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Is there a co-operative advantage? Experimental evidence on the economic and non-economic determinants of demand

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ABSTRACT

Focusing on consumer co-operatives, I test the conventional economic worldview that relative price is a main determinants of consumer behaviour using survey instruments in a classroom setting. I examine the role which non-economic variables such as 'warm glow' might play in determining demand. My findings challenge the narrow economic worldview that only economic variables count; but support a core assumption that economic variables are of fundamental importance to individual's choice decisions. Significantly, individuals are willing to pay higher prices for co-operative products even if they are not co-op members. However, as the price of co-operative products increases relative to the products of non-co-operatives, demand falls amongst both non-members and members of co-operatives. But demand is more inelastic for co-op members. When price is the same for co-ops and non-co-op, even non-co-ops members prefer to purchase products sold by co-operatives. The co-operative advantage provides co-ops with a protective belt against competition from non-cooperatives. This also speaks to the potential strength of consumer co-ops in competitive markets. Firms that invest in both economic and non-economic determinants of consumer demand, should be characterized by a significant competitive advantage.

1. Introduction

In a very broad sense, using data derived from a classroom experiment, I test the hypothesis that a consumer co-operative holds a competitive advantage on the market over investor owned firms by virtue of it being a co-operative. A consumer co-operative is a member-owned (in this case, consumer-owned) and democratically run business oriented towards the mutual benefit of its members (Altman, 2009; Birchall & Ketilson, 2009; Birchall, 2003; International Cooperative Association, 2016; Novkovic, 2006).

I ask if consumers are willing to pay something extra, if necessary, when the preferred commodity is sold by a consumer co-operative. Moreover, I ask if the consumer is willing to purchase a product supplied by a co-operative (or a co-operative product) over the same-priced product sold by a non-co-operative or investor-owned firm. If this is the case, the co-operative provides its products with an additional characteristic desired by the consumer that improves her or his utility or wellbeing.[1] This additional and positive characteristic is a function of the product being sold by consumer co-operative—this member-owned and democratically operated business. More specifically, I present results from a survey-based classroom (lab) experiment that interrogates the conventional economic hypothesis that consumer choice is largely a function of relative prices, given income, as opposed to other non-economic factors. This is the first survey experiment on co-operatives of this type. There are no systematic scientific published studies that attempt to determine the extent to which pro-co-operative preferences exist. Hence, a significant gap in the literature and related understandings of what drives the demand for the output produced by co-operatives from co-operatives members and from individuals who are not members of co-operative. We do, however, have some evidence that consumers have a liking for such output and might pay somewhat more for co-operative output.[2]

My findings challenge the narrow economic worldview that economic variables alone count; but support a core economic assumption that economic variables are of fundamental impor-

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[1] On modeling the demand for a commodity in terms of the various characteristics it embodies, see Lancaster (1966).

[2] The Co-op Group (2004), of the United Kingdom, produced a very general survey where most respondents indicate that they would pay "a little more" for ethical products. See also footnote 3.

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tance to individuals' choice decisions (Altman, 2005a, 2005b, 2006). I find that individuals are willing to make material sacrifices to reward organizations that have certain preferred or desired characteristics. In this experiment, the desired characteristic of a product is a function of it being sold by a consumer co-operative. This preferred characteristic provides co-operatives with a co-operative advantage on the market. In my experiment, even individuals who hypothesize themselves not to be members of a co-operative are willing to forfeit some income to purchase a product sold by a consumer co-operative. However, both hypothesized members and non-members of co-operatives exhibit negative elasticities of demand with respect to relative price increases in co-operatives. Demand is negatively affected by price increases. Price matters, but not as much as is hypothesized in the conventional economics worldview.

For the purpose of the experiment, it is assumed that consumer co-operatives do not derive an advantage in terms of superior productivity or in terms of the quality or uniqueness of the good or service supplied. This is made explicit in the questions asked to subjects in the experiment. The co-operative advantage, where one exists, is situated in buyers deriving a non-material benefit by purchasing from a consumer co-operative. This, in turn, increases the consumer's level of wellbeing or utility from what it might otherwise have been. This non-material benefit can take on many forms, such as sympathy and empathy or support for a particular organizational form like a co-operative. But this article does not address the issue of what exact non-material considerations best explain the co-operative advantage. Following Andreoni (1989, 1990) some economists would dub this non-material benefit as a warm glow effect. So, for example, for pro-co-operative individuals, an action favoring co-operatives, such as purchasing products from consumer co-operatives, enhances their level of wellbeing. It makes them feel better. The specifics of this, warrants further study.[3]

In the experiment, it is recognized that members of consumer co-operatives receive a year-end bonus, based on the economic performance of the consumer co-operative. This is a traditional characteristic of consumer co-operatives. But such bonuses tend to be relatively small and the size is subject to volatility. No such material benefit exists for non-members. But such bonuses are not very different from what is offered by many non-co-operative retailers and wholesalers that take the form of member discounts or year-end bonuses based on the value of purchases. Therefore, it is possible that co-operative members have some material interest in purchasing from their co-operative, although bonuses are not a function of own-purchases. Non-members of a co-operative have no such incentives.

2. What is a consumer co-operative?

Consumer co-operatives are owned by members, which can include employees. The co-operative is owned and operated in terms of one-person one-vote or one member one vote. This would be opposed to the investor-owned firm where voting depends on the extent of ones investment in the firm. The consumer co-operative builds, at least in theory, upon member-consumers having an active say on how the co-operative functions in terms of what it sells, how it sells, how it relates to its community, and how profits or surpluses are disbursed. For example, surpluses can be used to re-invest in the co-operative, build-up capital reserves, disperse to members as bonuses, invest in the community, or some combination of the above (Altman, 2009; International Cooperative Association, 2016).

A key distinguishing feature of consumer co-operatives is that they should be configured to best meet the preferences of their member-owners in terms of product type, quality, and price. Moreover, the objective of the co-operative is not to maximize the difference between unit cost and price, but rather to charge the lowest price possible, given quality and the investment requirements of the co-operative. But consumer co-operatives typically charge the market price for their product. However, any surplus accrued is supposed to be directed toward investment purposes, disbursed amongst members, or invested in socially beneficial projects as decided upon by members. It is important to reiterate that a key difference between a traditional retailer and the consumer co-operative is the overriding importance in the co-operative of the member-owner. No one member can have a greater ownership or membership share than another (Altman, 2009; International Cooperative Association, 2016).

A labor or worker owned consumer co-operative is a type of multi-stakeholder co-operative, where the co-operative is owned and governed by both workers and consumer stakeholders in the co-operative (Girard & Langlois, 2009; Lund, 2015). A subsidiary hypothesis tested in this paper is whether hypothetical non-members and members of a multi-stakeholder co-operative would be more likely to purchase from the co-operative. Here there might be more of a member incentive to purchase from the co-operative, since the employment of worker members can be positively affected.

3. Theoretical context

It is important to place this co-operative experiment in the context of economic theory. In terms of conventional price theory, if the consumer co-operative provides no advantage in terms of price or quality over the non-co-operative, the co-operative holds no material advantage over the non-co-op or traditional investor-owned firm. And, if the consumer is a simple wealth maximizer, any increase in the price of products supplied by the consumer co-operative relative to products supplied by non-co-operatives, holding quality constant, should result in the collapse of the co-operative's market share. When co-operative prices are equivalent to non-co-operative prices, co-operative members should be expected to purchase from the co-operatives if the co-operatives sell products more closely aligned to the preferences of co-operative members as compared to what's offered in the investor-owned firms and if a year-end bonus is expected. However, non-co-operatives members should be indifferent between purchasing from a co-operative as opposed to a non-co-op or an investor owned firm. Therefore, for any such group of consumers, on average, 50% should make their purchases from co-operatives all other things being the same (a 'random' disitribution).

However, if a warm glow is derived from purchasing products sold by co-operatives there would be a co-operative advantage for clear non-material considerations. In this case, one could predict that, ceteris paribus, individuals with such pro-co-operative preferences would purchase from a co-operative, even if they were not co-op members, if there is no difference between the co-

[3] Related to the warm glow effect is the notion of psychological ownership wherein individuals feel an affinity towards a product or the origins of a product (Jussila et al., 2015). This can arguably have a positive effect on the purchaser's level of wellbeing yielding, one might argue, a utility enhancing warm glow to the purchaser. One might also refer to identity economics, as articulated by Akerlof and Kranton (2010), where an individual's utility or wellbeing is increased if he or she is able engage in behaviour that results in the individual being better able to connect with or be part of what he or she identifies with. This could be, for example, another individual, group, or organization, such as a co-operative. This also relates to social cohesion and identity-enhancing social capital (Christoforou 2013), where the latter two variables contribute to enhancing an individual's utility or wellbeing. There is also a literature making reference to the positive non-material benefits of being associated with a co-operative (Brown, 2006; Fairbairn, 2004, 2005; Johnson, 2015; see also Uslaner, 2005).

operative and non-co-operative price, controlled for quality. Here, the individuals' utility or wellbeing would be greater if co-operative products were purchased. In the case, the consumer co-operative would have a profound advantage over investor-owned firms.[4]

To the extent that individuals derive utility from purchasing from a co-operative, they might be willing to pay a higher price for co-operative products (or purchase products of a lower quality). In this case, consumers of products sold by co-operative must be maximizing their 'utility' or level of wellbeing whilst sustaining a reduction in their level of material wellbeing. Consumers with pro-co-operative preferences would be willing to trade-off (make a material sacrifice) paying more for a co-operative product for the gain in warm glow from so doing. Net wellbeing or utility increases when consumers with pro-co-operative preferences purchase the relatively more expensive co-operative products. The higher price that is paid, this willingness-to-pay, represents the overall value per unit that the individual attaches to purchasing a particular product from a co-operative.

A broader preference or utility function can be specified as follows:

$$U = f(M[Y, W], NM[WG]). \quad (1)$$

M refers to material considerations such as income (Y) and wealth (W). NM refers to non-material considerations, represented by warm glow (WG), where the latter can incorporate psychological ownership, identity, and a sense of community such as solidarity and social cohesion. In the conventional utility function, utility is a function of M. This is given by:

$$U = f(M[Y, W]). \quad (2)$$

Only consumers with preferences incorporating non-material considerations that include pro-co-operative preferences would be willing to trade-off income or wealth to purchase higher priced products sold by co-operatives. And only such consumers will unequivocally choose to purchase products sold by co-operatives over products sold by non-co-operative when they are sold for the same price and are of the same quality.

This narrative is illustrated in Fig. 1. At C, the ratio of the co-operative to the non-co-operative price is one; both types of firms are charging the same for the same product. The conventional wealth or income maximizing utility function yields the demand curve ABCD. When the co-operative price is less than the non-co-operative price, the wealth-maximizing consumer purchases from the co-operative, yielding demand curve segment AB. When the co-operative price is above the non-co-operative price, the wealth-maximizing consumer only purchases from the non-co-operative, yielding demand curve segment CD. When the price is the same for the product sold by the co-operative and non-co-operative, ceteris paribus, the wealth maximizing consumer could be modeled as being indifferent between whose product should be purchased, yielding demand curve segment BC. In this case, the consumer's demand could fall randomly along BC, all other things remaining the same.

As long as there are individuals who gain utility from purchasing products sold by co-operatives and are willing to sacrifice income to do so, co-operatives are afforded some protection form 'market forces'—they can charge relatively higher prices given that some individuals have 'warm glow'-related pro-co-operative preferences. It is possible that even a wealth maximizer, will choose to purchase more or less from a co-operative, based on the extent of pro-co-operative preferences, especially when price and quality are the same for the products sold by the co-operative and non-co-operative. In this case, wealth-maximizing individuals with pro-co-operative preferences would purchase at B, along demand curve segment CB. In terms of an aggregate demand curve, the more individuals who are wealth-maximizers with pro-co-operative preferences, the closer will aggregate demand be to point B. In this case, where co-operative and non-co-operative prices are the same, co-operatives should dominate the market.

Two possible demand curves for individuals with pro-co-operative preferences are given by the broader utility function 1 (Eq. (1), above), where an individual's wellbeing is affected by both material and non-material considerations. In one case, the demand for products sold by the co-operative would be at 100% (zero demand for comparable non-co-operative output) when the price is either less than or equal to what's supplied by the non-co-operative. Once the co-operative price rises above the non-co-operative price, the demand curve is affected by whether and the extent to which an individual's wellbeing is affected by non-material considerations. If the individual's preference function is simply based on the utility gained from non-material factors, then the demand curve would perfectly inelastic with respect to the co-operative price increasing relatively to the non-co-operative price. In effect, there is no substitute for the co-operative product (even when an identical non-co-operative one is available) as the co-operative price increases. The substitution effect here is zero. Nor is there any income effect. The increase in price, which reduces the consumer's real income, has no impact on demand. This extreme pro-co-operative demand curve is illustrated by line segment ABG in Fig. 1.

A less extreme individual, in terms of co-operative preferences, wellbeing is affected by both material and non-material factors. In this case, one would expect that eventually, as the co-operative keeps increasing its price above the non-co-operative price, this individual will reduce her purchases of the increasingly higher-priced co-operative product. This would be the case for both members and non-members of the co-operative. And, this would be the product of some combination of the substitution and income effect. Such individuals receive a warm glow from purchasing products from co-operatives, but they are willing to make only so much of a sacrifice to purchase relatively and increasingly expensive products sold by the co-operative. One example of such a mixed preference demand curve is illustrated by ABFD in Fig. 1. Basically, such a demand curve is price sensitive even for individuals who are empathetic with co-operative organizations, but is less elastic than it might otherwise have been. One might expect that non-co-operative members might be less pro-co-operative in preferences than co-op members, yielding a demand curve such as BE.

In a world where most consumers are price sensitive, but look favorably upon co-operatives, co-operatives would have a co-operative advantage over non-co-operatives when price, controlling for quality, is less or equal to what's on offer by non-co-operatives. But when co-operative products are more expensive than comparable products sold by non-co-operatives and even when consumer preferences are mixed (preferences contain both material and non-material considerations), firm sustainability and even survival is contingent on the extent to which co-operatives can supply their output of a given quality at a competitive price. In this instance, one would expect that firm survival would be somewhat price sensitive and would critically depend on the extent to which individual preferences are determined by non-material considerations (Altman, 2005a, 2006; Jussila, Tarkiainen, Sarstedt, & Hair, 2015). Increasing the warm glow component of the preference function makes the demand for co-operative products more price inelastic; less sensitive to changes in price.

[4] We are assuming that we are controlling for convenience, that the co-operative and the investor owned firm are located in a similar equally convenient location (see for example, Jackson et al., 2006). But with a warm glow effect present, one would expect that individuals with pro-co-operative preferences could purchase from a co-operative even if it located more inconveniently than an investor owned firm.

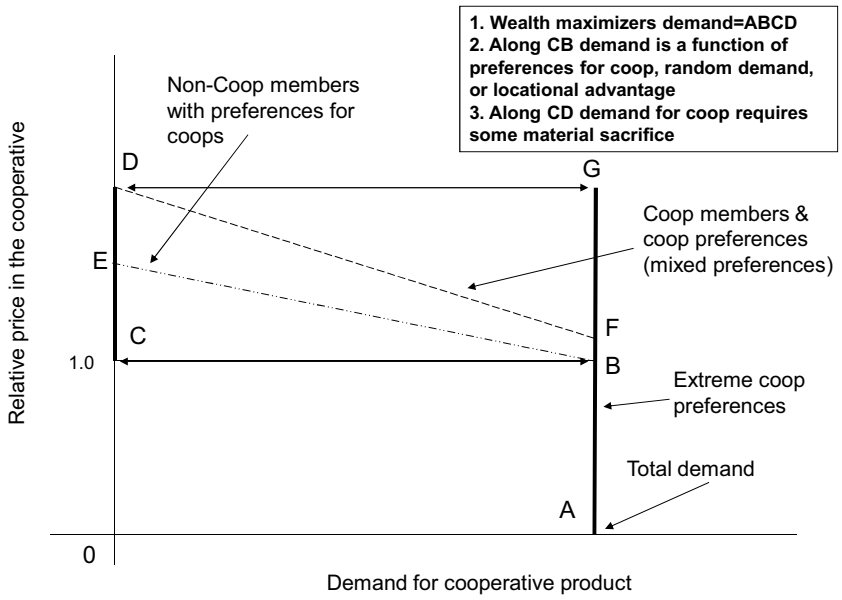

Fig. 1. Demand for Co-operative Products.

Consumer co-operatives that dominate the market can be expected to be price and quality competitive. Their competitiveness is enhanced when consumers experience a warm glow from the purchase of products sold by co-operatives. Consumer co-operatives whose price simply matches that of traditional firms have an advantage over the latter when there exists a degree of pro-co-operative sentiments amongst consumers. Such co-operatives yield at least the same level of material welfare generated by non-co-operative firms (price and quality are the same), whilst also matching the preferences of consumers thereby enhancing their utility.

Consumer co-operatives that survive simply on the basis of pro-co-operative preferences (they charge relatively higher prices than investor owned firms) are socially costly in terms of material welfare and survive entirely on the basis of consumer preferences for co-operative products irrespective of price or quality. Such higher cost co-operatives reduce society's overall level of material wellbeing, albeit they can be consistent with the preferences of consumers. To the extent that individuals tend to be at least somewhat price and quality sensitive, such co-operatives' survival can be predicted to be tentative at best (Fairbairn, 2004; Fulton & Giannakas, 2007). They require a large enough base of consumers with pro-co-operative preferences to be sustainable over time.

4. The experiment: methodology

The key objective of this experiment is to test the proposition (based on conventional or traditional economics) that demand is largely a function of relative prices. If the results do not conform with this hypothesis then we have evidence for the significance of non-economic variables in the determination of demand. We would also have evidence for a co-operative advantage in the domain of demand.

I survey 285 students from the University of Saskatchewan and the University of Regina, located in the cities of Saskatoon and Regina, respectively, in the Province of Saskatchewan, Canada.[5] In this province co-operatives, especially consumer co-operatives and credit unions, are pervasive and well-known (Fairbairn, 2005; Saskatchewan Cooperative Association, 2013a, 2013b, 2013c). Of Saskatchewan's 1.1 million people, 56% are members of a co-operative. In Canada as whole 51% of the population is a member of a co-operative. These estimates aren't controlled for age. So, if one excludes the under 15 years of age population (about 20%), 80% of the 15 years of age and above population are members of a co-operative. Around 350,000 are members of at least one retail co-operative (consumer co-operative). About 40% of co-op members are with retail co-operatives. In a telephone survey in Saskatchewan, about 90% of the respondents conclude that co-operatives are important to the Saskatchewan economy (Saskatchewan Cooperative Association, 2013a, 2013b, 2013c).

Economic experiments usually have a sample size that is no more than 100 and typically much less and they more narrowly focused in terms of the location of the population. My results, based on a much larger sample size, spread across two universities and two different cities are, therefore, much more statistically rigorous than the results from typical classroom experiments. However, like all such experiments, my results only represent a case study most pertinent to its location and context (Altman, 2004; Fowler, 2009; Kagel & Roth, 1997; List, 2011; List, Sadoff, & Wagner, 2010a; List, Sadoff, & Wagner, 2010b; McCloskey & Ziliak, 1996).

No real money is used in this experiment. No material incentives are built into the experimental framework. However, this framework is not unlike what one finds in contingent valuation studies where individuals stipulate (imagine) how much they would be willing to pay for a particular product at a given point in time; contingent valuation analyses. Also, this is similar to many experiments in economic psychology and behavioral economics. Therefore, my results rely upon participants imagining how they would behave under particular incentive environments.[6]

Subjects of this experiment were informed about the basics of co-operatives (membership owned and controlled firms) plus some details on the survey questionnaire (see Appendix A). No

[5] The University of Saskatchewan is the province's research intensive university with over 21,000 students. Located in the province's capital, the University of Regina is home to over 12,000 students.

[6] There is strong evidence that incentive do not have a substantive impact on experimental results. One reason for this is that incentive payments tend to be too small matter (Read, 2005). On contingent valuation studies see, for example, Diamond and Hausman (1994).

Table 1
Some Description Statistics.

Sample population	283
Female	48%
Male	52%
Age (average)	24 years
Age (median)	23 years
Standard deviation	4.9 years
Major Economics	29%
Major Non-Economics	71%
Familiar with Co-ops	48%
Worked in a Co-op	3.50%
Membership in a Co-op	12.40%
Percentage Canadian	56.90%

opinion was provided as to whether a co-operative good or bad, for example, from a social, psychological, or economic perspective. Subjects completed a survey that asked them to imagine how they would respond to several scenarios where they could purchase goods at a range of different prices from a hypothetical co-operative and a hypothetical non-co-op store. Responses were contingent on whether or not they were hypothetical members of a co-operative. Scenarios include a distinction between a traditional consumer co-operative and a multi-stakeholder consumer co-operative where, in the latter, there is membership and ownership by both the co-op's consumers and its employees. One hypothesis of interest is that consumers' preferences are affected (warm glow) if employees have an ownership stake in the consumer co-operative. This would be related to consumer preferences that are positively affected by employees having some control over the firm and therefore their work environment.

Although the survey methodology could not take account of factors such as an individual's past purchase experiences at a particular store or the transaction costs of switching to a different store from the one usually visited, the responses were expected to reveal the extent to which respondents would be prepared to pay higher prices for the products sold by the co-operative. Also, responses were expected to reveal the extent to which individuals would prefer to purchase products from a co-operative when its prices were identical to those of the non-co-operative or investor-owned store. The survey questionnaire is presented in the Appendix A.

5. The experiment: results

The key findings are summarized in Tables 1, 2, and 3 . These results are visualized in Figs. 2–5 . First, it is important to note some key descriptive statistics derived from the experiment. These are present in Table 1. The sample population is 48% female. The average age is 24 and the median is 23, so we are dealing with a relatively mature age population. Moreover, the standard deviation is 5 years. Hence, 68% of the sample population falls between 19 and 29 years of age. Less than one-third of the sample population majors in economics. More importantly, about half of the sample claim to be familiar with co-ops. This is prior to having been provided with basic information for the experiment. Hardly anyone worked for a co-op. Membership in co-ops was at only 12%, well below the provincial average. This can in part be explained by the fact that about half of the population was not Canadian (international students). Hence, a larger percentage of the population claimed to know about co-ops than were actually members of or worked for co-ops.

Subjects are asked to report their willingness to pay over four different scenarios—a product priced at a base of $5, $20, $200 and $1000 at both the co-operative and non-co-operative and at varying levels above these base prices at the co-operative. The responses show the percentage of would-be customers who would buy from the co-operative when the co-op price equals the non-co-op price and when the co-operative's price rises above the non-co-op's base price. The relative price of the product is increased by 2, 5, 10, and then by 15% in each of the scenarios. In the figures, relative price (co-op divided by non-co-op price) is measured along the vertical axis, whilst the percentage of the respondent population willing to purchase from the co-op is measured along the horizontal axis.

Table 2
Percentage Demand for Co-op Output.

Price	Consumer & Labour Controlled Demand (%)		Consumer Controlled Demand (%)	
	Not Member (L)	Member (L)	Not Member (C)	Member (C)
5.00	86.7	95.7	89.7	95.7
5.10	65.2	88.1	68.9	89.1
5.25	58.5	79.2	57.2	80.9
5.50	47.6	67.6	47.8	67.2
5.75	40.8	59.3	40	58.8
20.00	87.8	95.7	89.7	96.1
20.40	62.6	86.2	66.3	87.9
21.00	54.4	74.6	51.5	77.7
22.00	38.2	62.2	39.4	61.7
23.00	31	53.1	31.6	54.1
50.00	84.5	94.6	87.8	94.9
51.00	53.5	85.4	59.3	85.2
52.50	41.5	68.1	43.3	70.3
55.00	25.6	54.3	28.3	52.2
575.00	19.5	39.9	18.6	38.7
200	78.1	92.6	85.5	93.8
204	45.4	82.3	49.6	77.4
210	29.8	58.5	30	58
220	16.1	39.9	19	38.8
230	14	28.3	13	26.2
1000	75.7	91.9	84.7	91.4
1020	35.9	69.9	41.6	67.7
1050	23.2	45.6	24.3	45.1
1100	13.2	29.2	14.1	27
1150	12.9	22	13.4	22.2

Table 3
Difference in Demand Between Member and Non-Member for Each Price Category.

Price	Consumer & Labour Controlled		Consumer Controlled	
	Percentage	Absolute Value	Percentage	Absolute Value
5.00	10.4%	9.0	6.7%	6.0
5.10	35.1%	22.9	29.3%	20.2
5.25	35.4%	20.7	41.4%	23.7
5.50	42.0%	20.0	40.6%	19.4
5.75	45.3%	18.5	47.0%	18.8
20.00	9.0%	7.9	7.1%	6.4
20.40	37.7%	23.6	32.6%	21.6
21.00	37.1%	20.2	50.9%	26.2
22.00	62.8%	24.0	56.6%	22.3
23.00	71.3%	22.1	71.2%	22.5
50.00	12.0%	10.1	8.1%	7.1
51.00	59.6%	31.9	43.7%	25.9
52.50	64.1%	26.6	62.4%	27.0
55.00	112.1%	28.7	84.5%	23.9
57.50	104.6%	20.4	108.1%	20.1
200	18.6%	14.5	9.7%	8.3
204	81.3%	36.9	56.0%	27.8
210	96.3%	28.7	93.3%	28.0
220	147.8%	23.8	104.2%	19.8
230	102.1%	14.3	101.5%	13.2
1000	21.4%	16.2	7.9%	6.7
1020	94.7%	34.0	62.7%	26.1
1050	96.6%	22.4	85.6%	20.8
1100	121.2%	16.0	91.5%	12.9
1150	70.5%	9.1	65.7%	8.8

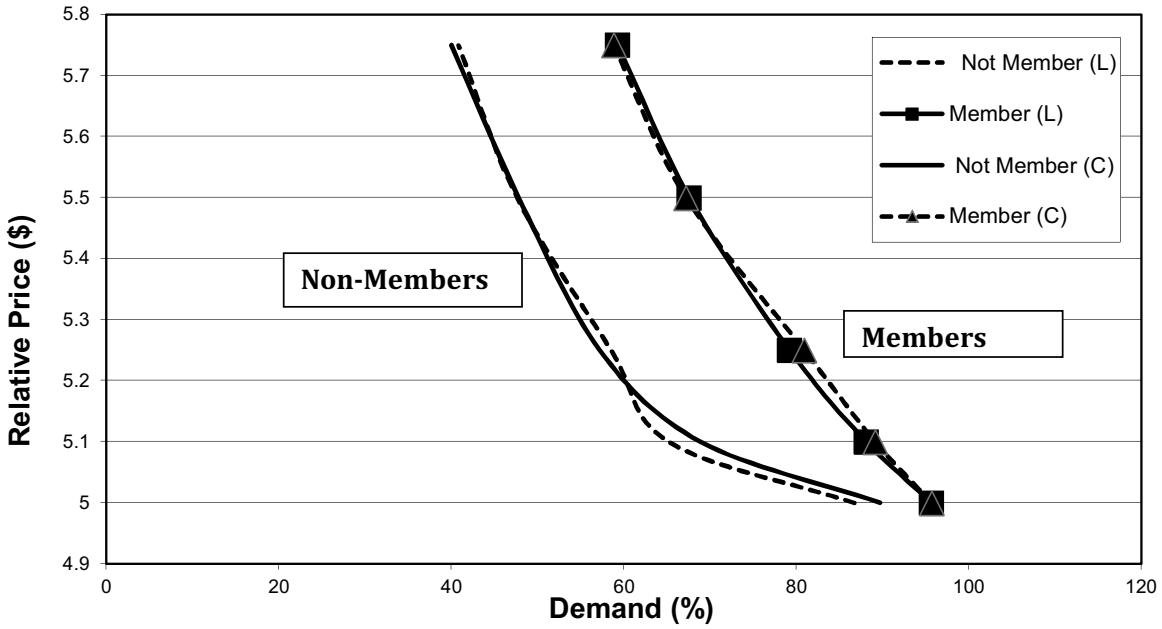

Fig. 2. Comparing Product Price ($5) – Labour & Consumer Controlled.

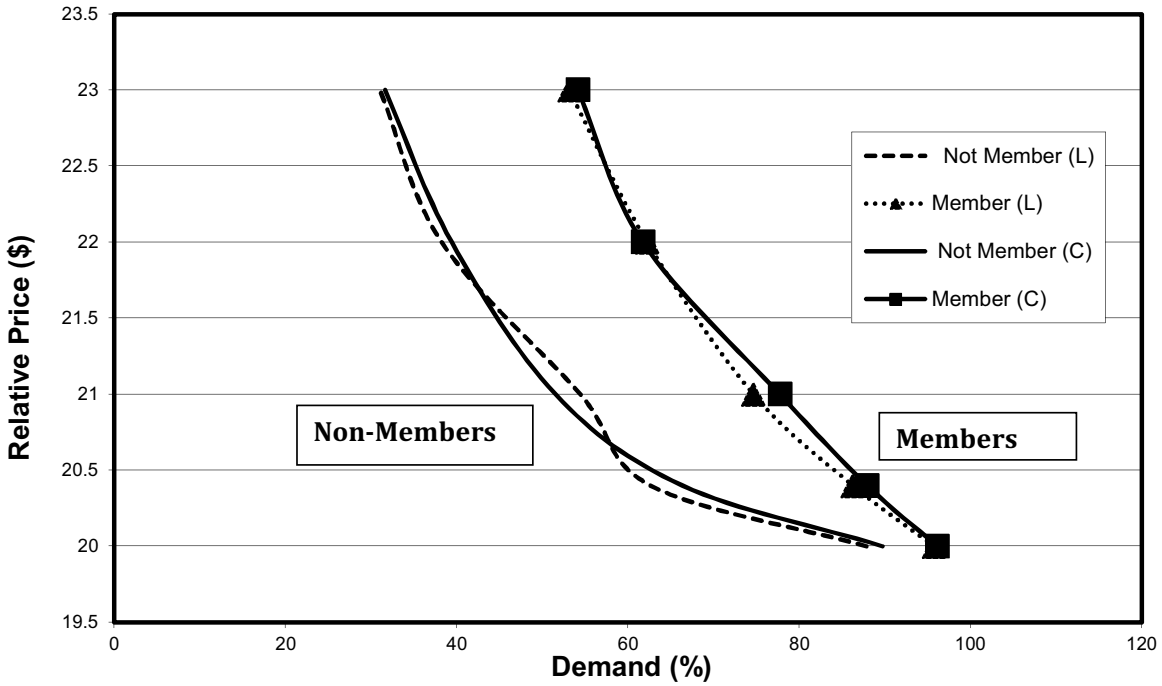

Fig. 3. Comparing Product Price ($20) – Labour & Consumer Controlled.

Table 2 presents the percentage demand for products sold by co-op for members and non- members of traditional consumer co-operatives as well as consumer co-operatives controlled by both consumer members and employees (multi-stakeholder). Almost all hypothetical co-operative members would purchase from the co-op when co-operative and non-co-operative prices are identical, irrespective of the base price level. The percentage of non-members saying that they would purchase from the traditional consumer co-operative ranges from 90% (for the lowest base price) to 85% (for the highest base price). This expressed demand ranges from 87 to 75 for the multi-stakeholder consumer co-operative.

The expressed demand for products sold by the co-op declines as the co-op price increases relative to the non-co-op price for all base prices. But demand is much more price sensitive for non-members and becomes more price sensitive as the base price increases from $5 to $1000 per unit. For example, for prospective members, the demand for products sold by co-operatives drops falls from 96 to 59% as the price increases from $5 to $5.75, a drop in demand of 39%. For non-members, demand falls from 90 to 40%, a drop in demand of 55%. At the other extreme, when price increases from $1000 to $1150, amongst co-op members demand diminishes from 92 to 22%, a drop of 76%. For non-member demand diminishes from 85

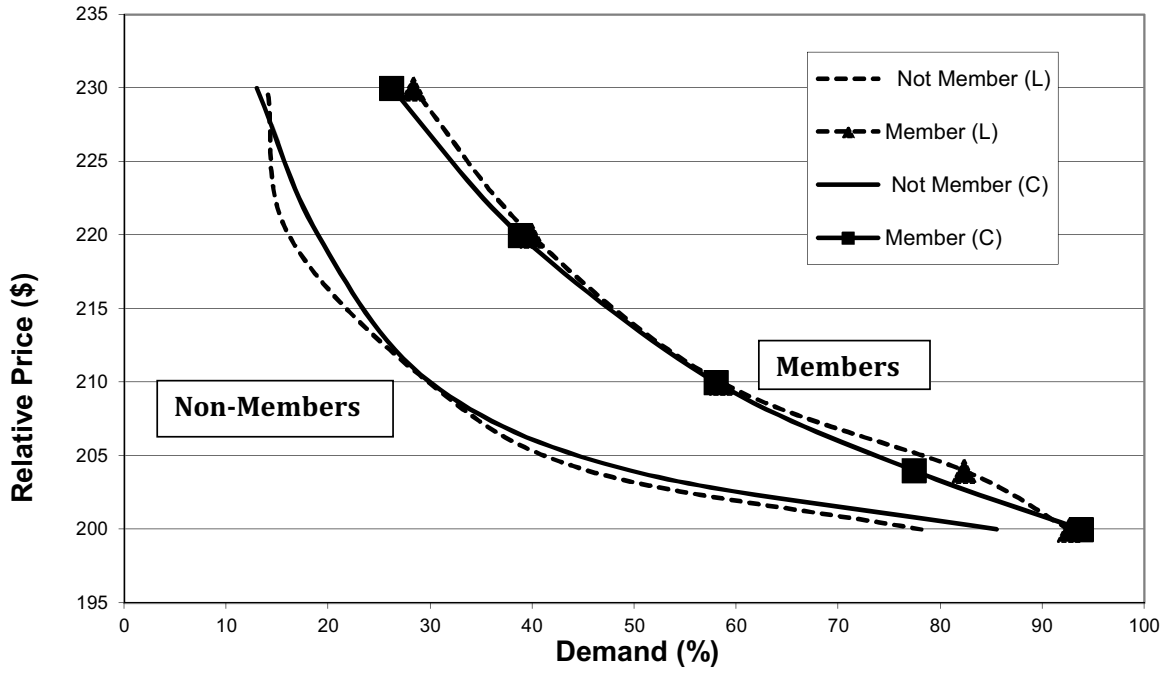

Fig. 4. Comparing Product Price ($200) – Labour & Consumer Controlled.

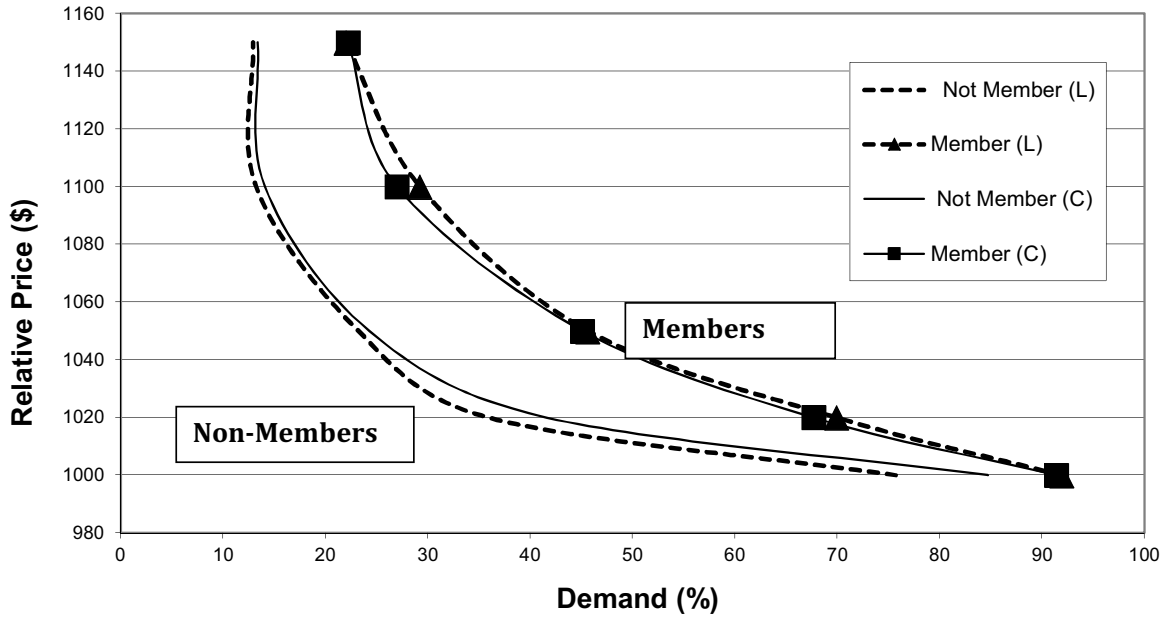

Fig. 5. Comparing Product Price ($1000) – Labour & Consumer Controlled.

to 13%, a drop of 85%. This scenario, is pretty much the same for the multi-stakeholder co-operatives.

Table 3 maps out the absolute and percentage differences in the demand for products sold by co-ops between co-operative members and non-members. This percentage difference, always in favour of the co-operative is, as expected, smallest when the price of products sold by the co-op and the non-co-op are identical at all base prices. This difference increases as the relative price of products sold by the co-operative goes up. This is true for all base prices. This is the case for both the traditional consumer co-operative and the multi-stakeholder co-operative. Moreover, this percentage difference increases as the relative co-op price goes up for the higher base prices. For example, for the traditional consumer co-op, when the relative price increases from $5 to $5.75, the percentage difference in demand, between co-op members and non-members, in favour of members, increases from 7 to 47%. And when the relative price increases from $1000 to $1150, the percentage difference in demand increases from 8 to 66%. This just reiterates the point that co-operative members' demand is less price sensitive than is the demand of non-co-operative members.

Figs. 2–5 graph these results. Note that since members and non-members are *increasingly* less willing to pay relatively higher prices for products sold by the co-op as the base price increases, the curves become successively 'flatter' as the base price rises from $5 to $20, to $200, to $1000. The preference for products sold by co-operatives remains, but all consumers are, nevertheless, sensitive

to the level of co-op prices and co-op prices relative to non-co-op prices.

It is important to note that even as the relative price of co-operative products increases, a large percentage of non-co-op members would still purchase from co-operatives, albeit at a diminishing rate. This suggests that even non-co-operative members retain an affinity for products sold by consumer co-operative in face of relative price increases. This underlies the importance of non-economic variables at work in choice decisions. The revealed preference of many consumers (co-operative and non-co-operative members alike) willing to pay a higher price for products sold by the co-operative, suggests that such individuals derive a higher level of utility from the higher-priced co-operative product, ceteris paribus. Such individuals are willing to trade-off real income for the purchase of co-operative products.

On all counts there is little difference in choice behaviour when one shifts from the traditional consumer co-operative to a multi-stakeholder consumer co-operative where, in the latter, both consumer and employees hold ownership stakes. At least in terms of this survey experiment, respondents do not treat these two types of co-operatives much differently.

6. Conclusion

The fact that demand is sensitive to changes in relative price, for both co-operative and non-co-operative members, only supports a weaker version of the conventional economic wisdom that individuals are sensitive to relative price changes—economic factors impact upon individuals' choice decisions. But more profoundly the evidence also supports the hypothesis that both economic and non-economic variables impact upon the choice decisions of subjects. Both hypothetical co-op members and those who are not, have a strong preference for purchasing from a co-op when price is the same. Also, ceteris paribus, co-operative members have a stronger affinity for products sold by co-operatives irrespective of price. Even non-co-operative members have some affinity for co-op output when co-op prices are relatively high, even though this involves some material self-sacrifice. In this experiment, there is little difference in responses when the co-op is hypothesized to be consumer controlled or a multi-stakeholder co-operative.

Given that individual's preferences are predisposed towards co-operatives in our sample population, co-operatives would have a competitive advantage over non-co-ops, ceteris paribus. The co-operative advantage diminishes as relative price increases. However, the co-operative advantage provides co-ops with a protective belt against competition from non-co-operatives—a monopolistic position on the market. This allows co-operatives to produce inefficiently and survive on the competitive market. However, of critical importance is that the results of this experiment suggest that efficient co-ops can potentially dominate the market.

The co-operative advantage can be used to protect inefficient firms or to increase market share when co-operatives are relatively efficient. The co-op advantage also provides co-operatives with flexibility to transform themselves from inefficient to efficient suppliers given that the inefficient co-operative will not easily be wiped out of the market, at least in the short term. But non-economic variables go only so far, and high priced-inefficient co-operatives will suffer the wrath of consumers searching for relatively low priced-high quality output.

But it should be noted that the co-operative advantage can only be realized if and when consumers are aware that a particular retailer or wholesaler is a co-operative. If co-operatives hide their identity, for whatever reason, then the potential co-operative advantage is lost. In this experiment, co-ops and non-co-operatives were clearly identified.

The existence pro-co-op preferences in our sample population suggest that individuals realize a higher level of utility from purchasing co-op products when prices are identical between co-operatives and non-co-operatives. Also, given pro-co-operative preferences, even when co-operative prices are relatively higher, the co-operative option should still yield a higher level of utility to consumers with such preferences, as compared to a scenario where a co-op purchasing option did not exist. Where pro-co-operative preferences exist, ceteris paribus, consumer utility can be expected to increase. This further underlines the importance of incorporating non-economic variables into one's modeling corpus. This also signals the importance of recognizing the potential importance of co-operatives on the 'demand' side. Even without conferring a competitive advantage, to many consumers, purchasing from a co-operative confers a non-material advantage, increasing their level of wellbeing or utility.

The subject of this study is unique in so far that little research has been conducted on the extent to which pro-co-operative preferences exist and how this impacts on the demand for products supplied by co-operatives. My experiment was designed not only to address the extent of pro-co-operative preferences, but how these relate to and interact with individuals' sensitivity to relative price and their making material sacrifices to achieve particular preferences. Related to the above, this type of analysis is also able to distinguish between differences in preferences when price is identical across all supplier types (co-operatives and investor owned firms) and when the relative price of the output supplied by co-operatives increases.

But, an important question that must be asked of any social science experimental result is, are such preferences as revealed in a localized experiment globally applicable. The results presented here should be regarded as a type of case study in a region where co-operatives are pervasive and well understood. These local results open the door for further experiments that address the issue of consumer preferences for products sold by co-operatives in different parts of the world. To the extent that context matters, one would expect that preferences could differ depending on the familiarity and preeminence of co-operatives in particular locations. Such comparative analysis would allow us to better understand the extent to which co-operative preferences differ across localities, regions, and countries. It would also provide us with some insight on why co-operative preferences differ in terms of level as well as well as their sensitivity to price amongst members and non-members as well. It would also be of interest to deconstruct the preferences of individuals with regards to co-operatives to better understand why individuals have preferences for products sold by co-operatives.

Be this as it may, our evidence demonstrates that individuals tend to have pro-co-operative preferences and are willing to sacrifice income to realize such preferences. For this reason, given such preferences, consumer co-operatives appear to have more degrees of freedom, than non-co-operatives, to increase their market share, especially if they are well managed, responding to the price and quality concerns of consumers. The co-operative option also serves to increase the utility or wellbeing of individuals who have co-operative preferences. There is a clear co-operative advantage from both the economic (pricing and market shares) and the non-economic side of things (utility and wellbeing). Next steps involve understanding the extent to which these results can be generalized.

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Appendix A.

PART A1

A. Labor controlled consumer cooperative

B. **You are not a member**

1. Would you purchase from a coop if the price controlled for quality of its product is the same as for a non-cooperative store?

	Non-Coop Price	Coop Price	
a.	Product price = $5	$5	Yes/No _____
b.	Product price = $20	$20	Yes/No _____
c.	Product price = $50	$50	Yes/No _____
d.	Product price = $200	$200	Yes/No _____
e.	Product price = $1,000	$1,000	Yes/No _____

2. Would you purchase from a coop if the price controlled for quality of its product is slightly higher (2 percent) than what it is in a non-cooperative store?

	Non-Coop Price	Coop Price	
a.	Product price = $5	$5.10	Yes/No _____
b.	Product price = $20	$20.40	Yes/No _____
c.	Product price = $50	$51.0	Yes/No _____
d.	Product price = $200	$204	Yes/No _____
e.	Product price = $1,000	$1,020	Yes/No _____

3. Would you purchase from a coop if the price controlled for quality of its product is a bit higher (5 percent) than what it is in a non-cooperative store?

	Non-Coop Price	Coop Price	
a.	Product price = $5	$5.25	Yes/No _____
b.	Product price = $20	$21.0	Yes/No _____
c.	Product price = $50	$52.5	Yes/No _____
d.	Product price = $200	$210	Yes/No _____
e.	Product price = $1,000	$1,050	Yes/No _____

4. Would you purchase from a coop if the price controlled for quality of its product is somewhat higher (10 percent) than what it is in a non-cooperative store?

	Non-Coop Price	Coop Price	
a.	Product price = $5	$5.5	Yes/No _____
b.	Product price = $20	$22.0	Yes/No _____
c.	Product price = $50	$55.0	Yes/No _____
d.	Product price = $200	$220	Yes/No _____
e.	Product price = $1,000	$1,100	Yes/No _____

5. Would you purchase from a coop if the price controlled for quality of its product is a lot higher (15 percent) than what it is in a non-cooperative store?

	Non-Coop Price	Coop Price	
a.	Product price = $5	$5.75	Yes/No _____
b.	Product price = $20	$23	Yes/No _____
c.	Product price = $50	$57.5	Yes/No _____
d.	Product price = $200	$230	Yes/No _____
e.	Product price = $1,000	$1,150	Yes/No _____

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