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Current view on the study of current problems of price setting for pipe products: forecast of trends

Visión actual sobre el estudio de los problemas actuales de la fijación de precios de los productos tubulares: previsión de tendencias

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Abstract

The purpose of the study is to determine the factors influencing the price of tubular products, taking into account the integration of the industry in the global supply chain.

The methodological basis of the study was the method of trend analysis in determining trends with indexes of prices of tubular goods; the method of comparative analysis to identify structural shifts in the geographical and product structure of exports and imports; the method of deduction and induction in determining the position of the pipe industry in global supply chains; method of correlation-regression analysis to identify factors significantly affecting the price of tubular goods.

The scientific novelty of the results of the study consists in singling out current problems significantly affecting the price of tubular products and constructing a correlation and regression model to identify the positive and negative correlation of factors affecting the price of tubular products. The practical value of the results of the study consists in the development of recommendations for the identification, analysis, and evaluation of price structure for tubular products. Prospects for further research will consist in the development of a set of scientific and methodological provisions on the participation of the pipe industry in global supply chains.

The results can be considered as a holistic concept to identify problems significantly affecting the formation of prices for tubular products, taking into account structural shifts in supply and demand in the global market.

Key words: tubes, pipes, price, tubes industry, steel tubes.

Resumen

El objetivo del estudio es determinar los factores que influyen en el precio de los productos tubulares, teniendo en cuenta la integración de la industria en la cadena de suministro mundial. La base metodológica del estudio fue el método de análisis de tendencias para determinar las tendencias de los índices de precios de los productos tubulares; el método de análisis comparativo para identificar los cambios estructurales en la estructura geográfica y de productos de las exportaciones e importaciones; el método de deducción e inducción para determinar la posición de la industria de tubos en las cadenas de suministro mundiales; el método de análisis de correlación-regresión para identificar los factores que afectan significativamente al precio de los productos tubulares. La novedad científica de los resultados del estudio consiste en señalar los problemas actuales que afectan significativamente al precio de los productos tubulares y construir un modelo de correlación y regresión para identificar la correlación positiva y negativa de los factores que afectan al precio de los productos tubulares. El valor práctico de los resultados del estudio consiste en la elaboración de recomendaciones para la identificación, el análisis y la evaluación de la estructura de precios de los productos tubulares. Importancia/Originalidad. Los resultados pueden considerarse como un concepto holístico para identificar los problemas que afectan significativamente a la formación de los precios de los productos tubulares, teniendo en cuenta los cambios estructurales de la oferta y la demanda en el mercado mundial.

Palabras clave: tubos, tuberías, precio, industria de los tubos, tubos de acero.

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Introduction

The pipe products market is a global player. Pipe products are deeply integrated into global supply chains, as they enable the operation of a wide range of industries. The International Tube Association (ITA) is the international platform for cooperation among pipe manufacturers. The association is a provider of technological changes and innovations in the industry. Modernization of production facilities, the introduction of innovations, standardization, and

certification of products leads to increase of production costs and accordingly to the growth of prices. Standardization of carbon steel welded pipes must comply with quality management systems ISO 9001, ISO 14001, and OHSAS 18001.

The global market for pipe products is represented by a wide range of pipes for the oil and gas sector and other sectors, Fig. 1.

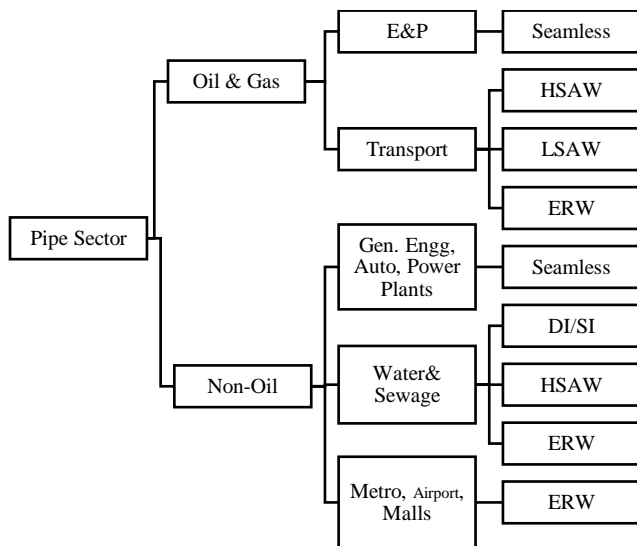
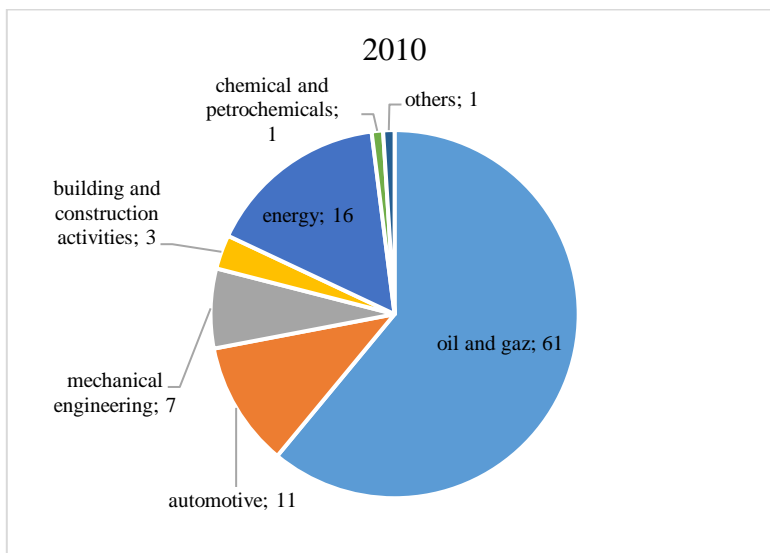


Figure 1. Product segments of pipe production. Resource: SPA Securities Limited (2020)

Industry segments of the pipe industry are constantly expanding, but the basis is the oil and gas sector, the energy sector, and the automotive industry.

Structural changes by industry segments, and consumers of the pipe industry, for ten years, are shown in Fig. 2.



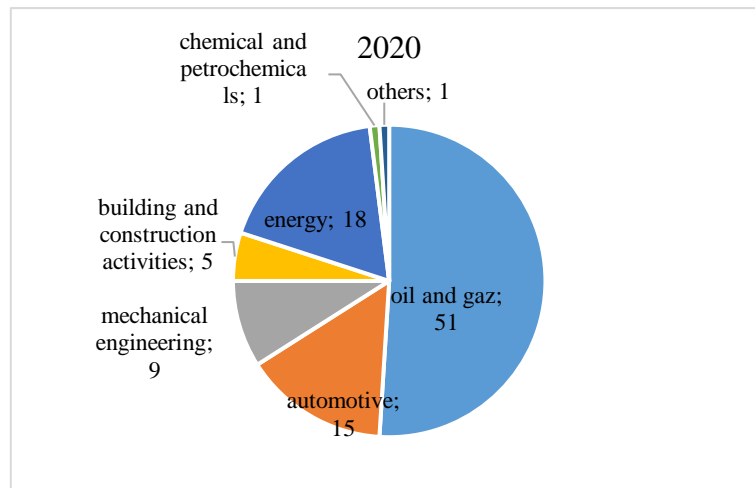


Figure 2. Structural changes by industry segment for 2010 and 2020, %
Resource: Care Rating (2021)

According to Figure 2, structural change has shifted by 10% over the past 10 years from the oil and gas sector. This trend is not due to production cuts but to sanctions against Russia's oil and gas sector, which launched a military aggression against Ukraine in 2014. A positive trend is structural shifts of 4% in the energy and automotive sectors, driven by changes in alternative energy and the development of electric and hybrid cars. Positive shifts of 2% were observed in the engineering and construction sectors.

Structural changes in the production of steel pipes over 10 years showed significant shifts, which actualizes the need to forecast prices in individual industry sectors and the study of factors affecting them.

Literature Review

The pipe products market is studied by analysts of the international level: Gunther Voswinckel - President of ITA, as well as specialists of regional markets Volkova (2021), Drobot & Veremeeva (2018). Besides ITA, analytical papers on trends in the pipe market are prepared by companies and agencies: BP Equities Pvt. Limited, Care Rating, Eurofer, Global "Steel Pipe Market", Freedonia, Pipe Industry Development Fund. An assessment of pipe production embedded in global value chains is made in Mattera (2018). The author used cost-output tables to calculate the comparative advantage for each product type and estimated their position in the steel production market for individual countries, which reflects the role of each product type's production. The study reveals the country's specialization based on the

calculations, and the Cost-Output tables reveal the country's position in global value chains.

The study of the North African regional market in global supply chains is devoted to an article (Giovannetti & Vannelli, 2020). The authors based on the Economic Complexity Index (ECI) and the Product Complexity Index (PCI). Spatial positions of related products for HS 730630 "Pipes etc nes, iron/steel welded nes, diameter <406.4m" were studied at the disaggregated level (6 figures).

A comprehensive study of South African participation in global value chains is presented in (Rustomjee et al, 2018). The authors demonstrated the value chain for the more concentrated pipeline segment, revealing a propensity for price collusion and market allocation. The book noted Arcelor Mittal's abuses, pointing to the company's market dominance, therefore pointing to the need for a more competitive policy to lower steel prices.

A study of product price changes in Latin American exports is conducted in Fujii-Gambero & Morales-López (2021). The authors look at production depending on the level of export sophistication by monitoring the unit price of exports of petrochemical chain, iron, and steel production.

An article Abramova & Garanina (2018) deals with topical issues of modernization of Russian multinational companies under sanctions. The article presents four types of global value chain (GVC) modernization strategies.

The article (Drobot & Veremeeva, 2018) is devoted to important aspects of the impact of

anti-dumping measures, because the market of steel products, which directly affects the price of products if anti-dumping measures are taken, is the most exposed to anti-dumping investigations.

The market for civil engineering, which accounts for around 5% of global pipe production, is seen by analyst Gunther Voswinckel as an attractive market for pipe manufacturers. The impact of the pandemic on this market segment in 2020 was much less severe. Some regions, such as the US, managed to avoid negative growth altogether. The construction market is growing steadily along with GDP growth and is expected to expand in 2022 (Voswinckel, 2022). Thus, we are witnessing gradual positive changes in the structure of demand for pipe products.

The pipe industry in the global market is represented by large multinational corporations. TOP Manufacturers in Steel Pipe Market are: Nippon steel and sumitomo metal corporation, Baosteel Group corporation, Arabian Pipes Company, American Cast Iron Pipe Company, JFE Holdings Corporation, United States Steel, Arcelor Mittal, Evraz Picevraz plc, Anhui Tianda Oil Pipe Company Limited, TMK Group, Zekelman Industries, Hyundai Steel Company, Steel Pipe Market Share (Wicz, 2022).

According to Arcelor Mittal Flat Carbon Europe (Arcelor Mittal, 2021), which has more than 30 years of experience in pipe steel, welded pipes for the oil and gas sector, delivers more than 450,000 metric tons of hot-rolled steel annually to the global pipe industry.

Methodology

The article uses trend and correlation analyses to study the dynamics of export prices for pipes, making it possible to identify periods of decline and growth in export prices. The analytical material was obtained on the basis of TradeMap database and FRED Economic Data.

The forecast method is based on data obtained from the U.S. Bureau of Labor Statistics (Fred, 2022). The forecast horizon of 5 years was carried out by the method of linear regression in Excel.

The analysis of the pipe market was performed by means of geographic and product structure of export and import of pipes for 2012 and 2021, which enabled the definition of structural shifts in the global trade of pipes and identification of trends in pricing policy.

The correlation and regression analysis revealed the factors influencing price changes for steel pipes.

Results and Discussion

Product prices correlate quite strongly with export trends, as China and Russia will mostly meet their domestic demand. But if we look at the structure of demand by industry, exports are a priority for manufacturers. Global exports of tubular products by HS 7303-7307 are shown in Fig. 3.

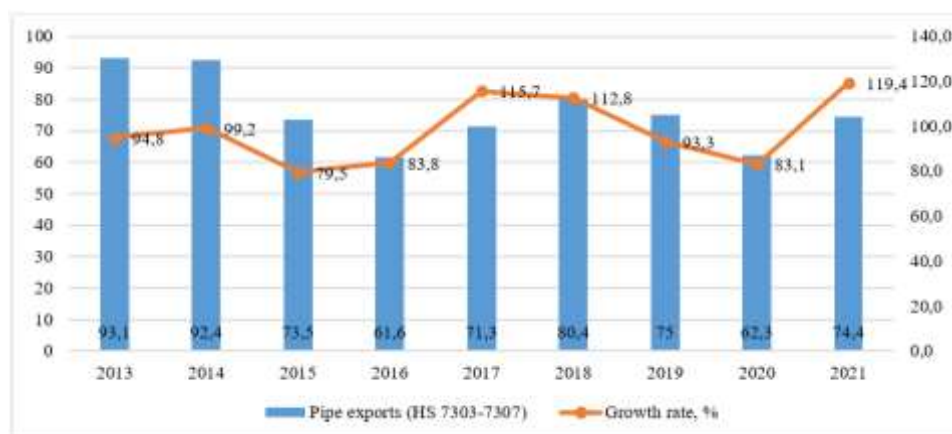


Figure 3. HS 7303-7307 World Pipe Exports Trends 2013-2021, \$ billion U.S.

Resource: (TradeMap, 2022)

Based on Fig. 3 trends reflect a significant drop in exports from 2013 to 2016 of nearly 45% to \$73.5 billion. In 2020, the pandemic resulted in a 17% drop to \$62.3 billion, and in 2020, due to the pandemic. This was due to a decrease in market

demand due to the closure of many plants or a shift to part-time production. Growth trends may be driven by higher prices, requiring a price index analysis.

Global steel pipe demand will grow 3.5% annually to 79.7 million metric tons in 2019. This slowdown will reflect slower construction activity in China and less oil and gas exploration in North America. Steel remains the dominant pipe material in use in the energy sector but will face more competition from plastics in other markets.

Freedonia's (2016) study estimated the global steel pipe market in 2016 at a physical volume of 67.1 million metric tons.

According to the Global "Steel Pipe Market" (GlobeNewswire, 2022), in 2020, the largest segment of the global steel pipe market was

\$42,580 million. By the end of 2027, it is expected to reach USD 51,490 million. This is at a CAGR of 2.2% during 2021-2027. Thus, according to 2020 data, 2/3 of the market for tubular products is the steel pipe market.

The dynamics of producer price indices are formed on FRED Economic Data. In order to identify problems in the pricing of tubular products, let us analyze the dynamics of the producer price index for the sectors: the production of iron and steel tubes and tubes made of purchased carbon steel and the producer price index for the product: steel metal tubes, Fig. 4 and 5, respectively.

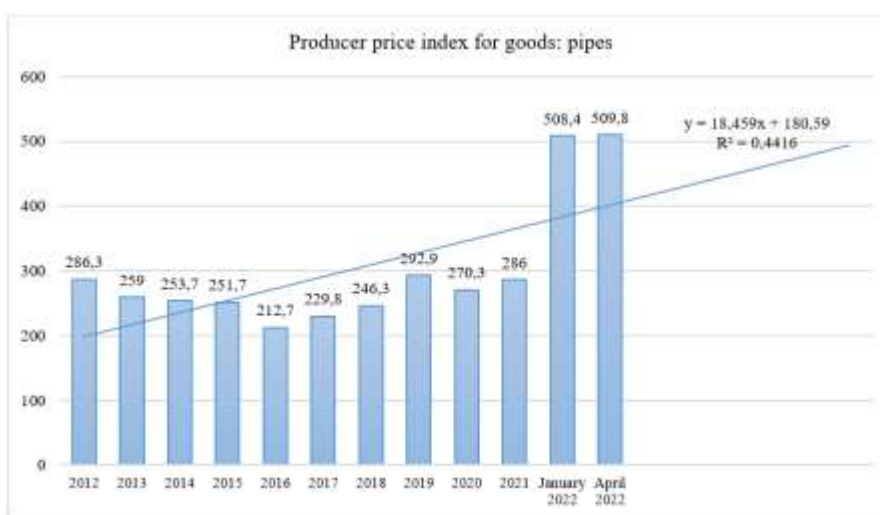


Figure 4. Producer price index by industry: production of ferrous and steel pipes and tubes of purchased steel: pipes and tubes, carbon.

Resource: U.S. Bureau of Labor Statistics (Fred, 2022).

The data in Fig. 4 reflects the fall in the price index in 2016, but in 2020 the fall was insignificant. Thus, the reason for the decline in exports in 2016 was a significant drop in prices.

However, in 2022 there is a sharp increase in the price of carbon (with coal) pipes, almost 2 times to 250.

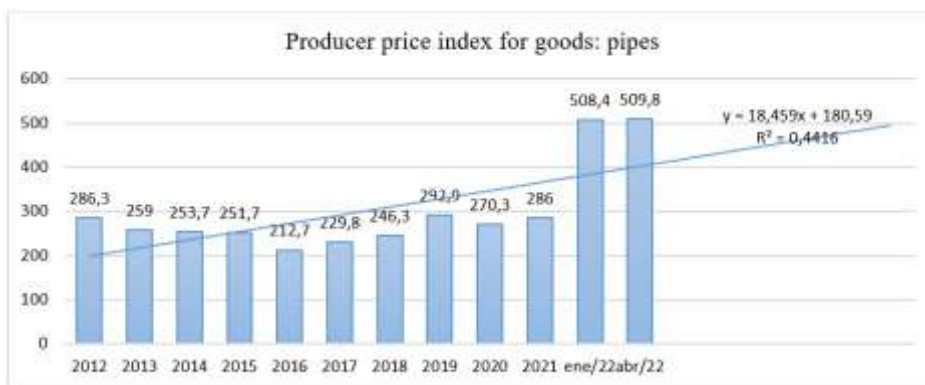


Figure 5. Producer price index by commodity: metals and metal products: steel pipes and tubes.

Resource: U.S. Bureau of Labor Statistics (Fred, 2022).

Based on the trend in Fig. 5, the steel pipe market shows a similar trend as the carbon pipe market. According to the forecast we made by the linear function, there will be a gradual increase in prices for the next 5 years.

According to the ITA President (Voswinckel G., 2022), the pipe price index has increased by about 80% since January 2021. In any case, long-term pipe contracts could not benefit from this increase in pipe price on the spot market. In contrast, most pipe products suffered from the fact that they could not pass on price increases to the cost of production (e.g., higher energy and materials prices).

The three major segments of pipe and tube production reported subsequent production

volumes. The seamless market updated about +6%. The most significant slope was recorded for seamless pipe in the U.S. (+22%) and Japan (+15%). Welded tubes >16 OD (>406mm), with losses to 27% in 2020, the market recovered by about 8% in 2021. The best recovery was reported by Japan (+23%). Only Europe still saw a significant drop in production in 2021 (-15%).

It is necessary to supplement the understanding of the pricing problems in the pipe market with the analysis of the product range and geographic breakdown, which helps assess the scale of sales and, accordingly, the scale of the problems.

The structure of global pipe exports for 2012 and 2021 is shown in Fig. 6.

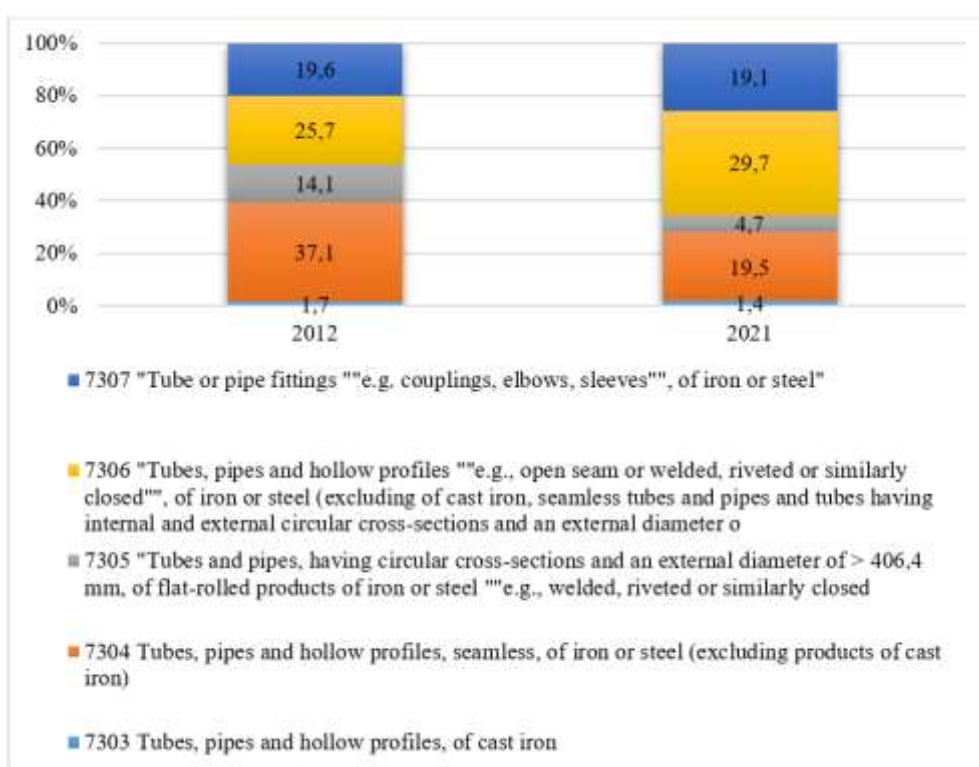


Figure 6. Structure of global pipe exports for 2012 and 2021, %
Resource: Made by the author based on data (TradeMap, 2022)

Accordingly, Fig. 6. The structural shifts in the product exports occurred in the direction of reducing the nomenclature of HS 7304 from 37.1% to 19.5%, i.e., almost 2 times. The share of HS 7306 tubes rose from 25.7% to 29.7%, i.e.,

by 4%, so the demand for them in 2021 increased significantly.

Let's analyze the geographical structure of HS 7306 pipes export, Fig. 7.

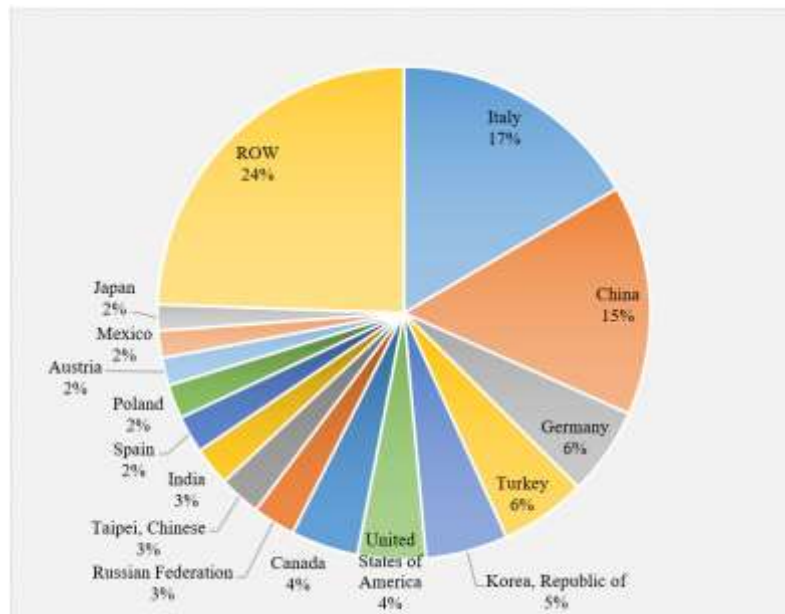


Figure 7. Geographic structure of 7306 pipe exports for 2021.
Resource: Made by the author based on data (TradeMap, 2022)

The data in Fig. 7 data reflecting the cumulative share of exports is occupied by the EU countries - 29%, and China - 15%. The cumulative share of the top 15 exporting countries accounts for 76%. In monetary terms given by TradeMap, the pipe market under HS Code 7306 for 2021 was \$820.8 billion. US dollars.

According to ITA estimates, China produced 96 million tons of steel pipes in 2019, which is 55% of global production, in the seamless pipe sector its share is 65%.

Analyzing the global pipe market, we should note the positions of the leaders occupied by the EU countries and China, which, in turn, as active participants in the global supply chains of intermediate products (pipes) significantly affect the price of products at each stage of production.

Due to the fact that China, starting from May 1, 2021, abolished export benefits for its manufacturers of seamless pipes, Chinese companies will have to squeeze in this market. Their products have become 15-17% more expensive, which is already having a noticeable effect on the market. In addition, one of the global players, Spain's Tubacex, did not work due to a strike by its workers. The producers' market has partly changed, and this has caused another important trend, there is a sellers' market rather than buyers', as demand overtakes production. According to these trends, prices for seamless pipes have risen - by 3-5% on average.

For example, experts in the Indian market have noted positive changes in the production of carbon and steel pipes, which is one of the key domestic market infrastructure development sectors. The overall size of the industry has grown at an ambiguous rate over the past four years and is now estimated at 60,000 crore rupees. The major growth drivers for the industry include demand stemming from domestic water infrastructure, oil exploration, and transportation, construction, irrigation, infrastructure, and expansion of gas pipelines such as the national gas grid and urban gas distribution. Although the COVID-19 pandemic caused some disruption, the industry has seen a V-shaped recovery after restrictions were lifted and exceeded before COVID, as evidenced by a 16.61% increase in steel pipe consumption in March 2021 compared to March 2020.

During the fiscal year 2020-21, however, the industry recorded a decline of nearly 15% due to a drop in production and consumption during the global quarantine period.

Going forward, CARE Ratings believes that the industry is resilient enough to return to a growth path, although it is unclear to what extent industry players will be able to combat the surge in commodity prices and protect their profitability. The industry has felt consolidation with the increasing dominance of larger players, especially in the electric welded resistance (ERW) segment, which has been the most fragmented historically. The operating margins of the industry's major players increased by

nearly 350 basis points to 12.5% from 2012 to 2020.

India's iron and steel pipe industry accounts for about 8% of global steel pipe production. Production grew 7.69% from 4.97 million tons in 2017 to 6.68 million tons in 2020, driven by increased demand arising from growth in domestic water infrastructure, mainly due to the Jal Jeevan mission, and oil exploration, construction, infrastructure, and expansion of gas pipelines such as the national gas grid and urban gas distribution. As a result, consumption growth outpaced production growth and rose to 11.03% from 2017 to 2020.

The past decade has seen the evolution of India's pipe and tube manufacturers due to increased demand and capital expenditures to upgrade and build capacity in end-user industries. As a result, steel pipe and tube manufacturers have successfully expanded their operations to match the global economic size. Total sales by Indian manufacturers have nearly doubled over the past decade, despite declines during 2020 due to lower metal prices and volume losses due to the global pandemic reaching large volumes.

Because of the first wave of the pandemic in 2020, the global steel pipe industry recorded a decline of 10.6%, which means a decrease of 7.3 million tons of consumption. Demand for steel pipes fell as construction activity came to a halt due to increased infections; however, when the

first wave receded, governments responded with significant infrastructure spending to boost the economy. With only glimmers of normalcy in the markets, a second pandemic wave swept through them. Retrenchment measures such as lockdowns and curfews again took center stage, leading to supply chain disruptions, labor shortages, financial losses, and a temporary negative impact on investment. One of the key drivers of demand for steel pipe is the oil and gas industry, which faced its worst crisis in history when oil prices plunged to \$21.04 a barrel during the first wave of crude oil prices. USD per barrel during the first wave of COVID-19.

We see contradictory estimates in the analysis of shrinking demand and correspondingly falling price, on the other hand, we see the exit from the stagnation of the oil and gas and construction industry.

Although the president of ITA (Voswinckel, 2022), realistically assesses the position of the industry due to Russia's military aggression against Ukraine, a reduction in oil production in Russia is quite expected as a result of the adoption of sanctions.

The geographical structure of pipe imports is quite different. The imports actually reflect the ranking of countries that produce final products at their production facilities with high added value. The geographic structure of pipe imports is shown in Figure 8.

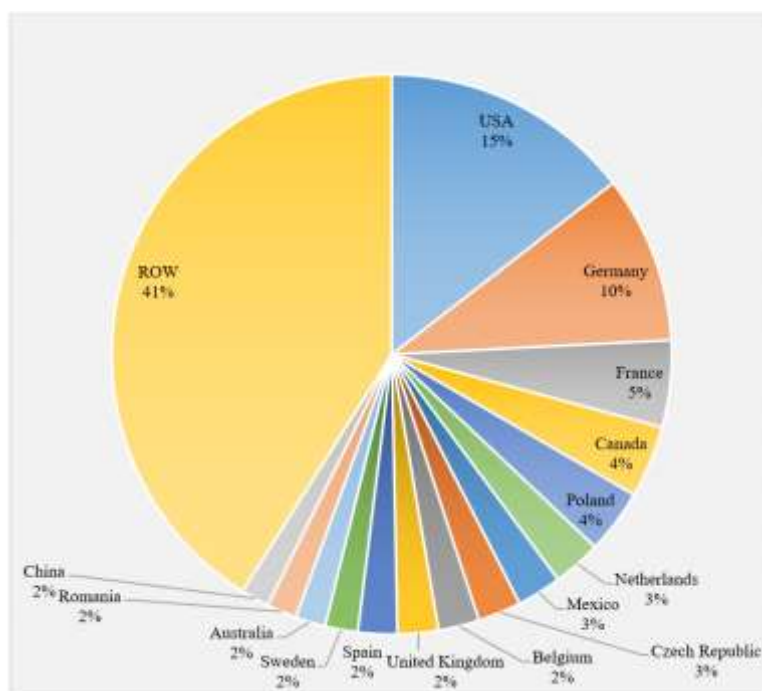


Figure 8. Geographic structure of 7306 pipe imports for 2021.
Resource: Made by the author based on data (TradeMap, 2022)

According to Fig. 8, the importing countries of steel pipes include EU countries - 29%, USA - 15%, Canada - 4%.

Based on EUROFER ECONOMIC REPORT (2022) analytical estimates of imports by country of origin for the first eleven months of 2021, the main countries of origin of finished steel imports to the EU market were Turkey, the Russian Federation, South Korea, India, and Ukraine. These five countries represented 56% of total finished steel imports into the EU. Turkey and the Russian Federation were the largest exporters of finished steel products to the EU (with a share of 15.5% and 12.8% respectively), followed by India (11.9%) Ukraine (8.3%), and South Korea

(7.4%). For the third quarter of 2021, imports of products increased by +45%, exceptional increases were registered in imports of finished products from Ukraine (+107%) and India (+83%), while imports from Turkey (+15%) and Russia slightly increased (+ 7%). At the same time, imports from South Korea decreased by - 8%. p. 7

Based on TradeMap data, we calculated the average price based on monetary and physical units of product exports under HS Code 730611. 406.4 mm. We built a linear model of export price forecast for 5 years based on the obtained indicators, Figure 9.

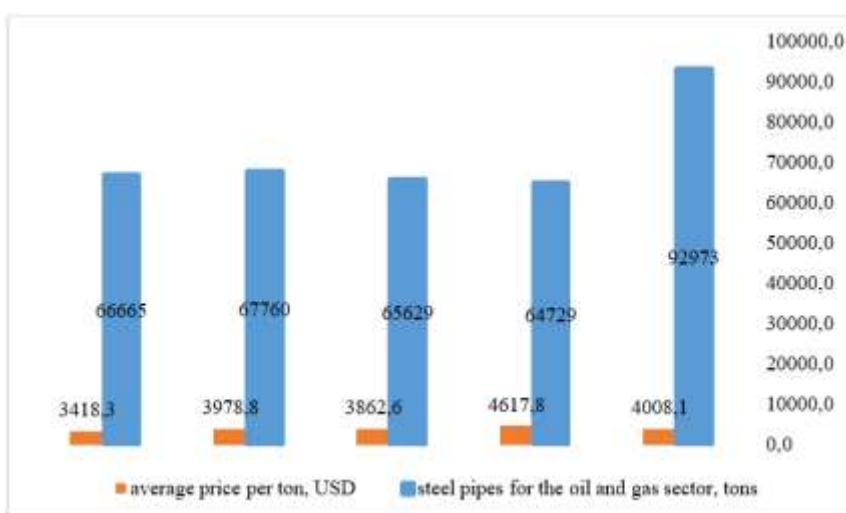


Figure 9. Forecast of average export price 730611 Line pipe of a kind used for oil or gas pipelines, welded, of flat-rolled products of stainless steel, of an external diameter of <= 406,4 mm
Resource: Made by the author based on data (TradeMap, 2022)

According to the results of the forecast in Fig. 9, the price of steel pipes for the oil and gas sector will gradually increase in the next 5 years, as evidenced by the trend in the price index in 2022 (Fig. 5), when the price increases.

When studying the factors that influence the price of pipes, various analysts point to the following components:

1. Steel Market (EUROFER ECONOMIC REPORT, 2022). The positive trend in apparent steel consumption as well as steel demand seen in the second quarter of 2021 also occurred in the third quarter, albeit at a slower pace, and is projected to continue into 2022. Ongoing global problems have caused uncertainty in the economic and industrial outlook, and this is likely to continue until the first half of 2022. Overall, the recovery in the EU looks increasingly uneven and

2. subject to negative risks, mainly serious disruptions in the global supply chain (i.e., shortages of components and raw materials, soaring energy prices, rising delivery costs, etc.), and potential new COVID- 19 options. Therefore, the recovery in steel industries and steel demand is expected to continue, but at a moderate pace and with considerable uncertainty until at least the second quarter of 2022. This depends on the absence of additional external shocks and an easing of current pressures on global supply chains.
2. A recovery in global oil demand (EUROFER ECONOMIC REPORT, 2022) (including oil prices, although they are trying to rise to levels comparable to other commodities, such as natural gas) is expected to have some positive impact on production in 2022, assuming the economic scenario does not deteriorate further.

3. The upward price trend for seamless pipes (Vanleeuwen, June 2021) has also accelerated over the past few weeks, boosted by rising scrap prices. Compounds for seamless pipes are fully filled in the coming months. Strong rumors that China will impose an export surcharge may further reinforce this acceleration.
4. The increase in prices for hot-rolled coils immediately affects prices for welded tubes and hollow sections. Over the past few months, one price increase followed another. Now the price level for welded pipes is even higher than for seamless pipes. (Vanleeuwen, June 2021).
5. Prices for fittings and flanges have also increased recently due to higher material prices. In this group of goods, prices for flanges from China increased more, which is connected with the above-mentioned cancellation of the export tax discount in this country. (Vanleeuwen, June 2021).
6. According to the International Tube Association, the crisis as a result of the coronavirus pandemic has had a severe negative impact on the global oil and gas industry, and the lack of demand has led to a drop in steel pipe prices.
7. The US, Russia, China, Canada, Mexico, Iran, Ukraine, Argentina, and India accounts for 80% of the total pipeline network present worldwide. In CY2017, global large diameter pipe demand was around 15.7 million tons. China is the biggest market and North America surged to number two for pipeline consumption, followed by middle east and European nations. Major Risks and Concerns: Slowdown or trimming of proposed capex in oil and gas sector; Volatility in raw material prices; Delay in commissioning of new expansion facility; Delay in client approvals for new facility and project execution; Further intensifying protectionist measures in key geographies to impact export business (BP Equities Pvt. Limited, 2019).
8. If we look at hot-rolled coil prices, we see a serious problem for OEM tubes. Since September 2020, prices have risen about 340% from \$450/ton to a peak of about \$1,500/ton in November 2021. Since then, hot-rolled coil prices have moderated at a high level. Now prices are rising again (Voswinckel G., 2022).
9. Fluctuations in the price of tubular products generally repeat general trends in the steel market, as they are set by such factors as the state of the economy in general, the level of demand from key consumer industries (oil and gas sector, construction, engineering industry), and the cost of raw materials, namely flat products. The year 2021 was defined by an increase in demand, followed by huge price and cost increases combined with supply chain shortages. Price and cost spikes peaked in the fall of 2021, although supply chains and energy costs are still causing problems. However, the market in principle provides enough pipe and tube capacity to meet demand, and therefore will likely calm down once supply and demand are balanced again (Volkova, 2021).
10. Anti-dumping measures are applied most frequently in the U.S., specifically to steel pipes. Most anti-dumping is applied to China, Russia, the United States, Brazil, India, and Mexico. These duties are imposed in addition to normal customs duties and are sometimes punitive in nature, although in principle they should be compensatory, i.e., corresponding to the difference between normal and dumping prices (Drobot & Veremeeva, 2018).
11. According to Rystad Energy's analysis, investment from global exploration and production (E&P) companies in 2021 was about \$380 billion. This is almost unchanged from last year, but \$76 billion in projected investments in 2021. The projected \$20 billion in investments in 2021 could be at risk of deferral or curtailment, with the remainder classified as safer levels of low-to medium-risk. The investment could recover to pre-crisis levels of \$530 billion. The investment could return to its crisis level of \$530 billion by 2023 if oil prices rise to about \$65. The oil price is expected to rise to about \$880 billion per barrel - although it should be remembered that after the previous market crisis in 2014, annual investment in development and development never resumed to pre-crisis levels. This is \$880 billion investment against a backdrop of \$500 billion to \$550 billion established at the level of \$500 billion to 550 billion USD (Rystad Energy, 2020).

In our opinion, we should highlight the factors that can be quantified and included in the mathematical model. Such factors are: the volume of oil exports, the processed products of which are used for transportation of pipes; import of steel, of which 2/3 of pipe products are produced.

Initial data for the construction of correlation and regression analysis are summarized in Table 1.

Table 1.
Input data for correlation and regression analysis.

Years	The average price of steel pipes, USD, Y	Imports of corrosion-resistant steel in ingots or other primary forms, mln. USD, X1	Oil exports, mln. USD, X2	Export of pipes 7306, bln. USD, X3
2017	3418,3	881,1	886541,9	23607,5
2018	3978,8	1354,9	1185303	25571,9
2019	3862,6	851,2	1063226	22785,5
2020	4617,8	592,6	709427,6	20120,5
2021	4008,1	1579,7	1027936	29719,3

As a result of the correlation and regression analysis, the multiple R was 0.753042, which is close enough to 1, which characterizes the model as adequate. R^2 was 0.567072, which explains 56.7% of the trends characteristic of this market. According to the obtained coefficients, we obtain the equation of the model:

$$Y = 10924,03 + 3,4311x^1 - 0,0235x^2 - 0,3394x^3$$

The resulting correlation and regression model can be interpreted as follows:

- the pricing of pipes is directly dependent on steel exports because as the price of steel rises, the cost of pipe products will rise;
- a direct negative impact on the price of tubular products has oil exports, as reduced oil production, will lead to a decrease in demand for the construction of pipelines, and an increase in oil prices will increase the cost of transporting pipes;
- the price is directly dependent on pipe exports, when demand shrinks, the cost of stopping production rises.

Conclusion

As a result of the study of problems and modeling the dependence of the price of tubular products on a number of factors:

1. The main trigger for the development of the market for tubular products is oil and gas production, which stimulates the production of steel and carbon pipes, which in the structure of the market occupy 51%.
2. According to the analysis and forecast of the price index, prices for pipe products have more than doubled over the past year and will continue to rise gradually due to the complications in global supply chains due to sanctions.
3. The product structure of the pipe market is quite differentiated by product types, metal processing technologies, and segments.

4. The cost of pipe products is also quite strongly influenced by the price of steel products and the transportation tariff, and anti-dumping duties, which have regional differences.
5. The correlation and regression model built by the author showed that a significant negative impact on pricing is observed from changes in demand for oil exports, as demand for pipes for the oil and gas sector decreases and price volatility from transportation costs increases. When demand for exported pipes decreases, the costs of production shutdowns increase, which also leads to higher prices. The direct influence on the price is observed from imports of steel, from which 2/3 of pipe products are made.

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