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RESEARCH PAPER

The Impact of Relative Commissions on Sale of Various Types of Life Insurance: An Application of Game Theory

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Abstract
Iran's below-average life insurance penetration rate relative to the global average, is caused by several factors. Sellers' behavior and motivations can be one of these factors. Given that the distorted prices divert the resources, the imbalanced sales commission rate could generate a conflict of interest among the players in life insurance market. Universal life insurance has a substantially higher commission rate than other types. Therefore, it can incentivize sellers to offer more universal life insurance than term life insurance, regardless of customers' needs. In this paper, we postulate that the existing sales commission system in the Iranian life insurance industry may deviate customer demand and raise the likelihood of policy surrendering. This issue is a principal-agent problem for insurer and seller, and supplier-induced demand (SID) for seller and customer. In the form of signaling games, these conflicts of interests among the players has been analyzed using descriptive-analytical method based on game theory. We observed that if the seller has the same desire to sell different types of life insurance, there is a greater likelihood that they will provide genuine advice to the customer. By reducing the surrender rate, the situation can be improved.
Keywords: Principal-Agent Problem, Sales Commission, Sales Intermediaries, Signaling Games, Supplier-Induced Demand.
JEL Classification: C73, D82, G22.

1. Introduction
According to the welfare viewpoint, risk coverage is the defining characteristic of life insurance, which is so crucial for insurers and policyholders (including the risk of death, risk of disablement, etc.). In order to attract more customers, investment savings aspect were added to life insurance at one point in its history. In addition to provide risk coverage, the insurer invests the remainder of the received premium then the principal interest will return to the policyholder. On

the Iranian insurance market, sales representatives (including brokers and agents) receive a commission based on a percentage of the premium for their efforts. This study's issue is the composition and ramifications of these commissions. According to Regulation No. 83 of the Iranian Central Insurance (the Iranian insurance market regulator), the following commission structure applies to the sale of individual life insurance:

- The maximum sales commission for individual term life insurance with an annual premium is 25% of the received premium.
- The maximum sales commission for the other type of individual life insurance (universal life insurance) is 75% of the first-year premium if it does not to exceed 30 per thousand in the capital. 40% of this commission is paid upon receipt of the first-year premium, followed by 15% per year in the second through fifth years upon receipt of the necessary insurance premiums.

Obviously, universal life insurance commissions are far higher than term life insurance commissions. Therefore, the intermediaries may profit more from the sale of each universal life insurance unit. According to Ahmadzadeh et al. (2019), Wharton et al. (2016), and Reifner et al. (2012), the majority of life insurance sellers are persuading customers for their own gain. They attempt to sell a product with a higher selling remuneration. According to Madadi et al. (2020), the Iranian life insurance commission structure should be modified. Alternatively, universal life insurance premiums are more expensive than term life insurance premiums, hence, according to the findings of Mohammadi (2013) and Webb (2009), low-risk customers tend to pay less for life insurance premiums, while high-risk customers tend to spend more. It is possible to assume that the imbalanced sales commission rate of life insurance generates a conflict of interest between the sales representative and other players (insurer and policyholder). Therefore, the null hypothesis of this study is that the current structure of life insurance sales commissions in Iran is not socially optimal.

Sellers of life insurance have extensive knowledge about the products, premiums, commission, etc. They are essentially market makers who connect policyholders' insurance needs with insurers capable of providing those needs (Cummins and Doherty, 2006). However, the majority of customers are unaware of this information regarding insurance products. So, the sales representatives can use their superior knowledge to persuade customers to demand specific life insurance product that provides them with greater remuneration. Thus, this is an illustration of supplier-induced demand, which will be analyzed using a signaling

game. The research question is: How does changing the structure of sales commissions for life insurance affect the game's equilibrium?

Numerous studies have been undertaken on supplier-induced demand up to this point. Evans (1974), Wennberg et al. (1982), Rice and McCall (1983), Reinhardt (1985), Birch, (1988), Labelle et al. (1994), and Richardson and Peacock (2006) have studied the asymmetric information problem and supplier-induced demand for the physician-patient interaction. Using a questionnaire and the logit method, Abdoli and Varharami (2011) determined that induced demand by general practitioners is more than that of others. Behbahani and Esmaili (2019), Asgari et al. (2020), and Kazemian and Alvandi (2021) have investigated the conditions and causes of demand induction by Iranian healthcare providers. Pournaghi Keikeleh et al. (2022) have quantified supplier-induced demand caused by the 2014 Health reform plan in Iran, and their findings demonstrate the existence of SID resulting from the plan. Khandan (2023) has predicted and investigated the impact of individual and contractual characteristics of insurance policies on the lapse (or surrender) of life insurance. Ikegami et al. (2021), Zabrodina et al. (2020) investigated about induced demand in hospitals' care sectors. Also studies of Yu et al. (2020), Longden et al. (2018), Dzampe & Takahashi (2022) and Meyer (2016) are the recent studies about supplier induced demand in health care system and doctor's incentives. Among the articles, Abdoli (2004) utilized game theory method and a signaling game to study physician-induced demand. None of these studies examined the SID for the life insurance market, as is evident. They all investigated physician-patient relationships in the health insurance market or physician-induced demand. So, this study adopted a new approach to analyzing the impact of changing commissions on the Iranian life insurance market.

2. Research Method

To begin analyzing the research hypothesis, the actions and reactions of the seller and customer of life insurance is evaluated as signaling games. Spence (1973) established the signaling theory after observing information asymmetry between firms and potential employees. The more informed side of contract attempts to send signals containing specific information, to the less informed side. The sender must decide how to communicate or signal, and the receiver must determine how to interpret the signal (Connelly et al., 2011). After that, the insurer is added to the game as player who can change the life insurance commission structure for life insurance. The impact of the change in commission have been analyzed using

improvement criteria. Pareto improvement happens when no one is harmed and at least one person benefits from a reallocation (Layard and Walters, 1987). A reallocation is a Kaldor (1939) improvement if those who made better-off could hypothetically compensate those made worse-off and yet be in a better situation than before. The improvement proposed by Hicks (1939) follows a reallocation; those who made worse-off cannot pay those who made better-off to dissuade them from the change. If a change in the commission structure of life insurance results in a better-off situation, it can be inferred that the current situation (or commission structure) is not socially optimal.

3. Modeling the Game

At the inception, for modeling the game, the strategy and types of players should be defined. Based on customers' needs, there are three types of customers:

- Customers who do not require life insurance because they want to take their risks by themselves (NL type);
- Customers who choose to buy life insurance and prefer universal life insurance if they have complete information (UL type);
- Customers who choose to buy life insurance and prefer term life insurance if they have complete information (TL type).

Customers are different from each other not only in needs but also in their personal traits, they may be "optimistic" or "meticulous" about the seller's advice, and their acquaintance with life insurance and their needs. They could be "well-informed" or "miss-informed". Therefore, the following strategies can be considered for the customers:

1. Purchasing universal life insurance (UL);
2. Purchasing term life insurance (TL);
3. Not purchasing any life insurance products (O);
4. Surrendering the policy of life insurance (X) in the next step after buying a product.

For life insurance sellers, only personal traits are considered, so, seller types can also defined based on their intelligence and communication ability. The following strategies can be considered for the seller:

1. Offering to purchase universal life insurance or sending the customer the universal life insurance signal (S_{UL});
2. Offering to purchase term life insurance or sending the customer the term life insurance signal (S_{TL}).

The insurer's strategies are related to the life insurance sale commission. These are the insurer's strategies:

1. Reduce the ratio of universal life insurance commission (C_{UL}) to term life insurance commission (C_{TL}). It implies reduce the C_{UL}/C_{TL};
2. Increase the payment period of the universal life insurance sales commission.

3.1 Game with two Players (Seller and Customer)

The customer goes to the insurance seller to purchase a life insurance policy, and since most customers do not have adequate knowledge about the characteristics of various types of products, they seek assistance from the seller. The seller additionally sends S_{UL} or S_{TL} signals based on the customer's traits and the type of their needs. Therefore, there are three stages for this game: the first move is made by the seller by sending signals, the second stage is the customer's product selection, and the last step is the customer's decision to retain or surrender the policy. Given that the flow of information from the seller to the customer is dominant, the interaction between these two players can be depicted in the framework of signaling games in expanded form in Figure 1.

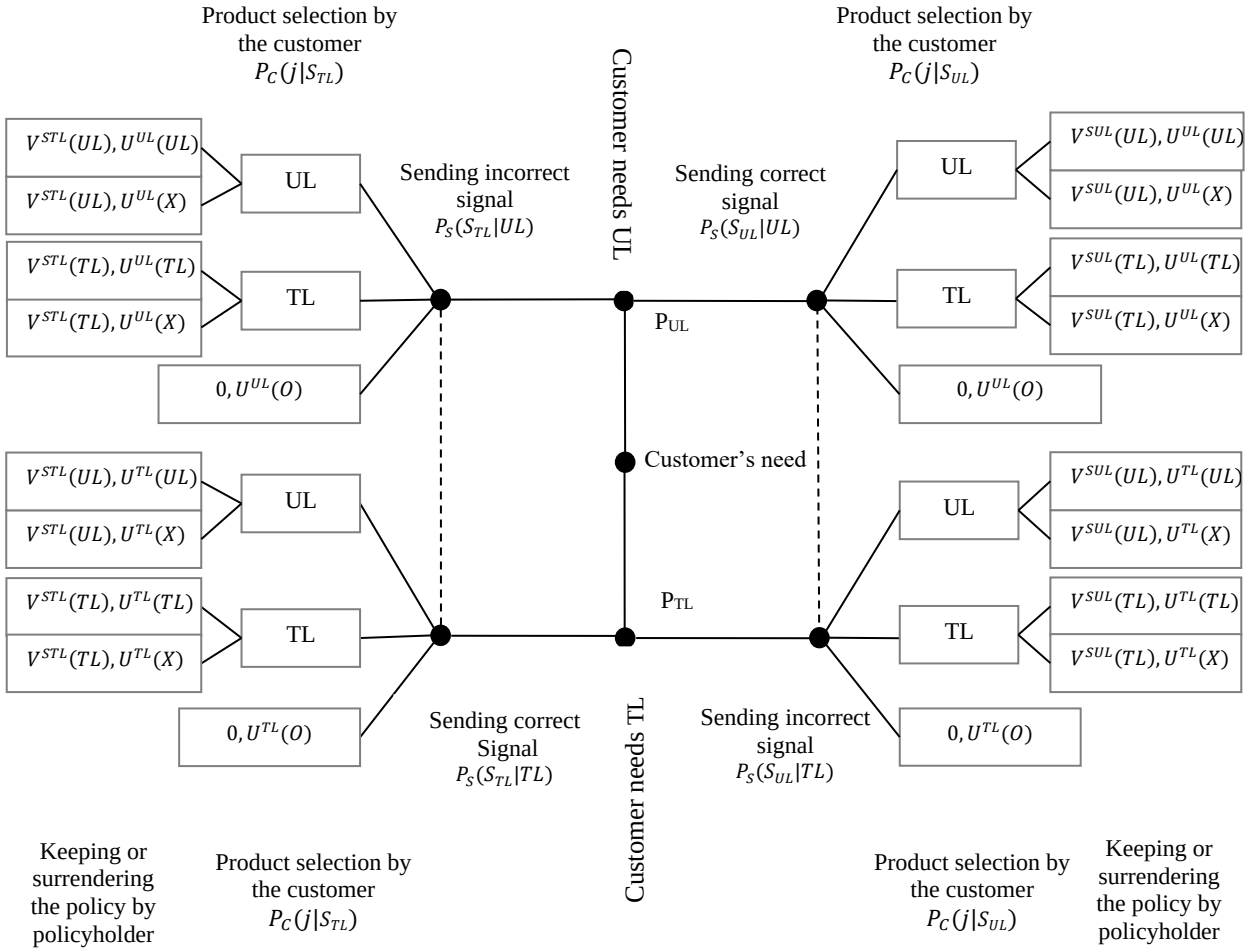

Figure 1. The Extended Form of the Seller-Customer Game for Life Insurance
Source: Research finding.

U and V represent the customer's utility and the seller's benefit, respectively. For example, $U^{UL}(TL)$ is the customer's utility when they need universal life insurance but has already purchased term life insurance. Or $V^{SUL}(TL)$ is the sellers' advantage when they send the S_{UL} signal and the customer purchases term life insurance. For the purpose of simplification, we suppose that:

$$i = S_{UL}, S_{TL} \qquad j = UL, TL, O$$

If the customer needs UL, the seller would suggest them with $P_S(i|UL)$ probability which product to buy (by sending S_{UL} and S_{TL} signals), and the seller sends signals with $P_S(i|TL)$ probability for the customers who need TL. The customer cannot identify their appropriate product with certainty, so it is indicated by dots. If the customer buys a product with a probability of $P_L(UL, TL|i)$, they can surrender it in the future (S) or keep it with a probability of $1 - P_X(UL, TL|i)$. So, we have:

$$\begin{aligned} &\sum_i P_S(i|\,UL) = 1, \qquad \sum_i P_S(i|\,TL) = 1 \qquad P_{TL} + P_{UL} = 1 \\ &\sum_j P_C(j|\,S_{UL}) = 1, \qquad \sum_j P_C(j|\,S_{TL}) = 1 \end{aligned} \tag{1}$$

To determine the equilibrium of this game, we must first compare the customer's utility and the seller's benefit based on their characteristics. if the customer purchases the required item, they will obtain greater utility. The following can be deduced:

$$\begin{aligned} &u^{TL}(TL) > u^{TL}(UL) > u^{TL}(O) \\ &u^{UL}(UL) > u^{UL}(TL) > u^{UL}(O) \\ &u^{NL}(O) > u^{NL}(UL), u^{NL}(TL) \\ &u^{NL}(O) = u^{UL}(UL) = u^{TL}(TL) \end{aligned} \tag{2}$$

The more the sellers receive in commission on the sale, the greater their benefits. According to Regulation 83, the following can be deduced:

$$\begin{aligned} &V^{SUL}(UL) > V^{SUL}(TL) > V^{SUL}(O) = 0 \\ &V^{STL}(UL) > V^{STL}(TL) > V^{STL}(O) = 0 \end{aligned} \tag{3}$$

According to Figure 1, the seller may choose one of these strategies:

1- $(S_{UL}|UL), (S_{UL}|TL)$ 2- $(S_{TL}|UL), (S_{TL}|TL)$

3- $(S_{UL}|TL), (S_{TL}|UL)$ 4- $(S_{UL}|UL), (S_{TL}|TL)$

For example, $(S_{TL}|UL)$ indicates that the customer requires universal life insurance (UL) but the seller has only offered term life insurance (sends S_{TL} signal). At their first move (second stage of the game), the customer may select one of the following strategies:

1- $(UL|S_{UL}), (UL|S_{TL})$ 2- $(TL|S_{UL}), (TL|S_{TL})$
3- $(O|S_{UL}), (UL|S_{TL})$ 4- $(UL|S_{UL}), (TL|S_{TL})$
5- $(O|S_{UL}), (TL|S_{TL})$ 6- $(O|S_{TL}), (UL|S_{UL})$
7- $(TL|S_{UL}), (O|S_{TL})$ 8- $(O|S_{TL}), (O|S_{UL})$

The customer's second (last) move, which include surrendering or retaining the insurance policy, are as follows:

1- $(X|UL)$ 2- $(X|TL)$

For example, $(TL|S_{UL})$ indicates that the customer has received the S_{UL} signal but has purchased term life insurance.

3.2 Equilibrium of the Game with Two Players (Current Situation)

According to this notion, the customer should use the information received by the seller to select products, and the seller should evaluate the customer's potential response to each signal sent (Abdoli, 2004). The impact rate of the signals determines the equilibrium based on the seller's and customer's personal traits, as indicated in Table 1.

Table 1. The Impact of Signals Sent Based on the Type of Players

Seller types	Customer types	Seller signals	Customer strategy	Equilibrium
Intelligent and persuasive	*Optimistic or misinformed*	$(S_{UL}\|UL), (S_{UL}\|TL)$	$(UL\|S_{UL}), (TL\|S_{TL})$	Pooling S_{UL}
	Meticulous or well-informed	$(S_{UL}\|UL), (S_{TL}\|TL)$	$(UL\|S_{UL}), (TL\|S_{TL})$	Separating
Careless and Unpersuasive	*Optimistic or misinformed*	$(S_{UL}\|UL), (S_{UL}\|TL)$	$(O\|S_{UL}), (TL\|S_{TL})$or $(O\|S_{TL}), (UL\|S_{UL})$	Pooling S_{UL}
	Meticulous or well-informed	$(S_{UL}\|UL), (S_{UL}\|TL)$	$(UL\|S_{UL}), (UL\|S_{TL})$or $(TL\|S_{UL}), (TL\|S_{TL})$or $(O\|S_{TL}), (O\|S_{UL})$	Pooling S_{UL}

Source: Research finding.

Therefore, intelligent sellers identify the customer type and attempt to sell at least one product to each customer, with universal life insurance taking precedence. In other words, when they faced with meticulous type of customer the equilibrium is separating. Because the intelligent sellers know that the meticulous customers will not be persuaded just by consultation from the seller and they will collect the information in other ways too. So, in this situation the signals contains

influential information and separates the customer's needs. The seller expected benefit function of this game is:

$$\begin{gathered} v = v\ (UL, TL, O) \\ UL(\ Information(S_{UL}, S_{TL}, K)) \in \{0,1\} \\ TL(Information(S_{UL}, S_{TL}, K)) \in \{0,1\} \\ O(Information(S_{UL}, S_{TL}, K)) \in \{0,1\} \end{gathered} \tag{4}$$

It means that the seller's benefit is a function of customers choice, and customers choice is a function of their information. Part of this information is obtained by seller's signals and another part is their own knowledge (K). Customers are well-informed with P_w probability or misinformed with P_m probability. So we have:

$$\begin{gathered} Max\ v\ (UL, TL, O) = \\ P_w P_{TL}\ P_S(S_{TL}|TL) v^{STL}(UL, TL, O) + P_{UL}\ P_S(S_{UL}|UL) v^{SUL}(UL, TL, O) \\ + P_m [P_{TL}\ P_S(S_{TL}|TL) v^{STL}(UL, TL, O) \\ + P_{UL}\ P_S(S_{UL}|UL) v^{SUL}(UL, TL, O)] \\ Subject\ to\ UL + TL + O = 1 \end{gathered} \tag{5}$$

According to statistics[1], the majority of customers are misinformed and would purchase the product offered by the seller. Thus, in this kind of game, if a pooling equilibrium exist, no information will be transferred to the customers by this equilibrium (Abdoli, 2020). Based of equation (3) and (5), the equilibrium strategy for the majority of sellers is $(S_{UL}|UL)$, $(S_{UL}|TL)$, and for the majority of customers is $(UL|S_{UL}), (TL|S_{TL})$. It indicates that the dominant strategy of the majority of sellers is to send S_{UL} regardless of customer needs, and the majority of customers follow the seller signals.

3.3 Game with Three Players

In this model, the role of insurers and central insurance is to establish conditions or a playing field for interactions between sellers and customers. In other words, Figure 1 depicts the interactions between the seller and customer, which constitute a subgame of the overall game. The insurer's strategies influence the seller's behavior and their signals. Then, by changing the seller's signals, the customer's choice could also change. Therefore, there will be a figure identical to Figure 1 for each insurer's strategies. To analyzing the impact of a change in commission structure on players' behavior, it is necessary to define the benefit and utility functions for each one.

[1]. Ahmadzadeh et al. (2019)

A) Insurer

Benefit function for the insurer (G) is as follows:

$$\begin{aligned} G &= G(P_t, C, I, X, SV) \\ &= Benefits - Costs \\ &= P_t(P_t^{UL}, P_t^{TL}, X) - C(C_{UL}, C_{TL}) - SV - I \end{aligned} \quad (6)$$

$$\frac{\partial G}{\partial P_t}\frac{\partial P_t}{\partial P_t^{UL}} > 0 \qquad \frac{\partial G}{\partial P_t}\frac{\partial P_t}{\partial P_t^{TL}} > 0 \qquad \frac{\partial G}{\partial P_t}\frac{\partial P_t}{\partial X} < 0 \qquad \frac{\partial G}{\partial C} < 0$$

The insurer pays a percentage of the premium as a commission (C) to the seller for selling life insurance products. The insurer's revenue is directly related to the number of customers or insurance premiums received over time (P_t) and inversely related to the payment of indemnity (I), the surrender of a life insurance policy by the policyholder (X), and the payment of the surrender value (SV).

B) Seller

The seller's benefit also depends on the commission obtained (C) for selling each insurance product, marketing costs (M), and fixed costs (F). So, the seller benefit function (V) is:

$$\begin{aligned} V &= U(C_{UL}, C_{TL}, M, K) \\ &= C\big(C_{UL}(P_{t=1}), C_{TL1}(P_t), C_{TL2}(P_t), C_{TL3}(P_t)\big) - K - M \\ &\frac{\partial V}{\partial C} > 0 \end{aligned} \quad (7)$$

where C_{TL1} is the commission for selling individual term life policy covering the risk of death with annual premium, C_{TL2} is the commission for selling group term life policy with annual premium, and C_{TL3} is term life insurance with holus-bolus premiums. Since the quantity of sales is directly related to marketing costs and fixed costs, it is complicate to determine if it has a positive or negative impact on the seller's profit.

C) Customer or Policyholder

The customer's expected utility before purchasing is a function of premium (P), reserve, and indemnification (I). But after the purchase, the risk coverage (RC) is added to the customer's utility function. This depends on whether the policy is retained or surrendered (X). This is for customers who require life insurance:

$$\begin{aligned} U_1 &= U_1(P_t, I) \\ U_2 &= U_2(RC, P_t, I) \\ &= RC(X, K) + SV + I - P_t \end{aligned} \quad (8)$$

$$\frac{\partial U_2}{\partial RC}\frac{\partial RC}{\partial X} < 0 \qquad \frac{\partial U_2}{\partial RC}\frac{\partial RC}{\partial K} > 0$$

The aggregate utility function is:

$$W = G + V + U \tag{9}$$

If a change in commission increases equation 7, or in other words causes a better-off in situation, it can be concluded that the existing commission structure is not optimal since a change in commission results in a better situation than the current one.

4. The Impact of Commission Structure Change on the Equilibrium

The current situation is one in which the insurer takes no action to change the commission rate. In this case, the basic model is identical to Figure 1. According to Ahmadzadeh et al. (2019), UL policyholders comprise over 85% of all life insurance policyholders, while this proportion is approximately 50% in the leading countries in insurance industry. Therefore, In the current situation, the dominating strategy of the seller is $(S_{UL}|UL), (S_{UL}|TL)$. Since the majority of customers are misinformed, they choose $(UL|S_{UL}), (TL|S_{TL})$ and purchase the product offered by the seller.

4.1 Commission Reduction for Universal Life Insurance

Changes in seller behavior are proportional to the amount of UL commission reduction. It is assumed that the reduction in UL commission rate would result in a gain equivalent to TL from the sale of UL. Thus, Equation 3 is modified as follows:

$$\begin{aligned} &V^{UL}(UL) = V^{UL}(TL) > V^{UL}(O) = 0 \\ &V^{TL}(UL) = V^{TL}(TL) > V^{TL}(O) = 0 \end{aligned} \tag{10}$$

The sales representative gets indifferent between sending the S_{TL} and S_{TL} signals. Therefore, $(S_{UL}|UL), (S_{UL}|TL)$ is no longer the dominant strategy. Consequently, the probability of sending the incorrect signal (($P_S(S_{UL}|TL)$ and $P_S(S_{TL}|UL)$) is decreased, while the probability of sending the correct signal ($P_S(S_{UL}|UL)$ and $P_S(S_{TL}|TL)$) or the selection of the fourth strategy of the seller $(S_{UL}|UL), (S_{TL}|TL)$ is increased. By reducing universal life insurance commission, the seller's benefit would decrease. So, we have:

$$\begin{aligned} &V_0 > V_1 \\ &V_1 - V_0 = -\Delta C_{UL}.\Delta UL + C_{TL}.\Delta TL \end{aligned} \tag{11}$$

For the customer, the higher the probability of receiving the correct signal, the higher the probability of purchasing the correct product, and the smaller the

probability of surrendering policy $P_X(UL, TL|i)$ in the future (more risk coverage). The sign of $\underline{-\Delta X}$ is positive given that the surrendering of the insurance policy (X) is inversely related to the customer's utility. So, we have:

$$U_1 > U_0$$
$$U_1 - U_0 = -\Delta X \quad (12)$$

Thus, not only does the insurer pay less commission, but by decreasing the surrender rate, it also earns more premium. As previously stated, $\frac{\partial G}{\partial X} < 0$, hence the sign of $-\Delta P_X$ is positive.

$$G_1 > G_0$$
$$G_1 - G_0 = \Delta C_{UL}.\Delta UL - \Delta P_X(UL, TL|i) \quad (13)$$

As a result of this change in status, according to the Kaldor-Hicks Compensation Criteria, those who made better-off (insurer and policyholder) can compensate those who made worse-off (seller) and still be in a better situation than before. The Insurer by paying $\Delta C_{UL}.\Delta UL$ to the seller can compensate the seller's loss even more than V_0 and still be in a better situation due to the reduction in the surrendering rate of the insurance policy.

This conclusion would be true if the amount of life insurance sales does not decrease and in that way, the null hypothesis of this study cannot be rejected. But by decreasing the sales remuneration, the seller's motivation for selling life insurance products would decrease too and the insurer's benefit would decrease, respectively. It indicates that $\Delta TL + \Delta UL < 0$. Consequently, the overall impact of this strategy is not clear.

4.2 Commission Increase for Term Life Insurance

With same assumption like previous change, the seller gets indifferent between sending the S_{TL} and S_{UL} signals. Therefore, $(S_{UL}|UL), (S_{UL}|TL)$ strategy for seller is no longer dominant in this situation.

$$V_2 > V_0$$
$$V_2 - V_0 = \Delta C_{TL}.TL - C_{UL}.\Delta UL \quad (14)$$
$$\Delta TL + \Delta UL \geq 0$$

With an increase in the commission rate, the motivation of the seller to work harder will also increase, and they will sell more life insurance policies. This modification would improve the seller's benefit while maintaining the customer's utility same as Equation (12). The chance of receiving a correct signal to the customer would increase, and the surrender rate would fall. The insurer's benefit

would decrease by paying more commission to the seller, on the other hand, they gains more premiums from the reduction of surrendering probability.

$$G_2 > G_0$$
$$G_2 - G_0 = -\Delta C_{TL}.\Delta TL + C_{UL}\Delta UL - \Delta P_X(UL, TL|i) \quad (15)$$
$$\Delta TL + \Delta UL \geq 0$$

According to the Kaldor-Hicks Compensation Criteria, the customer's utility will increase in this instance due to the greater likelihood of getting a correct signal. On the other hand, the seller can compensate the insurer and still be in a better situation. Because the insurer's total loss is less than $\Delta C_{TL}.\Delta TL$. By increasing the term life insurance commission, a better situation based on social welfare criteria could be achieved. Thus, the current commission structure is not socially optimal.

4.3 Increase in Payment Period for UL Sales Commission

It is assumed that extending the payment period for UL sales commission would be such that the seller gets indifferent between selling UL and TL. Consequently, the seller's gain would decrease:

$$V_0 > V_3$$
$$V_3 - V_0 = -\Delta PV(C_{UL}) - (\Delta UL + \Delta TL) \quad (16)$$
$$\Delta UL + \Delta TL \leq 0$$

The net present value of the seller's profit from selling UL will decreases and be added to the insurer's benefit as a result of this modification. The seller's motivation for selling life insurance products will also drop. For insurer, we have:

$$G_3 > G_0$$
$$G_3 - G_0 = \Delta PV(C_{UL}) - (\Delta UL + \Delta TL) - \Delta P_X(UL, TL|i) \quad (17)$$
$$\Delta UL + \Delta TL \leq 0$$

Given that the seller's behavior in this condition is identical to that in the first state, the customer's utility would be greater than the current situation. If the number of sales does not decrease, or $(\Delta UL + \Delta TL) \geq 0$, it can be stated that the new situation will be strictly better than the current situation. Consequently, the null hypothesis cannot be rejected based on this assumption. But because a change in commissions alters the seller's motives, the result of this strategy is unclear.

5. Conclusion

According to Central Insurance Regulation No. 83, the sales commission for universal life insurance is significantly larger than for term life insurance,

therefore the majority of sales representatives and brokers attempt to sell more universal life insurance products. Based on Ahmadzadeh et al. (2019) 85% of all life insurance policies in Iran are universal life insurance. In the top insurance-producing nations, this proportion is approximately 50%. According to the studies conducted on a similar issue of this research and the examination of the hypothesis, the following can be deduced:

If the seller has the same motivation to sell different types of life insurance, the chance of providing genuine advice to the customer will increase. By reducing the surrendering (or lapse) rate, a better situation can be achieved. Assuming that the seller's overall motivation to sell not weakened, because a reduction in Universal life insurance commission will decrease the seller's benefit, so it could result a negative impact on level of selling caused by reduction in seller's motivation. Therefore, the insurer can make the seller indifferent to selling each type of life insurance without decreasing the seller's motivation by employing a combination of the aforementioned strategies (for instance the insurer can decrease the universal life insurance commission and increase the term life insurance commission at the same time). According to welfare improvement criterion, a better situation can be achieved, and the current structure of life insurance sales commissions is not socially optimal.

6. Policy Recommendation

1. In addition to the insurer's strategies, if surrendering the life insurance policy causes a reduction in the seller's revenue like the insurer, then a better situation could be achieved, and the seller will advise the customer according to their needs;
2. To mitigate the negative effects of asymmetric information, In addition to influencing the seller's behavior, artificial intelligence could be considered as a mechanism for customers to purchase products directly from the insurer;
3. This paper has examined only one of the obstacles facing the Iranian life insurance industry and its solution can assist to improve the industry's status to some degree. However, persistent inflation is the most important factor contributing to the decline in life insurance prevalence. Therefore, this topic should be considered in future studies.

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