

## The Development of Welfare Theory in Conditions of Changes in the Quality of Goods and Services

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**Abstract:** In work on the basis of revealing of interconnection between theories of welfare and markets of imperfect competition, by quality non-homogeneity of goods and services, consumers and producers there determines the influence of public welfare on mechanisms of imperfect competition market and their adverse effect on public welfare which includes stimulation of demand and growth of welfare on the basis of rising level of quality of produced and consumed goods and services.

**Key words:** Welfare • Quality • Qualitative changes and imperfect competition

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### INTRODUCTION

Maximization of public welfare came down to solving the problem of distribution of wealth in conditions of perfect and imperfect competitions. As for economic theory of public sector which has normative aspect and sometimes treated like applied theory of public welfare, it deals mostly with problems of income redistribution, inequality, social insurance, etc.

However the problem of maximization and growth of public welfare with qualitative changes is still out of view of economic researchers. In this article we made attempt to consider some aspects of the this difficult problem - maximization and growth of the public welfare qualitative changes of produced and consumed goods.

In the course of evolution of welfare theory there were formed four main approaches to the decision of just welfare distribution: liberal (market - oriented), utilitarian, egalitarian (socially oriented) and compensatory. The main representatives of those directions were A. Smith, R.Nousic, I. Bentam, G.Rouls, V Pareto, G. R. Hicks, N. Kaldor and others.

As the research showed all those approaches are, firstly limited in use only in conditions of homogeneity or quasi-homogeneity of objects and subjects of management, secondly they solve the problem of redistribution of already existing welfare, thirdly they are methodically unable to solve the problem of quality growth of public welfare on non-homogeneous markets [1].

On the basis of revealing of interconnection between theories of welfare and markets of imperfect competition, by quality non-homogeneity of goods and services, consumers and producers there determines the influence of public welfare on mechanisms of imperfect competition market and their adverse effect on public welfare which includes stimulation of demand and growth of welfare on the basis of rising level of quality of produced and consumed goods and services. Thus it broadens the sphere of research of welfare theory on the basis of “defrosting” and activating of the most important welfare factor - quality, which is captured by Marshall’s theory in sphere of assumption - “other things being equal”.

### MATERIALS AND METHODS

On the basis of author’s classification of goods on the grounds of changeability of quantity and quality, preferability and information awareness, introduction and widening of terminology of different types of goods, including free goods of limited quality, goods of changeable quality and quantity, goods, which quality can be checked before consumption, goods, which quality can be checked during the process of consumption and others, in the work there substantiated and systemized the reasons of forming of quality non homogeneity of objects and subjects of management, consisting in their layering by consumption and producing of different quality level, time and geographical area of their production and selling. Thus there reveals the condition

of rise of quality goods and services on market, which comes down to excess of rise speed of quality producer's surplus over rise of speed of expenses, connected with providing the given quality level.

All this allowed introducing a hypothesis about existence of the fourth theorem of welfare, the essence of which includes in that the rise of quality level of produced and consumed goods in economic system leads to multiplicative rise of individual and public welfare by stimulation of supply and demand. Thus unlike the well-known fundamental theorems of welfare, solving the problem of optimal distribution or redistribution of already existing wealth, the fourth theorem is connected with solving of public welfare rise as a result of rise of quality consumer and producer excesses provided by the rise of goods quality [2].

## RESULTS

Such methodological approach to the research of public welfare differs from those known before, which use only price and volume characteristics and as follows they have limitation of conditions of market economy homogeneity by universality and research and analyses additionally include quality characteristics of goods and services, owing to this there was revealed the direction of quality rise of public welfare in economically developed countries.

It is known that with the violation even of one conditions of perfect competition the market there appears imperfect competition when producers-sellers are inclined to present, with the help of packing and external design their homogeneous goods like heterogeneous, broaden the sphere of preference, using favorable geographical position, temporal situation, etc. Inequality is also created by advertisement.

All this at our point of view stipulates non homogeneity of goods and services. In turn non homogeneity of producers-sellers connected with quality difference of technologies, labor-power and other factors of production Non homogeneity of consumers is determined by social-economic levels, including difference in income, taste, preferences, gender characteristics, etc.

On non homogeneous markets there appear monopolistic and oligopolistic competition, both between sellers and buyers. The given thesis in work can be substantiated as follows. In condition of perfect competition goods on market is homogeneous and in conditions of monopoly goods don't have substitutes,

which also provides their homogeneity. As a result of this consumers, regardless of their preferences and income become homogeneous in consumption of homogeneous goods.

The theory of non homogeneity in our understanding is the basis of the theory of information asymmetry. As it is known asymmetrical information is provided by the absence of information of subjects of management that come into relations. This situation appears on market as a result of non homogeneity of subjects, namely their tastes, preferences, actions etc.

As a result of studying of conditions of transition to social-oriented economy and different forms of non homogeneity we made a conclusion of impossibility of development of public welfare theory in the framework of classical and neoclassical theories of markets.

In the framework of the research made in this work, consumer surplus, taking into account the most important factor - the quality of goods, leads to the necessity of studying of demand and qualitative consumer surplus in three-dimensional space of factors price-volume-quality. Thus studying of these important categories is carried out in space i.e. they are out of two-dimensional subspace limits.

Let's take single product for which manufacturer chooses two real numbers: price  $p$  and quality  $g$ . Let  $p = P(Q, g)$  - inverse function of demand, i.e. the price which creates demand for  $Q$  product units with the quality level  $g$ . It is desirable to provide quality inasmuch as price -  $P$  is growing by  $g$ . Let  $C(Q, g)$  - costs overall for production of  $Q$  product units with quality level  $g$ . It is natural to suppose that costs overall  $C$  will grow by quality  $g$ .

The choice of the quality level by competing firm is made to maximize the difference between overall consumer surplus and production costs. Taking quantity and quality as variables, competing firm maximizes public welfare:

$$W(Q, g) = \int_0^g \int_0^Q P(x, y) dx dy - C(Q, g) \quad (1)$$

where the expression of integral - is overall consumer surplus, described by demand curve with changing quality level 0 to  $g$  and changing volume 0 to  $Q$ .

Qualitative consumer surplus - is money indicator of consumer's income, obtained as a result of purchase of product unit with changeable quality level which includes amount of price surplus. Thus price surplus can be considered with changing volume. As it seen qualitative surplus depends on volume and quality.

Qualitative consumer surplus is a volume under the surface of three-dimensional function of demand lying between two plains, determined by two price levels, parallel to plain of axis of volume and quality on graph of three-dimensional function of demand.

Each level of these two prices is corresponded by surface of parallel plain of axes of volume and quality, limited by the line of intersection of these plains with inverse function of demand.

It's notable that other types of consumer surplus can be introduced analogously for example, from factor of consumer's income, preferences etc. The offered methodology allows introducing consumer surplus for the space of factors, more than three.

Therefore in work, consumer surplus of A Marshall in plain price-volume is called consumer surplus of the first order and consumer surplus in three-dimensional space of factors price-volume-quality - consumer surplus of the second order or qualitative consumer surplus.

Analogous research in work is made concerning qualitative producer surplus which appears as a result of increment of A. Marshall's producer surplus [3] with increment of goods quality level.

In the well-known literature sources there closely considered only dependence of supply volume on one factor only - on price, in presupposition about constancy of all other factors. However such factor as quality, in modern period of development of science and technologies appeared to be very mobile.

In space and time, location of producers on market, offering their goods of the certain quality level is not equal. For example some of them produced many goods of low quality, the others - less goods of high quality. Then expenses of producers on product unit of appropriate quality are not equal. Expenses rise with the rise of product quality level.

## CONCLUSIONS

In this article we tried to complete and expand the scientific results in the field of theory quality, value and profits by identifying mechanisms of influence the quality of goods and services to offer the producer, the consumer utility and the utility of the formation of their benefits (profit and utility).

In economic theory, the total gain is interpreted as a social welfare and is denoted as  $W = CS + PS$ , where CS - profit (surplus) of consumers, equal to the area under the

curve bounded at the top of the demand curve, the bottom line of the market price, PS - profit (surplus) of manufacturers of equal area bounded at the top line of the market price, the bottom of the supply curve.

As it was mentioned earlier the consumers benefit is the difference between the maximum amount of money that consumers are ready to pay for a given quantity of the goods and their actual costs, based on the current market prices for these goods. For the consumers it is the area between the demand curve and the market price line.

We represent the structure of growth in social welfare (Figure 1).

In work there was obtained the following dependence: producers-sellers increase volume of supply of goods with the rise of price, lowering of quality and competition, which connected with decrease of expenses for providing the given low quality level and competitiveness of goods. The largest volume of supply is reached with maximal price minimal possible quality level and competitiveness requests of goods. And vice versa the least volume of supply is reached with minimal price and high quality of goods and competitiveness requests. At the same time the volume of supply increases with the growth of demand level on high-quality goods.

Limit quality welfare can be defined as an additional increment of social welfare by increasing the level of quality of goods consumed by one additional unit. Changes in the level of quality also implies some change in the consumption.

Figure 2 shows graphically how the social welfare increases as a result of the increment of quality.

The growth of social welfare as a result of improving the quality is provided by the increment of consumer surplus and the profit (surplus) of the manufacturer (shaded area).

In our opinion, the qualitative growth of wealth - this is a trend to increase the amount of consumer high-quality surplus and manufacture high-quality surplus which is derived from improving the quality of goods and services.

Qualitative growth of social welfare is a function of the growth of high-quality consumer and manufacture surplus when the level of quality of consumed goods and services changes.

Producer, achieving increment of level of goods quality, gets additional increment of profit, equal to remainder of profits at quality levels  $g_1$  and  $g_0$  and prices  $p_1$  and  $p_0$ . Figure 2 graphically presents the process of public welfare forming on the basis of rise of quality.

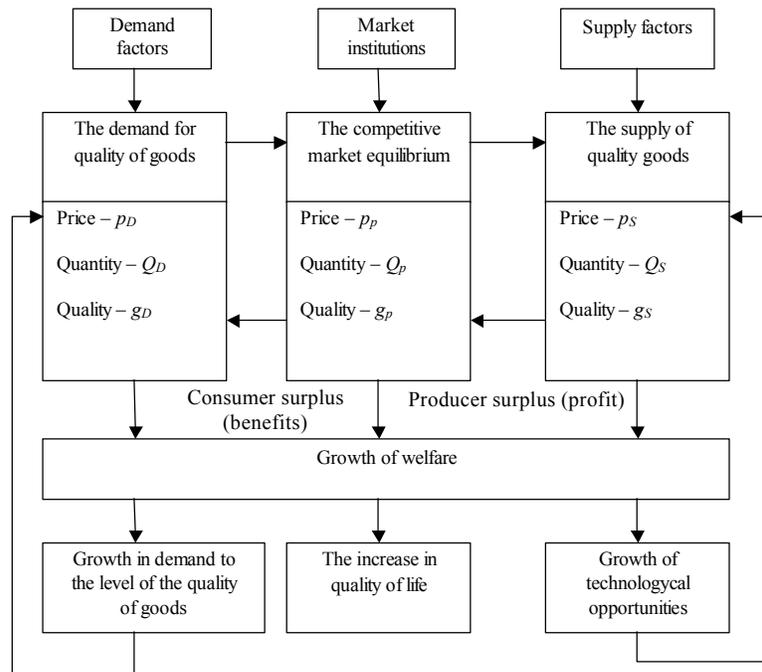


Fig. 1: The structure of the growth of social welfare

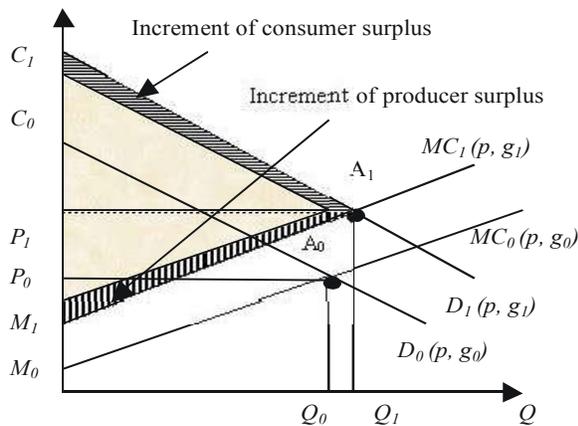


Fig. 2: Increment of benefit (surplus) of consumer and profit of producer, connected with increment of level of goods quality

As seen from the figure, growth of public welfare as a result of increase of level of quality is provided by increment of benefit of consumer and benefit (surplus) of producer equal to hatched areas by horizontal and vertical lines.

This reasoning allowed introducing a number of new notions. Qualitative growth of welfare - is a tendency of increase of amount of qualitative consumer surplus and qualitative producer surplus, happening as a result of rise of level of goods and service quality. Qualitative growth

of public welfare is a function of growth of qualitative consumer and producer surpluses with change in level of quality of consumer goods and services [4, 5].

Thereby qualitative growth of public welfare can happen only on following conditions:

- Marginal utility on quality (MU (g)) exceeds marginal price on quality (MP (g)):  $MU (g) \geq MP (g)$ .
- Marginal utility on quality exceeds marginal price on quality. Marginal price on quality (MP (g)) exceeds marginal costs (MC (g)):  $MP (g) \geq MC (g)$ .

Economical sense of these two conditions consists in following: the first condition is connected with the growth of consumers demand as a result of rise of goods quality, which happens as a result of qualitative stimulation of consumes demand. The second condition is connected with producer's gain of additional profit as a result of sales of quality goods by higher price than goods of lower quality level, which also, eventually, is the result of qualitative stimulation of producer's supply.

Otherwise we can formulate these conditions as follows: With one and the same speed of quality level growth the following conditions must be held.

- The velocity of utility level growth  $V$  utility (g) exceeds velocity of price level growth ( $V$  price (g)):

V utility (g) > V price (g);

- The velocity of price level growth exceeds velocity of cost level growth with V price (g) > V costs (g).

As a result of integration of these two conditions we come to the important necessary condition of quality level growth on goods and service market: the necessary condition of growth of goods and service quality is excess of velocity of utility level growth over level of consumption of quality product price and over velocity of production costs for providing goods with given level of quality i.e.. V utility (g) > V price (g) > V costs (g).

It should be noted that qualitative costs of consumers and producers also can be interpreted as expressed in money losses of consumers and producers from prohibition of consumption and production of goods of given quality level.

Starting from such reasoning we go to the sphere of practical application of obtained results, consisting in state regulation of economic development both the country as a whole and separate subjects of management (producers and consumers).

It's common to think that postulates of Pareto's theory of welfare are value judgements. That means that Pareto-optimality - normative notion. As it known the basis of normative approach are recommendations on carrying out economic policy. With a breakdown into this we open value judgments connected with qualitative changes of goods. In the framework of methodology of public welfare, value judgments have special place. At the beginning we cite widely known obvious example of value judgment, according to which economic growth, of quantity measured of real net national income is always desirable. But will be this judgment so immovable, if with that economic growth leads to absolute worsening of situation with people, whose income belong to lower quartile (decile or quintile) of the corresponding distribution. The same way, for the substantiation of our hypothesis of "qualitative growth always leads to the growth of public welfare", we have a right to put a question: 1) Is it always justified to raise salary with rise of work quality? 2) Will the price of high-quality goods always be higher than low-quality goods with reliable information about level of quality?.

Asking our self-questions in this direction we find difference between "basic" and "non basic" value judgments, connected with qualitative changes. In this context let's apply to the most common definition

introduced by A. Sen. "Value judgments can be called "basic" for a man if it implies that it relates for him true at any circumstances, otherwise it is "non basic".

As long as value judgment is non-basic or mixed, to which belong value judgment on qualitative changes, discussion about it is based on facts. This approach is effective, since as it known, our standard methods of dispute resolution about facts are not as doubtful as our methods of dispute resolution about values. If value judgment about qualitative changes was basic, or clear value judgment - like for example in the case of allegation of little-informed person " Work quality of professor is high and therefore his salary is high", - thereby we stated absence of ability to analyze and discuss qualitative growth of people welfare.

Thus, quality is the basis of development of individual and public welfare and production prosperity. The presence of the quality allows getting an additional welfare defined by consumer surplus through additional utility increment for consumer.

With this the increase of costs for providing of quality will be lower than obtained benefit from utility, caused by the growth of quality. For manufactures that will mean not only efficient use of limited economic resources but additional surplus defined by the growth of income from increasing quality level, which is more than costs of providing of quality.

## REFERENCES

1. Tirole, J., 1998. The Theory of Industrial Organization. - Cambridge, MA: MIT Press, pp: 322.
2. Safiullin, L.N. and N.Z. Safiullin, 2010. Generalized coefficients of goods quality and satisfying of consumers demand. Abstract. 3-4. pp: 54-61.
3. Barry, N., 1998. Welfare Policies. Encyclopedia of Applied Ethics (Second Edition), pp: 519-530.
4. Laffont, J.J., 1989. The Economics of Uncertainty and Information. The MIT Press, Cambridge, MA, pp: 343.
5. Safiullin, L.N., N.Z. Safiullin, N.G. Bagautdinova and A.Z. Novenkova, 2012. Theoretical aspects of public welfare rise. Proceedings "2<sup>nd</sup> Annual International Conference on Micro and Macro Economics. pp: 77-81. doi: 10.5176/2251-2055\_MME1224.
6. Aidukaite, J., 2009. Old welfare state theories and new welfare regimes in Eastern Europe: Challenges and implications. Communist and Post-Communist Studies, 42(1): 23-39.

7. Sorensen, J.T. and D. Fraser 2010. On-farm welfare assessment for regulatory purposes: Issues and possible solutions. *Livestock Science*, 131(1): 1-7.
8. Safiullin, L.N., N.Z. Safiullin, N.G. Bagautdinova and I.R. Gafurov, 2012. Influence of quality of the goods on satisfactions of consumers. *Journal on Business Review*, 2(2): 225-232.
9. Bischoff, I. and J. Meckl, 2008. Endowment effect theory, public goods and welfare. *Journal of Socio-Economics*, 37(5): 1768-1774.
10. Marrero, G.A. and A. Novales, 2007. Income taxes, public investment and welfare in a growing economy. *Journal of Economic Dynamics and Control*, 31(10): 3348-3369.
11. Jagpal, S. and M. Spiegel, 2011. Free samples, profits and welfare: The effect of market structures and behavioral modes. *Journal of Business Research*, 64(2): 213-219.
12. Bolton, R.N. and K.N. Lemon. 1999. A dynamic model of customers' usage of services: Usage as an antecedent and consequence of satisfaction. *Journal of Marketing Research*, 36(2): 171-186.
13. Laffont, J.J. and D. Martimort, 2002. *The Theory of Incentives: The Principal-Agent Model*. Princeton University Press, Princeton, NJ, pp: 221.