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**AN ECONOMIC ANALYSIS OF HAND KNOTTED WOLLEN CARPET INDUSTRY IN NEPAL**

**WRITTEN BY**

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Of

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## Declaration

I declare that I have worked on my Bachelor Thesis titled “**An economic Analysis of Hand-knotted Woollen Carpet Industry in Nepal**”. By myself and I have used only the sources mentioned at the end of the thesis. As an author of the diploma thesis, I declare that a thesis does not break copyrights or any third person.

In Prague on 30<sup>th</sup> November 2014

.....

Niraj Kumar Sah

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## **Abstract**

Carpet industry plays an important role in a country like Nepal in terms of export and employment. The target of this study is hand-made Nepalese carpets. The aim of this thesis is to present a case study in hand-knotted woollen Nepalese carpets. The goal of the research is to find out the role of carpet industry in the potential development of Nepal. This thesis presents the relationship between carpet industry and economic growth as well as the market possibilities for the hand-made carpets in foreign market. ARIMA method is used in order to find out the relationship between the carpet export, employment and GDP. The data for the research is collected from World Bank Statistics and data ranges from 1999-2013. The result shows that there is a negative relationship between carpet exports, employment and GDP. The economic growth of Nepal is not based upon the carpet industry and also that carpet industry exports do not affect positively on employment.

**Keyword:** Nepal, carpet industry, export, economy growth, employment

## **Abstrakt**

Předmětem tohoto projektu jsou ručně vázané vlněné nepálské koberce. Cílem výzkumu bylo zjistit roli kobercového průmyslu a jeho potenciálu v rozvoji Nepálu. Vztah mezi kobercovým průmyslem a hospodářským růstem, tak jako tržní příležitosti pro ručně vyráběné koberce na zahraničním trhu.

Teorie se skládá z teoretické části, porovnání a analýzy teorie v rámci cílového produktu s využitím výsledků. Na základě těchto zjištění by firmy zabývající se o zahájení podnikání na zahraničním trhu, se dvěma nejdůležitějšími sousedními konkurenty, Čínou a Indií, měly investovat více úsilí do oblasti marketingu jejich produktu, čímž by o nich potenciální zákazníci získali větší povědomí. Tato práce také ukazuje, že existuje negativní vztah mezi exportem koberců, zaměstnaností a HDP. Ekonomický růst nepálu není založen na kobercovém průmyslu a taktéž export kobercového průmyslu pozitivně neovlivňuje zaměstnanost.

**Klíčová slova:** Nepál, Kobercový průmysl, Export, Hospodářský růst, Zaměstnanost

## **List of Abbreviations (Acronyms)**

**GDP:** Gross Domestic product

**USD:** United States Dollar

**WBS:** World Bank Statistics

**GNP:** Gross National Product

**LDC:** Less Developed Country

**NPR:** Nepali rupees

**UK:** United Kingdom

**USA:** United States of America

**ITS:** International Trade Statistics

**NTB:** Nepal Tourism Board

**CCIA:** Central Carpet Industries Association

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# **1 Introduction**

Nepal, as a landlocked country in south East Asia, surrounded by People's Republic of China to the North and Republic of India to the East, West and South. It has an area of 147,181 square kilometres (1) and a population of approximately 30 million. Its GDP (Gross Domestic Product) for the year 2012 estimated USD 39.8 billion (World Bank Statistic), is one of the least developed countries in the world. The GDP mainly composed of agriculture (39%), industry (8%), and service (35%). Some of the primary industries are carpet, textile, cigarette, cement, and brick (2).

A huge majority of the population is illiterate and hence involved in agriculture and other labour intensive industries like the carpet industry. With the global economy in recession, the carpet industry has been hit hard. Moreover, with most of the urban areas being over populated and the basic problems of sanitation, drinking water electricity, housing, and unemployment faced by general public at an all-time high, which is directing efforts in accelerating the pace of her economic development. A hand knotted woollen carpet is a durable good. It is a style item, the demand for which is influenced by the changes in consumer preferences for patterns and colours. In recent years carpet has ceased to be regarded as a luxury item. Hand-knotted carpets are traditionally more expensive than those are made by machines. Although there are several carpet-making methods, including braiding, hand tying, tufting, shearing and hooking, the most common of these are braiding and hand knotting. The processes those create a hand knotted carpet are wool sorting and washing, carding, spinning, dyeing, carpet knotting, trimming, washing and drying. The hand knotted woollen carpet industry plays a vital role in social-economic development of the country like Nepal.

This research is made to discover the market potential for Nepalese carpet industry to reach the global market. This will make the segmentation and decision making processes easier for the industry and help them to concentrate their marketing efforts more efficiently. This research also focuses on the amount of competitors in the market, best entry method, suitable distribution channel, strength and weakness of the product etc. There are various ways and ideas through which international as well as domestic business can be conducted.

## **1.1 Background**

It is argued that the carpet industry has intensified economic, political, social, and cultural relations across borders with uneven impacts for individuals, firms, regions and countries. Due to their

deepening integration into global markets; firms, especially in developing countries. The Nepalese carpet industry belongs to the handicraft sector of the Nepalese economy. The use of hand knotted carpet for achieving developmental objectives in the handicraft sector of a developing country like Nepal presents an interesting area of research. This sector has a direct and growing relation to both national economy (export earnings) and poverty alleviation (rural livelihood) of Nepal and also Nepal's largest foreign exchange earner. This sector employed an estimated 50,000 of the population people in 2013 (markets reports 2014). Many more millions are indirectly employed by the carpet industry in finishing, packaging, shipment, handling, and export. Majority of the workforce in this sector consists of women and child labour and socially disadvantaged sections including scheduled castes and scheduled tribes.

It is estimated that 80 % of Nepal's population depends in agriculture for living. Agriculture incomes in Nepal have been low and fluctuating. The part time, rural nature of handicrafts activity compliments the lifestyles of agriculture household, providing supplementary income to subsistence/seasonal farming, as well as income to women and children. Traditionally, it has also provided the rural population a means to remain and survive in their villages where employment opportunities are limited otherwise (3).

In the case of the hand knotted woollen carpet industry in which many developing countries such as, rules refer primarily to attempts at enforcing labour standards on suppliers by both "lead firms" in the value chain and by other development actors because of increased global awareness of fair trade in recent years. The paper examines and analyses the performance of the Nepalese carpet industry (especially its export sector) in the context of globalization, competitiveness, core labour standards, emerging growth and value chain analysis.

## **1.2 Statement of the problem**

Floor coverings including hand-made woollen carpets are among the various labour intensive manufactures traded in the world today. A very few countries specialize in the production and export of hand-made woollen carpets as producers while industrialized nations form the main markets. For Nepal a less developed country (LDC) with a Gross National Product (GNP) per capita \$ 743 in 2012 carpet manufacturing is one of the primary sources of foreign exchange. The country is ranked the

14<sup>th</sup> largest producer of carpet with 1.1 % share of the world market. For an economy characterized by a large primary sector in terms of the population who depend on agriculture, carpets contributed 22 % of non-agricultural Gross Domestic Product (GDP) in 2001. At the end of the 2008, the sector provided jobs around a quarter of total manufacturing employment. Carpets formed the leading export item for around a decade or so but its share has fallen from more than half of total exports to less than a quarter of total exports in 2009, beginning of world crisis . An article in Asia times (August 2010), with a headline Nepal's carpet makers cry for help (4). The article was about the ailing Nepalese carpet industry with interesting facts and figures about the development and the current situation of the Nepalese carpet industry, the problems and the competition with the Indian carpet industry as well as Tibet and China (5).

### **1.3 History of hand knotted carpet in Nepal**

Nepalese hand-knotted woollen carpet has succeeded to rank 2<sup>nd</sup> in terms of foreign export. Carpet items exported from Nepal are coded under HS.Code 5701.10. The art of weaving is an old tradition in the Democratic Republic of Nepal, especially in the mountainous region of the country. Raddi, Pakhi, Bakkhu, and Darhi (with pile) are well-known Nepalese products produced in these regions using domestic wool. The marketing of these products was confined to the local market. Nepalese carpets are made of the highest quality fleece wool imported from Britain, New Zealand and Tibet. These carpets are available both in natural dyes and synthetic dyes with 65, 85 and 100 knots per square inch density. Specialized producers may make even 120 knots per square inch density and more. Nepalese carpets are of various sizes that normally range from 16 inches \*16 inches to 9 feet \* 12 feet. Nepalese hand knotted woollen carpet is one of the major export products of unique qualities like colour combination, texture, resiliency, strength and durability.

The development of an export quality carpet was initiated with the influx of the Tibetan refugees in the early 60's. The year 1960 can be regarded as the historic year for the commercial production of the carpet in the Nepal. In 1962, Nepal launched the commercial shipment of the carpet with a sample consignment to Zurich, Switzerland. Credit goes to the Swiss Agency Assistance (SATA) for their contribution in the development of the carpet industry in Nepal through financial and technical support to the Tibetan refugee's re-settlement programs (6). With vision and entrepreneur skill it

transformed into a nationally recognized commercial commodity and remained the most important export product from Nepal. This product is the most important export product from Nepal due to its different features. They are as follows:

- It is made of 100 % wool.
- It is hand knotted with double knotting system.
- It has excellent resilient property with high pile density.
- It is a hygienic and eco-friendly.
- Various designs according to the modern fashion (JICA, 1998 & Central Carpet Industries Association).

## **2 Objectives and Methodology**

The objective of this study was to analyse the key determinants of the carpet industry and role of carpet industry in the potential development of the country.

### **2.1 DATA**

The data was collected from the World Bank data Statistics, time period of 1999-2013.

### **2.2 METHODS**

The exports of the carpet period 1999 to 2013 were analysed through regression analysis model. The main methodology was the data gathering procedure and statistical analysis. The time series data covered 15 years ranging from 1993-2013. The purpose of choosing this period is to empirically test the significance or extent to which carpet sector contributes to the economic growth despite several years of government neglect and the renewal of effort towards stabilizing the sector, since 1993 to date. The data was obtained from the 2013 edition from World Bank Statistics (WBS) and Central Carpet Industries Association of Nepal (CCIA). It focuses on the carpet industry background, the current condition of carpet industry and its mobilization and the upcoming sector except the carpet in Nepal. The statistical data of the carpet industry GDP, export, employment were compared.

- Two types of methods were used. They are,

1) Regression Analysis

2) Gretl Arima

### 3 Literature Review

#### 3.1 Manufacturing of hand-knotted carpet

Hand-knotted carpets are traditionally more expensive than those made by machines. Carpet making involves a number of steps; it starts with the wool for the most part, carpet manufactures in Nepal import wool from either Tibet or New Zealand.

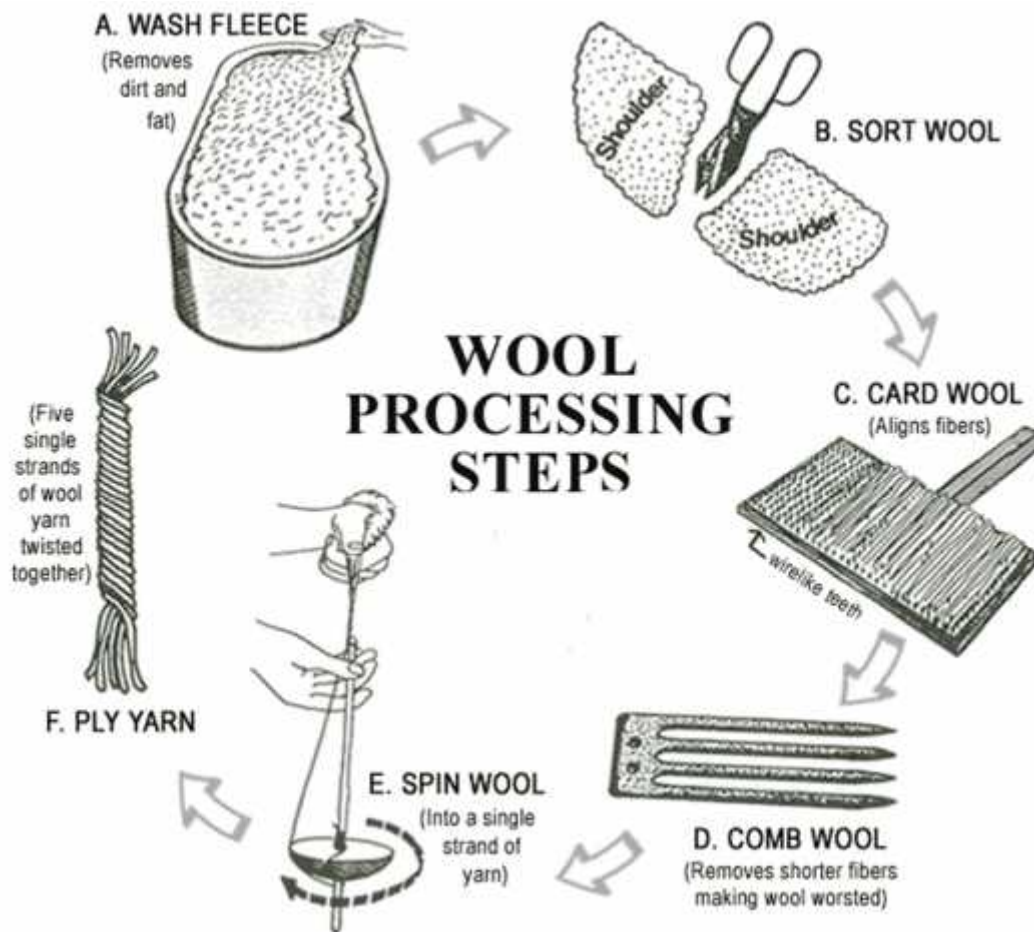


Figure 1: WOOL ROCESSING STEPS: WASHING, SORTING, CARDING, COMBING, SPINNING, PLYING (7)

### **3.1.1 Wool Sorting & Washing**

Wool is either imported from Tibet or New Zealand and is carefully sorted by workers who work at the tables. They must have the best lighting conditions in distinguishing the various kinds or qualities of wool in a fleece. After the wool is sorted, it must be washed. Wool often carries dust, grease which is removed by washing it thoroughly and is then sun dried for two-three days.

The Tibetan wool has a strong good fibre length is imported in scoured form, good lustre and a high value. The New Zealand wool is identified as type 128, which is of 36 micron, 100 mm barb length (8).

### **3.1.2 CARDING**

Once the wool is obtained, it is carded; carding is the process of combing and cleaning wool. This is necessary for a good quality carpet. The carding process allows the fibre stand to flow smoothly when spinning. This is also the stage for blending different wools and to ascertain the ratio of different origins. During carding, all the wool fibres are separated and any foreign particles, dirt, wax or fat on the wool are removed. Different types and colours of wool are separated to provide a pure bundle of wool. This process can be done by hand or by machine. But traditionally, carding was performed by hand.

### **3.1.3 HAND SPINNING OF THE WOOL**

The next step is spinning, in this step similar wool fibres are drawn and twisted together to make yarn of desired thickness. This process also can be done by either hand or machine. Hand-spun yarn is usually better because it is stronger and more elastic. Yarn of 5-7 twists per inch is ideal for carpets, rendering the hand-spinning process time-consuming and labour intensive. It is clear to see why the carpet industry employs so many people. The carded wool is spun into yarn by using a spinning wheel. The thickness of the yarn depends on the quality of the carpet and generally a 3 ply yarn is used.

### **3.1.4 WOOL DYEING WITH NATURAL COLOURS**

The traditional way of dyeing wool uses flowers, natural plants, some insects or roots of plants. Using natural dyes is a traditional Tibetan art and, therefore, some Tibetan carpets produced in Nepal use



these traditional natural dyes, but for the most part, chemical dyes are used. Natural dyes are duller than chemical dyes and are not as colour-fast. Using natural dyes are more complicated, and they make the task of producing consistent colours are more difficult. Most of the companies will use natural dyes only upon request. Even when using chemical dyes, dyeing is a complicated process. It requires much attention and experience to obtain the desire colour (9).

### **3.1.5 PREPARING THE LOOM AND THE WARP**

Turkish rugs, Persian rugs, Oriental rugs, Soumaks and Kilims are all manufactured on a loom is usually in a wood. The warp width depends on the desired width of the rug to be produced. So for example, if the weaver wants to knot a rug of 2 meter wide, then the loom will be slightly wider more than 2 meters. At once the loom is built; the weaver will tie what will become the warp of the carpet. The warp of carpet will be tied strongly as the loom will be used for 3-4 months. At this point, the weaver can start knotting the rug.

### **3.1.6 CARPET KNOTTING**

We know, knotting as an art. Weavers who weave on a regular basis have a very good experience in knotting. They tend to develop this speed over a span of time. More than one weavers work on a loom depending on the size of carpet. Each weaver makes individuals knots row after row. The designs are figure out on a graph and a map reader or another weaver instructs the graphic designs to the ones knotting the carpet.

### **3.1.7 TRIMMING, WASHING & FINISHING**

The finished carpet is taken off from the loom and the designs and patterns are trimmed by a scissors. The carpets are washed. This is done to remove dirt picked up in the manufacturing process and to restore the original quality of the wool. It can also remove germs. Wool washing is usually done in a washing plant. After washing, carpets are dried in the sun for 4-5 days and then stretched on all four sides to preserve their shape. The final step is finishing. Carpets receive a final trim by hand to cut them to the right dimensions. At this point, carpets are ready to be sold.

## 4 The Nepalese carpet industry: an overview

### 4.1 Background

Since the middle of the 1950s, Nepal's attempt to industrialize first only through the planning mechanism and later by planning with liberalization has yet to deliver rapid growth with equity. Due to its large primary sector, exports were composed mainly of food products and raw materials, which are gradually being replaced by manufactures. According to the World Bank (2002), the share of manufactures was raised from 24 % of exports in 1991 to 27 % of exports in 2002 (10). During the past 15 years or so, the country has embraced economic liberalization and hence an open trade regime. In the current era of globalization and competition, hand-made carpets thus represent Nepal's first foray into the global product markets.

### 4.2 Hand-knotted carpet chain production and distribution

A chain of production and distribution continue among the both importing and exporting nations. Exporting nation weavers, employed by producers – either exporters themselves or who act as broker between workers and owners – weave the carpets. Exporters are linked to global buyers in the importing countries. Buyers could be involved in multi-functions depending upon whether they import from wholesale or retail functions. In the figure 2 illustrates the various tasks among exporters and importers in the global hand-made carpet commodity chain (11).

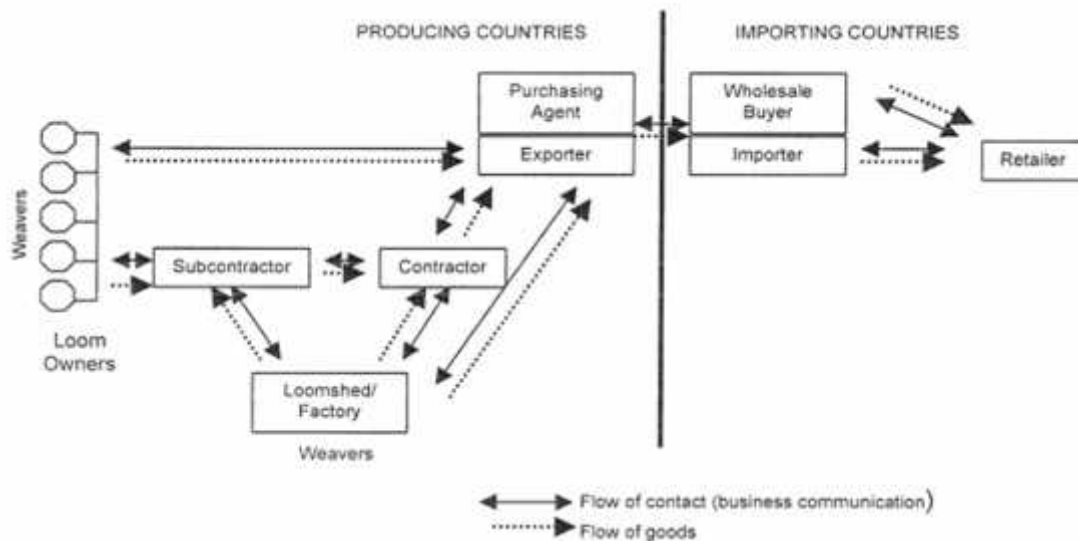


Figure 2: Chain production and distribution of carpet (11)

In figure 4 only shows a covert view of activities that are important as actors in the value of chain. Both exporting and importing countries are linked in continuous flow of contacts and flow of goods (carpet). This trade links developing countries to the global economy.

### **4.3 Growth**

The economic potential of the Nepalese carpet industry became clear towards the end of last decade. In the mid 1990's, one of the biggest Nepal's export industry providing approximately 1000-1300 core NPR (Nepali rupees) every year, which is one-third of Nepal's foreign currency earning. As one of few specializing in production of hand-made woollen carpets, Nepal was the 14<sup>th</sup> largest exporter of floor covering but the 6<sup>th</sup> largest in hand-made carpets during 2001. Nepal's share in world carpet exports is much lower compared of India, China, Pakistan, and Turkey. Nepal had a more than 3000 carpet weaving centres during the 1980s. This industry in mid-90 was providing employment opportunities for more than 1.2 million people (12).

Carpets industry has been taken as a source of livelihood providing employment for local people as the carpets were sold only to tourists visiting Nepal in the beginning. Slowly through these tourists traveling around different parts of Nepal, the unique quality of Nepalese carpets containing very high degree of hand processing and qualities started gaining word of mouth in Europe, America, New Zealand, and Australia etc. The production of carpets started increasing very high as the demand went high. Encouraged by sales, the Swiss helped in marketing carpets in Switzerland and Tibetan carpets from Nepal become the rage in the rest of America and Europe. With the upheavals in Iran and Afghanistan, European importers turned in the late 1970s to carpets from Nepal (12).

After the first shipment across the border, Nepalese carpets started achieving remarkably high demand. Sometimes the carpet manufacturers would have to work even day and night to meet their demand which clearly reflects that carpet industry and its yielding operation was on its way all to the top (13).

#### **4.4 Decline**

Today the Nepalese carpet industry has shrunk by over 70 % as domestic manufacturers, carpet exporters, and qualified artisan weaver move their production into India and China to escape the aggressive business environment, unstable production situation and the local disturbances. This situation has led to a significant and continuously decline in production standards since 2001, reducing the quality of Nepal's yarn production and weaving to fall dramatically. Fear and uncertainty has been increasing among the people who are working still in different carpet manufacturing centres and firms. As the fascinating figure of 3000 firms dropped down resulting only 600 firms which are providing jobs only to less than 100,000 people leaving the another big population in circle of unemployment. Because of this decline, Nepal is losing its hard earned reputation as a leader in the hand-knotted carpet industry and its valuable share of international end markets (14).

The government's lack of concern and commitment and the unbalanced political state has been the main reason behind the downfall of the golden reign of Nepalese carpet. The politicized unions are another main problem creating obstacles. For the industry, labour has always been the major concern, but the labour union backed by political parties with unreasonable demands which cannot be fulfilled is hampering the production very badly. The decreased importance of Nepalese carpet industry is visibly reducing the industry's role in social development and as well as country economic. Nepal exports have proven to be strongly and positively correlated to economic growth. The Nepalese carpet industry plays an important role in this as seen by its near 30% share of Nepal's total exports and its direct contribution to approximately 3% of Nepal's GDP in 2004/2005 (12).

Many factors such as labour regulations, productivity loss, unstable currency and lack of export incentive and changing government policies are making difficult for carpet manufacturers to complete on the international market. Due to long standing connections and capable of making luxury goods that do not need to be price competitively.

**Table 1** Industry's perceptions of causes for decline in Nepalese carpet industry

<b>Rank</b>	<b>Factors</b>
1	Poor quality exports
2	Indo-Nepalese carpets
3	Intense global competition
4	Child labour in Nepal's carpet Industry
5	Infrastructure bottlenecks
6	Intensive domestic competition

*Source:* Questionnaire from representative of carpet industry association

- The availability of cheaper Chinese carpets and the ones from India market wounded the situation severely.
- Regardless of the quality that Nepalese hand-knotted carpet would offer some portion of people moved on with Chinese and Indian product in whim of saving some money.
- Other local problems which would occasionally drag the speed down of this industry such as the child labour, government indifferences and interference, environmental controversies, inflation and labour issues.

The carpet industry also plays a vital role in rural poverty reduction and social development for the country. Employees in Nepal's carpet factories are an important source of domestic remittances being sent into countryside. These types of remittances flow was shown, in a 2003 world bank study of the Nepalese economy, to have a powerful and direct effort on reducing rural poverty. To sustain and maximize on the economic and social benefits of the carpet industry that is an immediate need for a secure, more productive, and corruption free work environment within the Nepalese carpet industry. Increased the domestic support for this industry can once again increase exports, gain revenue, for the national government, also foster skill development and advancement for even the lowest paid workers. It also can be profitable for the government with an opportunity for economic growth and diversification through an already established industry (15).

#### 4.5 Carpet Exports

Exporting is the marketing and direct sale of domestically-produced goods in any trade country. Exporting is a traditional and well-established method of reaching to the foreign markets. Since exporting does not forecast that the goods be produced in the destination country, no investment in foreign production facilities is required. Most of the costs are associated with exporting take the form of advertising expenses. Exporting commonly requires coordination among four players; Government, Exporter, Importer and Transport provider.

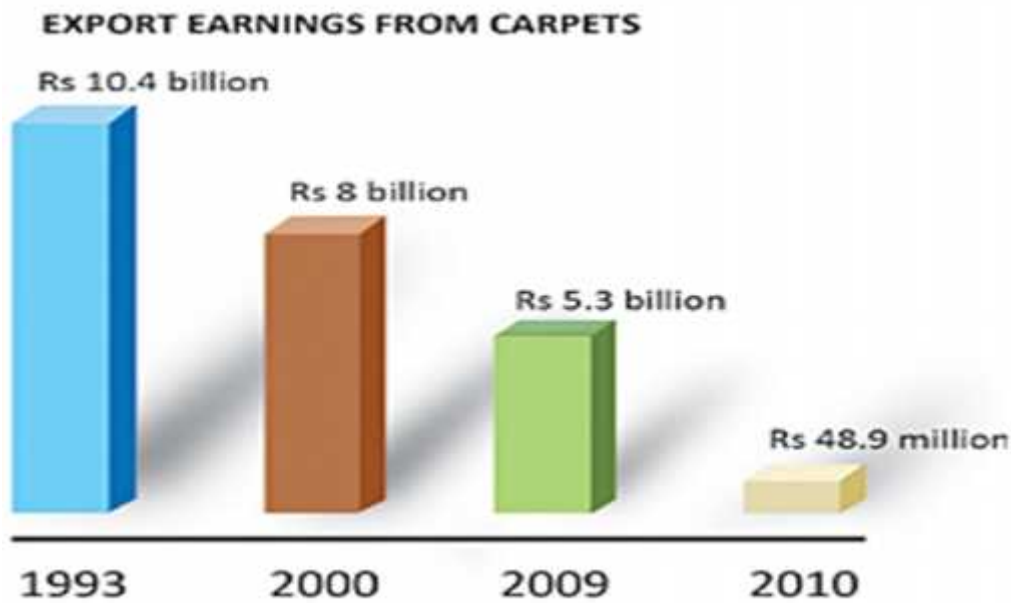


Figure 3 Export Earnings from Carpet (12)

The graph shows the decreasing export earnings made by the Nepalese carpet industry since 1993-2010. As shown in the graph the export on Nepalese carpets was on peak in 1993 and lowest in 2010. In the duration of 17 years the export earnings has dropped in very soaring rate making the difference of more than half.

**Table 2** Exports of Nepalese carpets; 2012-2014 (16)

Fiscal year	Quantity	Value in US dollar
2012/013	479,277.44	61,011,829.39
2013/014	461,065.03	64,743,570.99

**Table 3** Top 5 buyers of Nepalese carpets 2013-2014 (16)

Rank	Countries	Quantity
1	USA	228,713.77 sq. m
2	Germany	226,377.16 sq. m
3	UK	33,657.16 sq. m
4	Canada	21,373.26 sq. m
5	Belgium	14,808.66 sq. m

## 5 Analytical

### 5.1 Entrance to the International market

A carpet industry becomes valuable to understand the target country's political, economic, social, historical, geographical, cultural and demographic aspects while thinking of emerging in international markets. It is difficult to understand the business environment in a country without studying the current political system and institutions, government policies, and variety of data and other information on the country's economy.

Selection of international markets involves comparison. This can be difficult because the quality of data varies from country to country. Although the expansion of global databases and international online services has helped comparison, difficulties remain because of differences between countries in both regency and rigour of data collection.

## 5.2 Entry Modes

A firm could find many different modes to enter the foreign markets and each mode has its strengths and weaknesses in general terms. However each single organization will be more attracted to a type mode depending on their backgrounds, nature of company, strategic objectives as well as the resources. In many cases companies could face many obstacles while deciding to enter other markets. For example safety, environmental, packing, labelling, trademarks, copyrights and licensing.

An international market entry mode is to create the possibilities by arranging company's products, technology, human skills, and management or other resources to enter into a foreign country. The modes help companies to determine resources, goals and policy in order to channel their international activities towards a sustainable international expansion. Root has a further classified market entry mode into two groups i.e. Non-equity and equity entry mode (17).

**Table 4 Modes of entry (17)**

Non-equity Modes of Entry	Equity Modes of Entry
<b>Export</b> <ul style="list-style-type: none"> <li>• Direct Export</li> <li>• Indirect Export</li> </ul>	Sole venture
Subcontracting (construction/turnkey projects)	Joint venture
Counter-trade	Strategic Alliance (may also be non-equity)
Technical Agreements	Merger and Acquisition
Service Contracts	
Management Contracts	
Contract Manufacturing	

## 5.3 Export based entry

A process of international trade through which goods produced in one country are shipped to another country for sale is called exporting. Exporting is a traditional and well-established method of reaching foreign markets. The level of risk and commitment is minimized since investment of managerial and financial resources is relatively low compared with the other modes of foreign market



entry. A firm needs to know detail about the term exporting before it decides to sell its goods and services across the borders.

As a firm's knowledge of an export market increases, the certainty factor decreases. The key type of knowledge required here, however, appears to be experimental knowledge obtained through operating in the market or learning by doing (18).

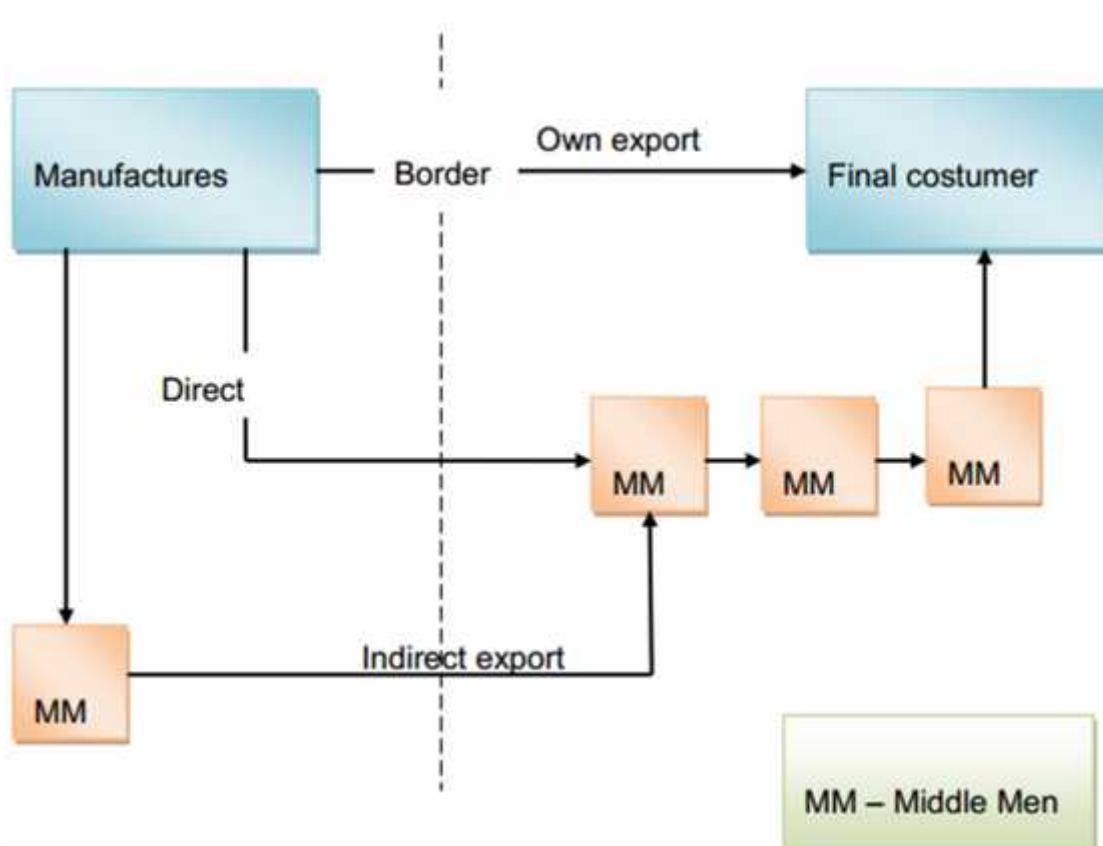


Figure 4 Export based entry (18)

## 6 Marketing Mix (The 4PS)

The concept of the marketing mix which written by Neil H. Borden. Borden is a marketing and advertising professor at the Harvard Business School and the former president of the American Marketing Association in 1953. The marketing mix is a business tool used in marketing and by

marketers. Various concepts and ideas combined together to formulate final strategies which are helpful in making a brand popular. The marketing is often associated with the **four P's**: *promotion, Price, place* and product (19).

Marketing is putting the right product in the right place, at the right price, at right time. It is also a human activity directed at satisfying needs and wants through exchange process while marketing mix is the set of marketing tools that the firm uses to follow its marketing objectives in the destination market. Marketing mix decisions should be made for influencing the trade channels as well as the final costumers.

The four factors such as product, price, promotion and place are often called as four P's of marketing mix (19).



**Figure 5 Marketing Mix (20)**

## **6.1 PRODUCT**

A product is seen as an item that satisfies what a consumer demands. Product as the goods that are manufactured by organization and customers buys it in exchange of money for their satisfaction. It is an intangible service or tangible goods. Tangible goods are those that have an independent physical

existence (e.g. car, computers, clothes etc.) while an intangible products cannot be touched or seen;  
e.g. computer software

A firm's product can have both tangible and an intangible aspect to satisfy its customer's wants and needs. Within this element, the firm needs to consider other things such as its product range, quality and design, features and the benefits, sizing and packaging, guarantees, customer service offerings etc.

## **6.2 PLACE**

In terms of marketing mix place is defined as the channel or way through which a firm brings its products and services to the customers. Every seller must decide how its goods available to the destination market. The two choices are to sell the goods directly or to sell them through the middleman. Both types of distribution choices could be found among any firm or industry that are exporting or importing.

## **6.3 PRICE**

The amount a customer pays for the goods. This price is very important as it determines the company's profit. Price of a product is always determined between the manufacturing costs and the strength of the demand. In marketing mix price is the only element that generates revenue. Hence organizations should prices its product or service in such a way that the price remains competitive but also allow to makes a good profit.

## **6.4 PROMOTION**

In the context of marketing mix, promotion refers to the different methods and ideas implemented by the firms to make the costumers aware of their product. Promotion could be classified mainly into two groups.

**Advertisements** through print media, radio and television are the most effective way to make the costumers aware of a product.

**Word of mouth** one satisfied costumers bring 5 more costumers where as one unsatisfied customer takes away 5 more costumers. That's the power of word of mouth. Positive word of mouth helps to promote the product while negative word of mouth demotion of the product.

Nepalese carpets in foreign markets are challenging with a top competitors like; India and china but not impossible. Unlike other business, the carpet firm needs to maintain word of mouth in order to gain the stable demand for the target product in long run. Therefore, it is necessary to consider the ways, so that the product can attain good impression among the costumers in the new market so that the satisfied voice of the happy customer can build an influential word of mouth.

In the context, the firms need to utilize the full benefits out of trade fairs and business exhibitions. For example, the target product can be promoted also by providing as a gift through some competitions or contest to the introductory customers.

## 7 Data analysis and Interpretation

*Fiscal Year 1999-2013*

The data of the employment, GDP and carpet sector is analysed in the linear graph. The figure is presented below:

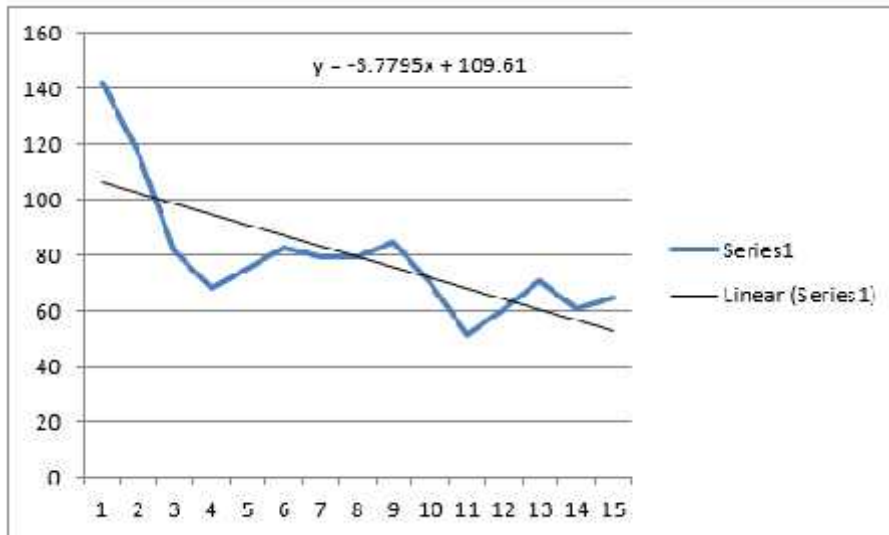


Figure 6 Carpet export in linear line

Here in the figure, it shows the linear relationship in carpet exports. It shows that exports of carpet are rapidly falling down since 1999 to 2013. The exports of carpets are going down from left to right.

The line follows a straight line pattern. This is positive linear because it follows the straight line. Our export variable has the moderate positive relationship with carpet industry.

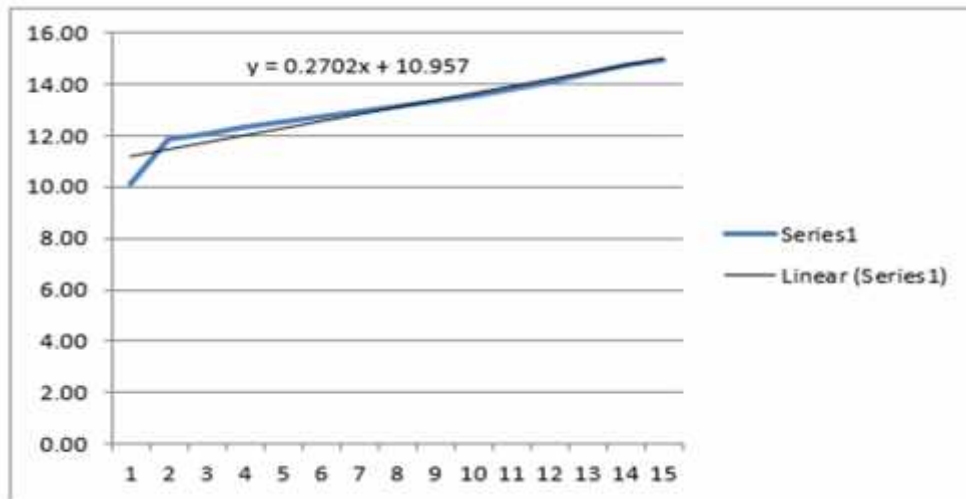
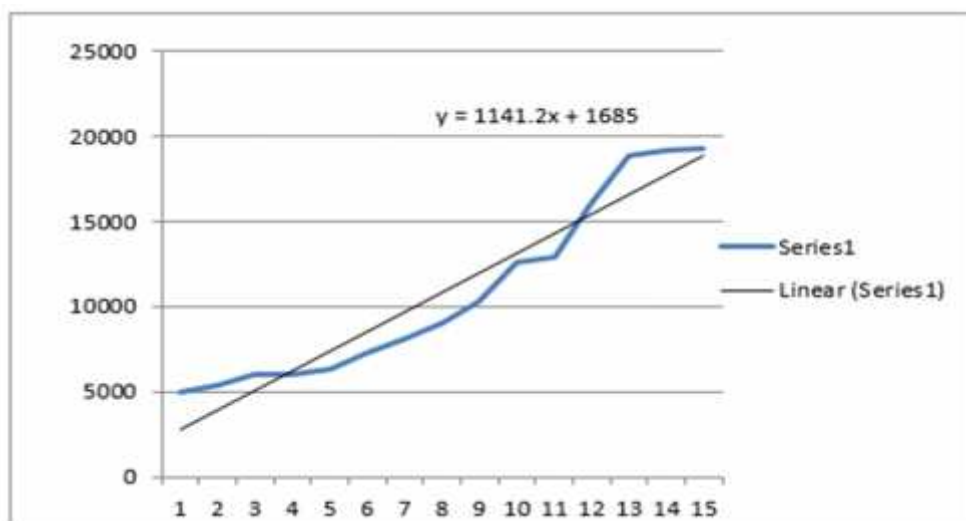


Figure 7 Employment in linear line

Here in the figure, it shows the linear relationship with employment. It shows the strong positive relationship with linear line. The line is increasing from left to right, it means this line have a positive direction. The line follows a straight line pattern; this means positive linear because it follows the straight line. Our employment variable has the positive relationship with carpet industry.



### Figure 8 GDP in a linear line

Here in figure, it shows the linear relationship in the GDP. It shows the strong and positive relationship in GDP. The line is in straight line pattern. This is positive linear because it follows the straight line. Our GDP variable has positive relationship in carpet industry.

## 7.1 EMPIRICAL RESULTS

**Table 5: Regression Statistics**

Regression Statistics	
Multiple regression	0.830185
The value of reliability regression	0.689207
Set value of reliability regression	0.6653
Error std. values	0.726632
Observation	15

### ANOVA

	difference	SS	MS	F	Significance of F
Regression	1	15.22127	15.22127	28.82852	0.000128
Residues	13	6.863917	0.527994		
Total	14	22.08519			

	Coefficient	Error std. values	t-test	p-values	lower 95%	upper 95%	lower 95.0%	upper 95.0%
Limit	16.70720061	0.694244689	24.06529119	0.00036	15.20737614	18.20703	15.20737614	18.20702507
File x1	-0.04521385	0.008420936	-5.36521967	0.0001277	-0.06340617	-0.06340617	-0.06340617	-0.02702152

This figure shows us, If exports go up by 1 million, employment goes down by 0.045 million. This means that with increasing exports, employment goes down. This may be due to technology deployment.

**Table 6: Regression Statistics**

Regression Statistics	
Multiple regression	0.610514
The value of reliability regression	0.372727
Set value of reliability regression	0.324475
Error std. values	4359.181
Observation	15

**ANOVA**

	difference	SS	MS	F	Significance of F
Regression	1	146786997.994	146786997.994	7.725	0,01563
Residues	13	247031975.339	19002459.641		
Total	14	393818973.333			

	Coefficient	Error std. values	t-test	p-values	lower 95%	upper 95%	lower 95.0%	upper 95.0%
Limit	21959.522	4164.8853	5.2725382	0.000151	12961.83	30957.21	12961.83	30957.21
File x1	-140.4073	50.518587	-2.779322	0.015636	-249.545	-31.2686	-249.545	-31.2686

This number shows a marginal impact of carpet industry upon Nepalese economy, as the growth of Nepalese economy is clearly not drive by carpet industry.

## 7.2 Gretl ARIMA

Model 1: ARIMA using observation 2000-2013 (T = 14)

The estimation performed using the Kalman filter (exact ML)

The dependent variable (1-L) v1

Standard errors based on Hessian

**Table 7: Gretl ARIMA**

	Coefficient	Std. error	z	p-value
Constant	-4.71183	5.25230	-0.8971	0.3697
Phi_1	0.0787291	0.284873	0.2764	0.7823
Theta_1	0.999999	0.210415	4.753	2.01

The mean value of the dependent variable -5.544399

Sm. deviation of the dependent variable 14.30083

The mean value of innovation -0.351500

Sm. deviation innovation 9.365226

Log-likelihood -52.61121

Akaikovo criterion 113.2224

Schwarz criterion 115.7787

Hannan-Quinn kritetium 112.9858

There is a note on abbreviations statistical model



### 7.3 Future Predictions

Table 8 Future Predictions

	Real	Imagination	Abs. value	Frequency
ARRoot 1	12.7018	0.0000	12.7018	0.0000
MARoot 1	-1.0000	0.0000	1.0000	0.5000

For the 95% confidence intervals from  $(0,025) = 1.96$

Year	V1	Forecast	Std. error	95% confident interval
2014	74.491645	9.365226	56.136140	-92.847150
2015	70.918227	21.603267	28.576601	-113.259853
2016	66.296020	29.619172	8.243509	-124.348531
2017	61.591242	35.922572	-8.815706	-131.998190
2018	56.879964	41.276718	-24.020917	-137.780845

The future prediction is done from year 2014 to 2018, using Arima forecasting model. Here is the forecasting model; it shows that even in future the carpet export does not impact to the economic growth and employment of country. We can see from the above data that forecasted value is growing continuously but not as the ratio of actual value. It suggests that the actual relationship between these variables will be even weaker in the future.

## **8 CONCLUSION & RECOMMENDATION**

It is recommended that Government should provide funds and allocate the budget to this Carpet sector in a consistent manner because of its importance to the national economy. If the fund will be properly utilized and effectively implemented there are high possibilities to effect the economy by carpet sector. There are many macroeconomic variables which can determine the GDP but carpet exports also shows a minor influence to GDP.

For the analysis, these variables are measured in current price in US (\$) respectively. A fundamental equation is GDP as the dependent variable and Export as an independent variable. In conclusion, we can say that carpet export is less significant to GDP. GDP does not depend upon the carpet export alone. The trade barriers and political condition is the major problem for the Nepal. These hinders are the major block for trade of carpet in Nepal. Apart from this, especially the deteriorating situation of Nepalese carpet industries should be upgrade. If the export of carpet will upgrade than it can bring back the economic platform. Because these carpet industries mentioned in our research has shown the contributing the Nepalese economy. It also contributes to the employment of the country. There has not been the specific research on this topic before so it was bit challenge to find the relevant data. The lack of knowledge helped us to know about exciting opportunities to use different theoretical knowledge. This research also opens the area for another study regarding price, quality, delivery and core labour standards for carpet industry since for the better performance is realized by this industry for economic growth. The study further motivates the carpet producers to insert into global economy.

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