}{a_g^c}, C_{ij}^g \right)$$

$$\sum_{-i \subset -c} V_{-i} \left(\frac{1}{a_g^{-c}}, C_{-ij}^g \right) > \sum_{-i \subset -c} V_{-i} \left(p_{-g} \left(\frac{1}{a_{-g}^{-c}} \right) \left(\frac{1}{p_g} \right) \right)$$

and $$\sum_{-i \subset -c} V_{-i} \left(\frac{1}{a_{-g}^{-c}}, C_{ij}^{-g} \right) > \sum_{-i \subset -c} V_{-i} \left(p_g \left(\frac{1}{a_g^{-c}} \right) \left(\frac{1}{p_{-g}} \right) \right)$$

Analogously, country c stands to gain from diversification while the other country gains from specializing in good g *iff*

$$\sum_{i \subset c} V_i \left(\frac{1}{a^c_{-g}}, C^{-g}_{ij} \right) > \sum_{i \subset c} V_i \left(p_g \left(\frac{1}{a^c_g} \right) \left(\frac{1}{p_{-g}} \right) \right)$$

$$\sum_{i \subset c} V_i \left(\frac{1}{a^c_g}, C^g_{ij} \right) > \sum_{i \subset c} V_i \left(p_{-g} \left(\frac{1}{a^c_{-g}} \right) \left(\frac{1}{p_g} \right) \right)$$

$$\sum_{-i \subset -c} V_{-i} \left(\frac{1}{a^{-c}_g}, C^g_{-ij} \right) > \sum_{-i \subset -c} V_{-i} \left(p_{-g} \left(\frac{1}{a^{-c}_{-g}} \right) \left(\frac{1}{p_g} \right) \right)$$

and $$\sum_{-i \subset -c} V_{-i} \left(p_g \left(\frac{1}{a^{-c}_g} \right) \left(\frac{1}{p_{-g}} \right) \right) > \sum_{-i \subset -c} V_{-i} \left(\frac{1}{a^{-c}_{-g}}, C^{-g}_{ij} \right)$$

Finally, both countries gain from co-creative diversification *iff*

$$\sum_{i \subset c} V_i \left(\frac{1}{a^c_{-g}}, C^{-g}_{ij} \right) > \sum_{i \subset c} V_i \left(p_g \left(\frac{1}{a^c_g} \right) \left(\frac{1}{p_{-g}} \right) \right)$$

$$\sum_{i \subset c} V_i \left(\frac{1}{a^c_g}, C^g_{ij} \right) > \sum_{i \subset c} V_i \left(p_{-g} \left(\frac{1}{a^c_{-g}} \right) \left(\frac{1}{p_g} \right) \right)$$

$$\sum_{-i \subset -c} V_{-i} \left(\frac{1}{a^{-c}_g}, C^g_{-ij} \right) > \sum_{-i \subset -c} V_{-i} \left(p_{-g} \left(\frac{1}{a^{-c}_{-g}} \right) \left(\frac{1}{p_g} \right) \right)$$

and $$\sum_{-i \subset -c} V_{-i} \left(\frac{1}{a^{-c}_{-g}}, C^{-g}_{ij} \right) > \sum_{-i \subset -c} V_{-i} \left(p_g \left(\frac{1}{a^{-c}_g} \right) \left(\frac{1}{p_{-g}} \right) \right)$$

In sum, an understanding of the principle of comparative advantage remains incomplete without the cognizance of co-creation. Conventional adaptations of this principle has left us with normative rules that are increasingly becoming obsolete, and often misleading, in the evolving economy "as is" and the way it "ought to be". The relevance of Ricardo's vision, in today's evolving economy, can be restored through co-creation thinking. By recognizing that value is

generated from experiences, unique to each individual, our Principle of Co-creative Comparative Advantage provides a foundation for identifying gains from trade *beyond the conventional segregation of the role of the consumer* from that of the firm through the process of value creation.

4. Concluding Remarks

In this paper, we have made an effort to bridge the widening gap between economic thinking on the principle of comparative advantage and the trading economy as it is evolving. Unlike the pre-internet industrial era, value is no longer viewed as a creation of the firm through its product and service related activities. Instead, the rapidly changing elements of our economy place the individual (consumer) at the center in sharp contrast with the firm-centric view that conventional economic theory is hesitant to let go. We have shown that the transition from a firm-centric view to a co-creation view has non-trivial implications for the principle of comparative advantage. We provide a framework that can align economic thinking on the principle of comparative advantage with complete cognizance of co-creation experience. We show how patterns of specialization and the resultant gains from trade, within or across borders, must be affected by co-creation experiences. A natural outcome of our analysis is the Principle of Co-Creative Comparative Advantage that can guide efficient trade with co-creation at the core. We hope our contribution will form the foundation for a new generation of forward-looking economists with a shared vision of the increasingly Internetworked world of trade.

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