

# Clothing manufacturing and exporting countries of the World: a review

## Abstract

The aim of this paper is to discuss about the textiles and clothing manufacturing and exporting countries of the world. This paper has some objectives such as introducing the applications of spandex fabrics, discussing highest clothing importers, and detailing recent textile trade expansion countries etc. The textiles and clothing industries are categorized by changeable mandate, short product life sequences, rapid response time, enormous product diversity, and an unstable, unyielding, and intricate supply chain structure. The textile and clothing industries subsidize meaningfully towards the national budget of many countries. Although the clothing industry is worldwide in nature, the engineering facilities from established countries are flowing to developing countries to lessen the labor fees. Even in these developing countries, the clothing industries are fronting the greatest experiments in spite of the inexpensive labor cost, due to the petite production life-cycle, high instability, low expectedness, high level of instinct purchase and the quick market reaction. To diminish the cost of manufacture, the clothing industries in developing countries are rather concentrating on sourcing of inexpensive raw materials and minimizing transfer cost than labor efficiency due to the obtainability of inexpensive labor.

**Keywords:** elastic clothing; textile exporters; annual revenue; highest export countries; clothing manufacturer; investments

Volume 6 Issue 5 - 2020

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**Received:** June 24, 2020 | **Published:** September 22, 2020

## Introduction

There is a great importance of this paper in the field of textiles and clothing business. The common spandex trade plants are situated in China. In the earlier, most of these cloths were created in the USA, but condensed labor charges have driven the production of many different types of fabrics to China over the last few periods.<sup>1</sup> A new revitalization in the U.S. engineering frugality may control over a return of spandex manufacture to American coastlines, but whatsoever the case may be, market rumors plan to upcoming spandex manufacture.<sup>2</sup> While many kinds of synthetic materials have lost admiration in recent years, there is no diminish of spandex that means this types of fabrics will endure to enjoy amplified growth until at least new coming decays.<sup>3</sup>

As like as other polymer materials, spandex fibers are created from repeating chains of monomers those are alleged together in an acid.<sup>4</sup> Initial of the spandex expansion procedure, it was predictable that, this product is extremely heat-resistant and it is particularly heat-sensitive fabrics as like as nylon and polyester, which are enhanced when joint with spandex cloths.<sup>5</sup> Stretchiness of elastic cloths proximately made it desired everywhere the sphere, and the acceptance of this fabric perseveres to this day.<sup>6</sup>

It is existing in so many kinds of clothing that virtually every customer owns at least one article of dress that covers spandex, and it's doubtful that this fabric's acceptance will reduction in the near prospect.<sup>7</sup> Undesirably, elastane has a meaningfully negative environmental influence after it is announced into the customer market. Spandex cloth is made by many diverse international companies.<sup>8</sup> Some of these companies, such as DuPont, have workshops in lots of different republics, but others may be contained to one country in individual. Figure 1 shows the textile importers of the world.

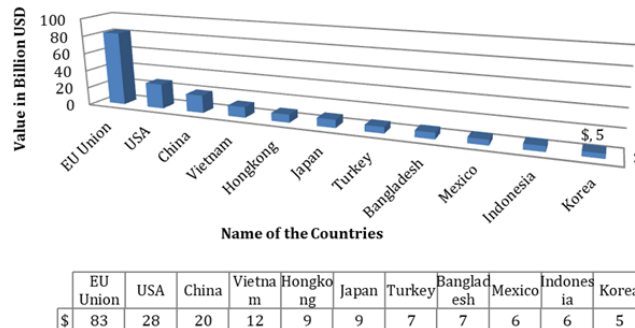


Figure 1 Textile importers of the World.

As spandex is a completely synthetic fiber, no organic constituents are used to create this substantial. In its place, all of the essential parts of this fiber are prepared in a laboratory setting, and they are then joined under precise inducements to generate spandex fabric.<sup>9</sup> In the years since the creation of elastane, a number of diverse procedures for making this fabric have arisen. Some of these systems are more effective than others, and by the passage of times, methods like retort spinning, melt extrusion, and solution wet spinning processes have frequently been rejected.<sup>10</sup>

Nearly 95 in a hundred of the world's spandex are now prepared with a technique called solution dry spinning, and it is this engineering progression that we will scrutinize in aspect.<sup>11</sup> For starting the spandex cloth manufacturing process, a constituent called macro glycol is assorted with a di-iso-cyanide monomer under definite temperature and compression.<sup>12</sup> The heat and pressure settings must be meticulous

to create the wanted results and the macro glycol and di-iso-cyanide monomer must also be in a proportion estimated to 6:3.<sup>13</sup>

If the right settings are smeared, a constituent named a pre-polymer is created, and this product is then used in the residue of the manufacturing process.<sup>14</sup> Once it has created, the pre-polymer is supposed to di-amine acid, and a chemical response called chain extrusion reaction is started. Textile and clothing industries are one of the reckless mounting industries, providing occupation to millions of people.<sup>15</sup> These productions units are dependent on the use of poisonous chemicals for dispensation of textiles, which pointers to enlarged environmental pollution and public anxiety.<sup>16</sup>

The resultant material is highly viscid, and it must be thinned with a solvent before it can transfer on to the following stage.<sup>17</sup> When it is thin enough to react with, the pre-polymer is laden into a machine called a fiber manufacturing cell or a tubular spinning cell. Inner side of this machine there is an expedient called a spinneret, which has lots of tiny pigpens.<sup>18</sup> As the fiber manufacturing cell rotates, the pre-polymer solution is enforced through these holes, and it receipts on the form of threads of fabric.<sup>19</sup>

These threads are tranquil in a fluid state when they arise from the spinneret, and they are then supposed to frenzied solvent gas and nitrogen to condense them into a dense stage.<sup>20</sup> These hard fibers are then strapped out of the tubular spinning cell, and when they are exposed to pressed air, they procedure into warped strands.<sup>21</sup> This compacted air can form threads of many diverse sizes. Finally, the spandex fiber is absorbed in a finishing agent containing the magnesium stearate or a parallel substance. Once it is laden onto a reel, it is set to weave a cloth.<sup>22</sup>

## Application of spandex fabrics

Elastic fabrics or spandex fabrics are used in any customer or manufacturing application in which springiness is preferred. As, its commencement this type of cloths have become more and more prevalent, and these days, it is available in hundreds of various kinds of clothing, and it is applied by clients all over the world. In some areas, spandex fabric may be applied to create extremely flexible or fully form decent costumes.<sup>23</sup> Conversely, this fabric is comparatively exclusive, and these types of outfits are quite expensive to the customers of experts who use them. In its place, it's much more communal to see spandex fabric woven into other kinds of fabrics.<sup>24</sup> Figure 2 shows the world's textile contributions.

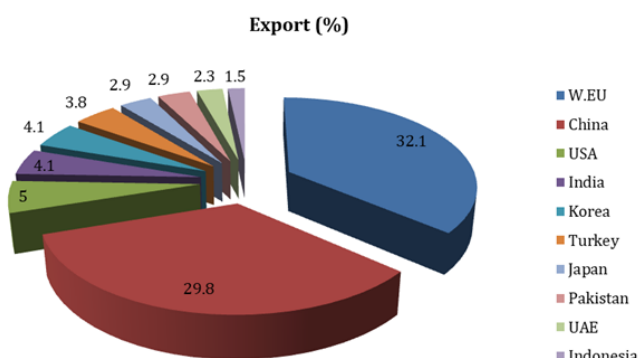


Figure 2 World's textile contribution.

If spandex fabrics are used with cotton fibers, they become much elastic, and spandex can also be applied to add elasticity to

conventionally inflexible fabrics such as polyester.<sup>25</sup> Although small types of this fabric are further to mingled with other textile products, these fabrics become much stretchier; as spandex can bounce up to eight times than its original measurement.<sup>26</sup> Elasticity conveyed to this fabric to other fabrics can be resolute by dividing this stretching latent by the percentage in which it is comprised in clothing.<sup>27</sup>

Usual use of spandex in fabrics is particularly for body fitting garments used in sportswear. For example, it is involved in many kinds of underclothing for men and women, and even if it isn't existent in the shell fabric of an underclothing garment; it is almost constantly existent in the waistband.<sup>28</sup> Actually, spandex fabric is initiate in the waistbands of almost each type of stretch clothing. Spandex is also recycled in comparatively high percentages in cotton and wool smacks.<sup>29</sup> Consuming this fabric in smacks helps these clothes to keep on your bases, and it also eases the exhausting and elimination of socks.

This fabric is extremely common in casualwear. In most kinds of muscular pursuits, wearing garments that gallop adjacent to the skin.<sup>30</sup> Spandex fabric is applied in beachwear, bicycling apparel, and kinds of fashion those are applied in modest team sporting. Spandex cloths are also used in industrial applications.<sup>31</sup> For example, it is used in the movie industry to make gesture capture outfits, which are unusual kinds of bodysuits that performers attire in front of green monitors.<sup>32</sup> Spandex creates it informal to make realistic 3D letterings by creating ensembles ride close to the figures of performers.<sup>33</sup>

Because of its innovation and the comparatively protracted production procedure used to create it, spandex fabric demands a comparatively high market charges.<sup>34</sup> It is more exclusive than polyester and nylon, and it is also typically more costly than organic cloths like wool and cotton.

As elastane is normally recycled in small amounts in apparel, however, this amplified price does not habitually make itself ostensible at the customer level.<sup>35</sup> The more the spandex fibers are used in garments the more the cost of the fabrics are. For example, definite types of riding gear and expert dance clothes that comprise high levels of spandex are pretty expensive.<sup>36</sup>

## Textiles and clothing manufacturing countries

The worldwide trade of clothing and textile products is no longer administrated by shares, when the contract on textiles and fashion was ended.<sup>37</sup> Presently, the international trade has been administrated by lawmaking within the polygonal trading scheme, which assisted in the stable increase of importations from countries with low employment expenses.<sup>38</sup> When client fulfillment is painstaking, the speed of replacement comes into play. Thus, the countries with propinquity are more reasonable for those goods where replacement is significant, and these financial factors will deepen.<sup>39</sup> Figure 3 shows the global textiles market for clothing, fashion and sportswear.

Hence, cost and positions are the two drivers supporting the sourcing choices. Advanced countries like the US, Australia and the UK are facing a firm deterioration of native textile and clothing production.<sup>40</sup> The states in Asia are the foremost producers of fashion items everywhere in the world. Amongst the Asian nations, China endures to be the foremost exporter of textiles and fashion items.<sup>41</sup> Its segment in world spreads amplified to 30% for cloths and to 40% for textiles. The European Union and the USA continue the chief markets for apparel, accounting for 35% and 22%, correspondingly, of world

ingresses in 2012. Besides, a mainstream of the Asian nations are among the prominent exporters of dress items.<sup>42</sup>

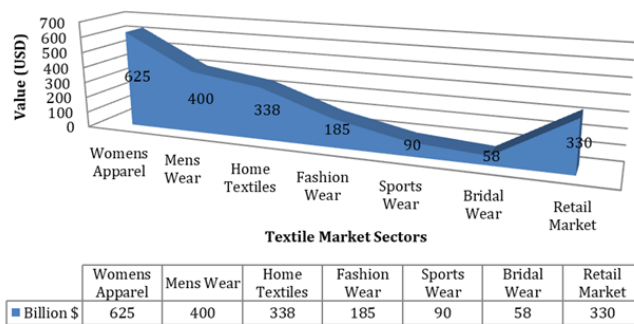


Figure 3 Global textiles market for clothing, fashion and sports wear.

Sustainability is a expression often used in relative to environmental matters. Defeat of biodiversity, releases of greenhouse gases, and water contamination are all issues usually known as sustainability contests.<sup>43</sup> Though, issues nearby the environment establish a very significant feature of sustainability. Consequently, when thoughtful about how to extent and communicate clothing sustainability, we must be cautious not to focus exclusively on sustainability as it narrates to environmental matters.<sup>44</sup>

Reliable sustainability within the clothing industry is only conceivable when one deliberates how economic welfares to the industry can be justifiably shared through a society and how the business can manner production while meeting the basic requirements, empowering, and guaranteeing the well-being of all investors.<sup>45</sup> On typical, apparel industrial labors are paid two-thirds of the hourly salary earned by workforces in other manufacturing productions.<sup>46</sup>

As part of the literature lecturing these subjects, academics note an amplified need for checking factories for acquiescence with social standards, counting better methods for journalism and deciding issues of exploitation, allowing workers, and allowing employees the right to cooperative negotiating.<sup>47</sup> Additionally, environmental misuses in the production, distribution, and ingesting of AT goods are of swelling apprehension in the supply chain.<sup>48</sup>

From the engineering of fibers to the customer care and disposal of clothes, all actions damage the environment. Procedures within the supply chain necessitate large water and energy inputs and comprise the use of toxic substances in the production of properties.<sup>49</sup> The removal of these harmful substances and other wildernesses are also environmental anxieties relevant to the diligence. Textile industry is booming and increasing at high speed expertise.<sup>50</sup> Figure 4 shows the destination of Bangladeshi clothing materials to the world.

The textile or Clothing industry’s main aim is to create up-to-date and fashionable design and production of textile materials including Yarn, cloths and fashion wear.<sup>51</sup> Parallel to all other nations’ Indian and Chinese clothing markets shown vigorous development whereas Bangladesh is also evolving as foremost manufactures of textile in the world.<sup>52</sup> Four Asian countries such as China, Bangladesh, Vietnam and India are the largest clothing exporters in the world.<sup>53</sup>

China relies the most prevalent part of 21%, Bangladesh and India both are second position at 14%, where Vietnam arises right in arrears at 12%. Though all four countries have a well improved clothing industry, each has an exclusive business weather that may be more

or less appropriate for our manufacturing requirements.<sup>54</sup> Low-cost employment is surely a key factor in selecting a supplier for industrial apparels. But don’t markdown other worries that can disturb your quality and deliverability, like employment output and substructure progress.<sup>55</sup>

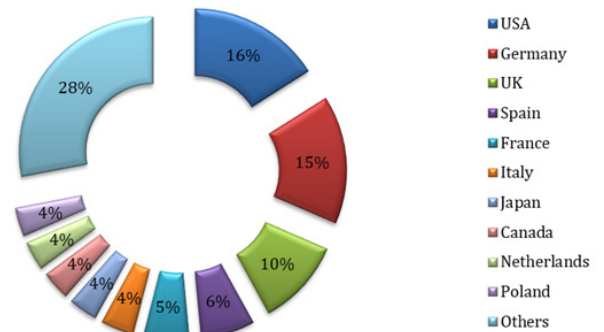


Figure 4 Destination of Bangladeshi clothing materials to the World.

### Highest exporting countries of the world

China is one of the largest manufacturer and exporter of textiles and clothing items in the world with an export income of 260 billion USD.<sup>56</sup> China is a country that is manufacturing every type of textiles and clothing items including fibers, yarns, fabrics, apparel, sportswear, fashion wear etc. This country is also exporting textile machine and machineries including spinning, weaving, knitting, dyeing, printing, finishing, testing equipment and apparel sewing machineries.<sup>57</sup> The production capacity of China textile trade is more than half of the global market.

Textile and clothing manufacturing of Germany has an extended history of manufacturing, novelty, and elasticity. Germany is one of the main exporters of knitted clothing, manmade fiber, artificial yarn, and equipment with the export sum of 40 billion USD.<sup>58</sup> The nation is world’s 2<sup>nd</sup> biggest textile exporter and well recognized for high excellence products and decorations of textile and clothing products in the world.<sup>59</sup> In the present time, it has distorted its production for low-cost high volume to high superiority goods.

Bangladesh is the 3<sup>rd</sup> largest textiles and clothing manufacturer and exporter in the world among all the countries of the world with the annual turnover of 40 billion USD.<sup>60</sup> This country exports woven, knit items and also yarns, fibers and all other textile facilities. The country’s assets are low employment charge and vast workers.<sup>61</sup> Improvement expertise and good superiority merchandises have paying attention of many major universal selling marques to Bangladesh.<sup>62</sup> The upright abilities of Bangladesh that aids to make sure more limpidity and direction in their team work. The textiles and clothing factories of Bangladesh are expanding very fast with the production order of value added materials of renowned international brands.<sup>63</sup> Figure 5 shows the *textiles and clothing manufacturing countries of the world*.

Vietnam is an expanding textile manufacturer of recent time with an annual turnover of 38 billion USD.<sup>64</sup> The country’s chief attention is manufacturing substances with high attractiveness in the overall market and refining its garment and textile networking system.<sup>65</sup> Vietnam’s textile and apparel ingesting in the both national and international market create profounder inroads into the clothing bazaar.



**Figure 5** Textiles and clothing manufacturing Countries of the World.

India is one of the biggest textiles and clothing manufacturers and exporters with the annual turnover of 38 billion USD.<sup>66</sup> India has huge production capabilities of every types of items like formal wear, casual, sportswear, fashion wear etc. the county is in 5<sup>th</sup> position for its wonderful manufacturing and exporting capability.<sup>67</sup>

Italy is next to India, which is also a big textile and clothing manufacturer and exporter with the annual turnover of 36 billion USD.<sup>68</sup> This country has strength for the production of textiles, clothing, machines etc.

Textile and clothing industry of Turkey has a significant character in world textile profession with the competence to come across with the extraordinary standard and a comprehensive range of merchandises. Turkey has an annual turnover of 27 billion USD.<sup>69</sup>

USA is the 8<sup>th</sup> largest textiles and clothing manufacturer and exporter in the world amongst all the countries with the annual turnover of 27 billion USD. Hong Kong is the 9<sup>th</sup> largest textiles and clothing manufacturer and exporter in the world among all the countries of the world with the annual turnover of 20 billion USD.<sup>70</sup> This country exports woven, knit items and also yarns, fibers and all other textile facilities.<sup>71</sup>

Spain is the 10<sup>th</sup> renowned manufacturer and exporter in the world with its quality clothing items. The annual turnover of this country is 20 billion USD.<sup>72</sup> This country has a well reputed goodwill to exports the sophisticated quality products. Presently, these countries are in the driving seats for the textiles and clothing markets across the world.<sup>73</sup>

## Conclusion

Recently the world has seen the rise of textile and clothing industry with the increased demand for daily clothing items all over the universe. Although some of the clothing producers still persist in the developed countries, they are belligerent for existence due to low productivity. It is seen from the paper that, European Union is the highest textile importers of the world with a turnover of 83 billion of USD where Korea was the lowest with 5 billion of USD. It is also seen that in world's textile contribution Indonesia holds the highest position with 29.8% of textile's export goods. In the world's textile market women's apparel holds the highest position with 625 billion of USD. Bangladesh exports the highest amount that is 28% of textile products to France. In the worldwide economic situation, the benefit of manufacturing dress items nearby over engineering abroad comprises intimacy to the market and the aptitude to respond to fashion variations faster than the distant contestants. Though, the local producers are slowly reducing the production and concentrating on performing only

the commercial functions intricate in clothing manufacturing, which contain buying raw ingredients, designing dresses and accessories, making samples and ordering for the production, circulation and marketing of the complete product. Worldwide dress production has now removed to the developing countries and is more and more centralizing in the nations like China, Bangladesh, India, Pakistan etc. With the increasing demand caused by the widespread applications in the downstream productions, the non-woven section is predictable to observe a faster development rate among the worldwide textile business concluded by the next several years.

## Acknowledgments

None.

## Funding

None.

## Conflicts of interest

The authors have no conflicts of interest regarding the publication of this paper.

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