



## THE IMPACT OF TECHNOLOGICAL PROGRESS TOWARDS ARTISAN BAKERY

A.E. Boeriu<sup>1</sup>, G.Calefariu<sup>1</sup>

<sup>1</sup> Transilvania University of Braşov, Braşov, ROMANIA, adriana.boeriu@unitbv.ro

**Abstract:** *The technological progress of industry has determined a radical change of bread production, diminishing the manufacturing time, the manner of processing the ingredients and the amount of resources needed. Across the last decades, the most affected by the evolution of the industry was the artisan bakery, the local producers who were forced to comply with the actual tendencies. Local artisans succeeded to provide bread and bread products to local community, but the large variety of products offered by industrial production has replaced the local products in consumer preferences, in manner of flavor, taste, ingredients, availability, manner of packaging and the most important – aspect.*

*The aim of this paper is to study the effects that industrial forestall has on artisan bakery, to analyze the factors that have determined the gradual decrease of the number of local bakeries and the preferences of the actual consumer concerning bread choice in Europe and in Romania.*

**Keywords:** *artisan bakery, bread, preferences, industrial production.*

### 1. INTRODUCTION

Bread has its significance in nutrition aspects towards many people judging by its significance in history and contemporary context. Regarding the religious aspects, along with wine, bread represents one of the basic elements, having biblical reference. Along time, it has become an impetuous need for living being a necessity and also a sign of wellbeing, the ones who managed to “put bread on the table” were considered a part of the superior state of the community. Judging by its multiple valences – as a sign of welcome for guests, together with salt, as a basic food for certain person, as a religious practice, as a source of income for some manufacturers, bread has been a reference for centuries.

Bread is one of the most important products in daily menu of the consumers, but in the actual view, we still assist to a mentality changing. Looking back to the last decades, the consumers used to buy their bread from the local bakery, the custom of daily acquiring bread being inherited from the ancestors. In small communities, where most of the people were working during day, the practice of taking the bread in the first hours of the morning was very important. Even in the most wealth families, the servants or the person who were in charge with cooking or serving the dishes for the owners used to buy fresh bread early in the morning from the bakery.

Each community had a number of places that were indispensable such as – main hall, grocer’s store, mill, bakery, butchers. The mill was grinding the grains and obtained flour, which was then delivered to bakery in order to produce bread for the community. The local baker used to manufacture the bread since the first hours of the day, in order to get ready products for the community quick in the morning. This type of production was generally named ‘artisan bakery’.

The 19<sup>th</sup> century started with huge changes in cooking and eating habits and this fact affected also the small scale production of bread, industrial processing taking control over consumer’s choice. Industrial bread making offered a larger variety of products, availability and increased term of validity. [3]

### 2. ARTISAN BAKERY

Artisan bakery is a notion that refers to a type of production of short-life bread, often offered unpacked, kept in baskets and covered with cotton towels and sold immediately after production with the aim pf consuming fresh.

The main attribute of artisan bakery was the production in small areas, such as small factories or traditional bakeries, located in the home of the baker or in the main floor of the mills. Artisan bakery is defined by a series of attributes like: the use of traditional processing techniques and instruments, handmade manipulation of dough and flour sieving, use of freshness and leaven, long fermentation period, stone oven or wood oven baking.

Also, artisan bakery do not comply with any standard requirement and does not comply with a certain demand of shape and weight, due to hand dividing and shaping. [4]

The term ‘artisan bread’ has its origins somewhere in 18<sup>th</sup> century, being associated with the image of artisan baker, the artist of bread shaping by hand, being able to obtain leaven and double the volume of the dough by using only four basic ingredients: flour, water, yeast, salt. The ingredients and amount of use for bread production is highlighted in table 1.

Table 1. Ingredients and amounts used in artisan bakery [4]

| <b>Ingredient</b>   | <b>Baker's %</b>                        |
|---|---|
| <b>Bread flour</b>  | 100.0                                   |
| <b>Whole wheat flour</b>  | Any level / 100.0 for whole wheat bread |
| <b>Rye flour (dark, medium or light)</b>                              | 20.0–40.0                               |
| <b>Semolina flour</b>   | Any level                               |
| <b>Cracked or crushed whole grains</b>                                | Any level                               |
| <b>Water</b>  | 50.0–85.0                               |
| <b>Compressed yeast (optional if using pre-ferments or sourdough)</b> | 0.1–3.0                                 |
| <b>Poolish / sponge</b>   | 15.0–50.0                               |
| <b>Sourdough</b>  | 15.0–50.0                               |
| <b>Virgin olive oil (flavor and color)</b>                            | 1.0–2.0                                 |
| <b>Non-diastatic malt (color and flavor)</b>                          | 1.5–2.0                                 |
| <b>Sugar (refined, granular)</b>                                      | 0.5–1.0                                 |
| <b>Salt</b>   | 1.5–2.0                                 |

The range of products obtained in artisan bakery was restricted to a series of products: baguette, ciabatta, focaccia, naturally leavened multigrain bread, naturally leavened white bread, panettone and brioche. The products are usually crusty, with a large and open cell structure. They also have a rustic look, ornate scoring and/ or flour dusting or seed on top.

The baker always took control of the process and took into account the time and weather conditions when preparing bread, for instance, when it was raining and the atmosphere was wet, the amount of water used was definitely lower than when it was sunny in order to obtain appropriate products.

Also, the baker was interested in arranging the products in baskets and wood racks on a mandatory white padding and covering them until the customers come in order to keep them fresh and steamy. The store was constantly airy and dust removed for hygiene conditions.

These attributes make a contrast to the so considered ‘dark’ and ‘mysterious’ standard requirements applied on industrial scale that supposed expensive, repeatable, industrialized and standardized methods of bread making

### 3. INDUSTRIAL BAKING

By the beginning of the 20<sup>th</sup> century, the artisan bakeries number decreased, as the number of population increased and the production of bread was controlled by factories, applying the industrial requirements.

The industrial production bases on a different essential motivating factor – satisfaction and profit and operates in a completely different manner comparing to the artisan bakery. Industrial production focuses on automation, mechanization and cost reduction. Comparing to the industrial aspect, the artisan bakery also relies on profit and reducing cost, but takes into account as a dominator the idea of obtaining a healthy and original product.

Bakery products, industrial called BCG, such as bread, bakery and many other specialties, make an important contribution to a balanced diet, which is the basis of the nutritional pyramid. Consumers prefer freshly baked products, traditionally prepared by baking from raw dough. In addition, consumers are looking for a wider range of products, including culture-specific products, generically called ethnic products, health promotion products, non-allergic products (ie gluten free bread) with a high level of "freshness" and organoleptic qualities.

At the same time, the low availability of qualified bakers and the cost of the sales space means that traditional bakers are having difficulty correlating production with demand. The food industry has proposed several alternatives to address this problem. Appropriate technologies called "Bake Off Technologies" (BOT) include several baking processes. The spirit of BOT is to maintain the technological and time-consuming operations at the industrial level, and the final preparation of the products before retailing is carried out in the small shops equipped with a minimum of equipment (defrost chamber, oven) and with a minimum of staff qualification.

BOT's market share has a very high growth rate (more or less around 10% per year), while total bread consumption is almost constant; thus there is a shift from traditional baking to BOT. [1], [2]

#### 4. FACTORS THAT HAVE DETERMINED THE DECREASE IN THE NUMBER OF ARTISAN BAKERIES

Artisan bakeries still exist on actual marketplace, but on a small scale, being too vulnerable across centuries in front of industrial approach. Being pushed by the customer searching for novelty, rapid acquisition and always available products with longer validity, the actors in industrial production understood the demand. As a result, the sales of artisans dropped.

The decrease in the sales of artisans was determined by the following factors:

- the preference for new products created with novel ingredients;
- lack of time spent at home and late working;
- less interest for home cooking;
- preference for supermarket bread achieving;
- reduction of bread consumption in daily diet;
- interests for certain diets that are not based on or exclude bread. [4]

#### 5. BREAD CONSUMPTION AND CONSUMER PREFERENCES

##### 5.1. Bread market in Europe and Romania

In 2003, the European bread market was divided into 47% traditional baked bread, 6% for bread produced in the supermarket (traditional baking from scratch), 36% for fresh industrial bread and 11% for baked and precooked industrial products.

France, Italy and Germany account for 75% of the European bread market. Production was divided into 6% for traditional bakeries, 19% for consumption outside the home, 20% for affiliated bakeries and shops in the mall and 55% for supermarkets. Among these average values, there are differences from one country to another. For example, in France, only 24% of fresh bread comes from industrial bakeries, while in the UK 51% of the production of fresh bread comes from industrial bakeries (in total 88% of global bread production is industrial in the United Kingdom).

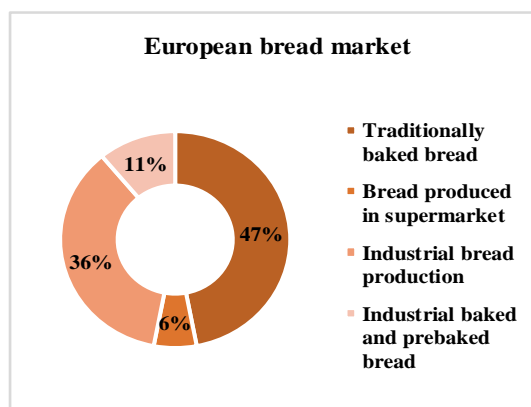


Fig. 1. European bread market

According to a recent study conducted by ROMPAN, in Romania bread consumption decreased from 92 kg/ year/ person to 82 kg/ year/ person, but it is still over the European average of 78 kg/ year/ person. In this context, Romania lost its top position in bread consumption European rate. This fact is due to the preference of the people for bread products, taking into account the tradition in consumption inherited from ancestors and the custom of combining almost all the plates with bread even if we talk about soups or main dishes.

The market study presented also shows that biscuits and flour pastes registered an increase of 12.5% in 2017, compared to 2016, sponge cake with 9.3%, flour pasta with 3%, and pastry products with 0.7%, but the street trade was not included here. On the other hand, the consumption of flour decreased by 2.3%, the Malay by 6.5% and the consumption of bread by 2.2%.

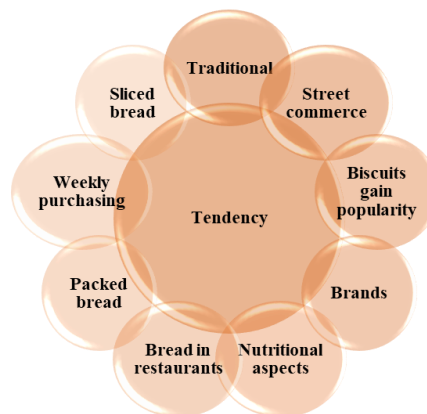
Last but not least, the market study shows that almost 500,000 tons of bread are missing from the INS statistical data, ie 23 kg./ man bread not taxed and not registered with documents. According to the quoted source, the annual bread production in Romania is 1.5 million tones

According to the results, the milling and bakery market increased to 3 billion euros, being the first place in the food industry, which means "we beat the butchers".

4,500 companies are active in the market, and ROMPAN, the first association established in Romania in 1990, comprises over 300 companies from all fields of industry. The market share is 65% per mill, 40% for bakery, 70% for pasta and 55% for biscuits. [5]

## 5.2. Consumer's trends

The new generations of consumers are much more interested in healthy bread and more aware of what they put on the table, a tendency that manifests itself in close connection with diminishing resources. Consumers want to know what they eat and where the ingredients come from. The bakery industry is in a constant change, through co-innovation between the production and research sectors. [6]



**Fig. 2.** Tendencies in bread consumption

The increased concern for a healthy lifestyle, as a result of rising obesity rates worldwide, has led to a gradual repositioning of this category from basic food to fitting, which can be consumed at any time of the day.

### Traditional

The most important tendency is the decrease of consumption and to rely on traditional. This tendency to decrease the consumption of bread in recent years is viable and correct, even if the new bakeries do not agree. They assert the first place in the last yeast, but now they are on the second or third place. They are more interested in the qualitative factor than the quantitative factor. It is interesting that the demand for bread made from whole wheat flour and that of products made in traditional system rather than in industrial system has started to increase, so the world is heading towards normality and good quality of products.

### Street commerce

Secondly, the so called 'street commerce' is gaining popularity. Consumers are interested in buying bread from traditional and local markets directly from producers or artisans. This fact brings benefits from both sides: local producers can bring their products and promote in thematic fairs and the consumers can achieve products directly from bakers and artisans and certifying their provenience. Also, in Asian countries such as Turkey and different regions from Asia, producers use to walk on streets and local markets with the products and sell directly to several consumers.

### Biscuits instead of bread

Flour is normal to fall, because less bread is made at home. Households no longer have time to make dishes and bread, they buy semi-prepared foods made in the traditional system. But biscuits have grown, as do the donuts, because people eat on the run, take a donut or biscuit in the subway, until work, that's about eating at breakfast, which is not good or healthy, but that's the reason for which the consumption of biscuits increased and the one for flour decreased.

### Brands decide for consumers

In Romania, as in the European market of bakery products, there is a constant development of the trends that go towards healthy food. Concerned about the health status, consumers are heading towards the brand and in the bread sector, bakeries with no name or which are not under the umbrella of a well-known brand, and will fall in sales. The producers no longer consider bread an absolutely necessary product, but a product well adapted to the needs and needs of consumers.

### **Nutritional aspect**

Choosing quality bread has significant benefits in human nutrition. Black bread and seed bread contain a large amount of vitamins and fiber, which is why their nutritional value is higher than that of white bread. Integral products are ideal for diabetics, even if they have about 50% carbohydrates.

According to recent considerations, the removal of bread with negative attributes, such as unsaturated fats, is considered extremely important for consumers, who are looking for alternatives to healthy nutrition:

- 45% of consumers are looking for whole grain bread;
- 34% say that a high fiber content is important;
- 28% are looking for unsaturated fat products.

### **Healthy bread in restaurants**

Considering the fact that the actual consumer is in a continuous rush, the alternative of a taking the lunch in a restaurant is in most cases the most adequate. This is the reason why restaurants should comply with consumer expectation in manner of bread, being able to offer alternatives.

The analysis of the menus in the restaurant sector reveals a clear trend towards the positive attributes of the food, with a high fiber content and preparation using whole grains. These attributes tend to replace the old ones, reducing the percentage of fat or calories. The concern for health and more attention to the ingredients introduced in the preparation of the food that constitutes the daily environment have launched the trend towards whole grains. These attributes are more important to premium consumers because they are able to pay more for them.

In addition to bakery products from whole grains, there are opportunities for positive attributes in nutrition that consist of harnessing the nutritional compounds found in foods such as nuts, nuts and fruits or dark chocolate. Even in pastry products, consumers are looking for such attributes - they are looking for real, traditional and refined, but naturally natural.

Consumers are in a continuous search for healthy ingredients, so there is huge potential in promoting positive attributes.

### **The preference for packed bread**

The need to consume safe products for health was also reflected in the perception of the external appearance of the consumed products. Thus, the assumption that a packaged and sealed product is safer has also been applied to bread, reporting an increase in the preference for packaged bread, a fact confirmed by sales that are increasing year by year. In the first nine months of 2012, sales were higher by about 20% compared to the same period of 2010.

A large number of Romanian consumers with medium and high incomes prefer to spend more money on packaged bread, which has a longer shelf life, which is why today the bakery label contains information such as product name, weight, shelf life, ingredients, packing time and storage conditions.

At the same time, the last period was marked by a 30% increase in consumption of special packaged and sliced products, products made from rye flour, whole wheat flour, graham flour or with additions of bran, seeds, wheat germs, etc. It seems that graham bread, seed bread, rye bread and dietary bread have a higher share in sales compared to classic sliced bread. Those who focus on this product are customers with medium to high incomes. Given the weight of "special" bread in packaged bread sales, we can say that the people who buy these products are oriented towards healthy eating.

### **Packaged bread**

The concept of packaged bread caused consumers to move from daily to weekly shopping. The fact that it is packaged properly makes the products win the trust of customers, giving them a product that is perceived as being safer.

From another point of view, the packaging was initially used only as a necessity, but was not personalized by a dedicated brand. Then the potential of this market was discovered and invested in the quality and image

communicated through the sliced bread packaging. For some bread brands, the brand's communication elements are distinct, starting from the design colors - each assortment has a different color. Packaging is a way of communicating with the consumer, and an attractive and brightly colored design often determines the purchase decision.

### **Sliced bread**

Sliced bread is an advantage of several categories of consumers including: those for whom time is precious, children who cannot safely handle a knife, those who prepare the meal, but also those who dispose of it, because less results crumbs.

With the campaign to promote sliced bread, the company caused the bakery to communicate, raising the marketing of this industry to an unimaginable level a few years ago.

## **6. CONCLUSION**

The bakery industry still satisfies consumer needs. Artisan bakers will become again one of the interest factors due to the concern for traditional and 'clean products'. This category of bread is going to become more important in the baking industry as customers are looking for products with different and creative designs, maximum freshness and clean labels. The areas of commerce such as street commerce and thematic fairs are going to reset artisan bakery and traditional bakers on a strong position in product choice, reconsidering the acquirement of products industrial made.

Because of the strong industrialization, the bakery industry has entered a powerful segmentation process, in which the specialties and traditional bread are increasingly struggling on the daily basket of Romanians

Aside from the mechanization aspect, the difference between these two types of bakeries may seem subtle and have some overlap. Obviously both are interested in creating a quality product and both are interested in reducing costs and maximizing profit.

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