

A perspective from furniture and cabinet manufacturers in Turkey

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Abstract

This study evaluated current furniture and cabinet industry in Turkey. A survey was used to cover 680 of 2250 companies in the country. Some of the problems of small- and mid-sized furniture and cabinet manufacturers such as procurement of raw material, inventory capacity, reasons of insufficient raw material inventory, production types, marketing problems and their reasons were analyzed based on the response to the survey. Possible suggestions to solve the above problems of the manufacturers were made to understand the mechanics and improve overall quality of the industry.

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1. Introduction

Composite panels such as particleboard, plywood and medium-density fiberboard (MDF) are most commonly used in the manufacture of furniture, cabinets and floor underlayment in home construction [1–3].

The particleboard industry grew out of a need to dispose off large quantities of sawdust, planer shavings, and to a lesser extent, the use of mill residues and other relatively homogeneous waste materials produced by wood industries. Particleboard is produced by mechanically reducing the chips into small particles, applying various types of adhesive to the particles after a drying process and consolidating a loose mat of the particles with heat and pressure into a panel product. Reducing any lignocellulosic material into particles requires less energy than reducing the same material into fibers. Fiberboard is widely used as substrate for furniture panels. While particleboard can be used in flooring systems, in manufactured houses, for stair treads and as underlayment [4,5].

The term fiberboard includes high-density fiberboard (HDF), medium-density fiberboard (MDF, and low-density fiberboard (LDF) made in dry and wet processes. Because wood is fibrous by nature, fiberboard utilizes the inherent strength of wood to a greater extent than particleboard does. To make fibers, for composites, bonds between the wood fibers must be broken. In its simplest form, this is accomplished by attrition milling. Hot-water soaking, steam cooking or chemical treatments can augment attrition milling. These processes weaken the lignin bonds between the cellulosic fibers. As a result, the fibers are more readily separated. Insulation boards are low-density, wet-laid panel products used for sound insulation and carpet underlayment. MDF is frequently used as substitute of solid wood, plywood and particleboard in furniture production. It is also used for door skins, mouldings and interior trim components. The uses for hardboard and high-density board can generally be grouped as construction, furniture cabinet manufacture and automotive industry [4–9].

Plywood is a flat panel built up of sheets of veneer called plies, united under pressure by a bonding agent to create a panel with an adhesive bond between plies. Plywood can be made from either softwoods or hardwoods. It is always

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constructed with an odd number of veneer sheet with the grain direction of adjacent layers oriented perpendicular to one another. Plywood panels can be used as underlayment, exterior trim and soffits, interior paneling, doors and cabinets [4,5,10–14].

In 1999, total panel consumption by these industry segments accounted for nearly 60% of industrial panel in the United States and Canada [15,16]. This is due to increasing population and decreasing prime timber supply, which predicts a continuing shift to the use of composition boards in these industries [17,18].

The properties of panel products that have the greatest influence on its selection for a use are their uniform smooth surfaces and ability to stay flat. In addition, their uniform density and thickness, strength, machine ability and screw withdrawal are some of the significant factors. A large volume of industrial composite panels continues to be used as core stock material. With the improvement of the face quality, an increasing percentage is being used for direct printing, light decorative papers, foils, resin impregnated papers and thin vinyl [2,3].

Suchsland and Good divided the particleboard using industries into three segments: furniture, kitchen cabinet and store fixture manufacturers [19]. They stated that economics, dimensional stability, telegraphing and warping properties, size and quantity availability, and uniform thickness were the top six reasons for using particleboard as core material for furniture and cabinet panels. The variability in particleboard properties from different manufacturers may have contributed to a negative perception toward using particleboard [17]. Particleboard was the most commonly used panel product, primarily used in the furniture industry while MDF was usually used in producing molding, millwork, display fixtures and furniture.

Wu and Vlosky (2000) [17] stated that the main reason respondents use these products is that they are economical to use, while the main reason they are not used is customer objections. In 2001, Vlosky and Wu also conducted a survey on the develop information on customer perspectives regarding lumber and engineered wood products and determine the selection criteria used by the manufacturers based on technical, economic or performance characteristics. Respondents in all industry sectors studied said that they planned to increase usage of lumber and plywood [20].

The forest products industry represents nearly 22% of all the manufacturing industry having 9% of the total employee potential in Turkey. This resource including 43,794 companies can be classified as small-scale manufacturers with ten or less employee, mid-size companies between 11 and 49 employees, and large companies having more than 50 employees [21]. On the other hand, this industry is affected with numerous problems, including financial, marketing, production and management [22].

Although the numbers of mid-size furniture manufacturers have been increasing within last 15–20 yr small manufacturers are still main portion of the furniture

industry in Turkey. Today there are 45,000 small- and mid-size manufacturers and this number can go up to 60,000 if producers registered to trade organizations are included. The industry has nine companies with foreign capital having 75.3% share of the total investment. Between 1995 and 2000, foreign trade capacity has increased 2.5 times and import and export increased 2.4 and 2.7 times, respectively [21].

Export capacity in furniture industry has increased from US\$75 million to US\$180 million having 139% increases. Capacity increase in furniture import was even higher than export with 176%. The ratio between import and export was 54% in 1997 which is very low due to economical crisis and unstable political environment in the country [21].

Overall furniture trade is carried out with European countries. Among these countries United Kingdom, Italy and Germany are the major markets for import and export, respectively. Since most of the furniture manufacturers in Turkey are small size the ratio of unregistered establishments is very high. Enforcement on quality control and quality certification are also not sufficient in furniture industry. Wood composite panel products which are used as substrate in furniture industry are not complying with the European Standard. Therefore, currently no export is taking place with the USA. When the transportation cost of furniture is added to these parameters export of the product is getting more difficult and less popular in Turkey. Lack of grant given to small- and mid-size furniture producers has also brought lay off of many employees in the industry to keep the final cost of products at the current level. Large capacity manufacturers solve such problems by changing their sales plan toward export rather than dealing with the problems in the domestic market [21].

The composite panel market is highly competitive with pressure from both producers and end users. As a result, panel producers must better understand the customers' needs and focus on value-added applications. The aims of this study were to determine Turkey furniture and cabinet manufacturer's perspectives in using composite panels and understand their selection criteria.

2. Material and method

Panel usage by value-added manufacturers in Turkey was examined. This study, carried out in 2003–2004, covered 2250 companies, was organized as a representative sample survey selected from list of general census of industry and business establishments in 1992, and was carried out by postal and mailed surveys with entrepreneurs and managers of the companies. The study was conducted using mailed surveys, and direct questionnaires to companies. A total 680 of the 2250 questionnaires were returned, resulting in an adjusted response rate of 30.2%. Given that typical response rates for industrial studies ranged from 15% to 35%, a response rate of 30.2% in this study is considered adequate [17].

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