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THE ROLE OF LOCALIZATION IN SUPPORTING LARGE-SCALE AUTOMOBILE PRODUCTION: THE CASE OF UZBEKISTAN

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Abstract

This paper examines the role of localization in reaching high production volumes in the automotive industry, focusing on Uzbekistan's experience. The study analyzes the challenges of achieving one million vehicles production per year under the condition of high logistics costs and dependance on imported parts. A benchmark analysis of countries producing one million passenger cars annually shows that such scale has been achieved by a limited number of countries in the world and is not directly related to country's population size or GDP per capita. Instead, vehicle affordability, access to export markets and lower costs are more important. The paper also demonstrates that reliance on imported parts significantly increases production costs due to long lead times, warehousing expenses and freezing working capital, especially in landlocked countries. The findings in the paper suggest that localization of component manufacturing is necessary condition to support high-scale production.

Key words: Localization, Automotive industry, Uzbekistan, cost structure, import dependancy, production scale.

Introduction

In 2025, production volume of passenger cars reached 457,8 thousand units [1] in Uzbekistan, with major contributions by "UzAuto Motors" JSC (Chevrolet models), as well as increasing output of vehicles from "ADM Jizzakh" LLC (KIA, HAVAL, Chery) and "BYD Uzbekistan Factory" LLC. The government's long-term goal is to reach one million vehicles per year by 2030 [2], transforming Uzbekistan into a regional production hub for car and component manufacturing. Localization plays a crucial role in this strategy.

Over the past decades, Uzbekistan has gone through an industrial policy to reduce import dependency, increase domestic value creation indicators, and attract foreign companies into local production. Without a good level of localization, large-scale automotive production in Uzbekistan would face significant cost impacts arising from its geographic location due to logistical factors. As a landlocked country with long supply routes through land to major sea ports, Uzbekistan faces higher transportation, inventory costs and longer lead times for imported components which is directly added into car production costs, reducing competitiveness of final product in the domestic and export markets.

This paper aims to analyze the challenges Uzbekistan's automotive industry is facing to reach large-scale vehicle production and review localization of components as a mechanism to overcome the difficulties related to geographic and other limitations.

Materials and Methods

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Uzbekistan's localization experience is analyzed in relation to selected international cases from automotive producer countries. This study has several limitations. First, detailed data on total investments of component or car producers are not always available, because official reports often present only estimated figures. Second, information on costs at the individual company level is not publicly accessible, so the analysis relies on industry-level data. Finally, the study mainly focuses on passenger cars and does not cover commercial vehicles, which may follow different localization patterns.

Even with these limitations, the use of institutional information makes it possible to evaluate the role of localization in reducing production costs and supporting large-scale vehicle manufacturing.

Many authors explain localization as an important tool for industrial development. Rodrik [3] argues that markets alone may not create new production capabilities, especially in developing countries. Similarly, Amsden [4] shows that domestic production is necessary for learning and technological progress.

In the automotive industry, localization depends strongly on production volumes. Research by Sturgeon and Van Biesebroeck [5] show that component manufacturers usually localize production only when car production volume is high enough to justify investment. This means that small or growing markets face difficulties in localizing complex components.

Researches on landlocked countries also point out the role of logistics costs. According to the World Bank [6], high transport costs increase production expenses and reduce competitiveness, making localization an important strategy for cost reduction.

This study uses mixed-methods approach combining quantitative with qualitative analysis. Such approach is appropriate for examining localization in the automotive industry, in which production scale, cost structures, and market demand are formed by both economic indicators and institutional mechanisms. The analysis focuses on Uzbekistan as a case study, reflecting its geographic conditions, industrial policy, and development trends. The empirical analysis is based on secondary data obtained from official national and international sources. Quantitative data on vehicle production volumes and localization levels were collected from publications of the State Committee on Statistics of Uzbekistan, industry reports issued by JSC "Uzavtosanoat" and author's professional research and practical experience in the automotive localization. The author has been directly involved in the analysis, evaluation, and coordination of localization projects in the automotive industry, including feasibility studies of car parts localization, communication with the local and foreign suppliers. This involvement provided access to analysis data on cost structures, localization, supplier capabilities and institutional coordination processes that are not fully obtained in published statistics. Reports from international financial institutions like the World Bank and the Asian Development Bank was also used to provide high level analysis.

Results and Discussion

Before examining localization as a key factor in the development of Uzbekistan's automotive industry, it is necessary to review benchmark based on international experience. For the purpose of this research large-scale passenger car production is defined as at least 1 million vehicle manufacturing per year. Only a limited number of countries are able to reach and sustain this level of production, making them a reference group for comparative analysis.

Table 1.

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Comparative analysis of population, passenger car production volumes and GDP per capita of the countries which manufacture around and above 1 million cars annually

№	Country	Annual passenger car production volume (2024)	Population of the country (people)	GDP per capita (USD)
1	CHINA	27 476 886	1 419 321 278	$ 13 303
2	JAPAN	7 139 188	123 753 041	$ 32 476
3	INDIA	4 991 413	1 450 935 791	$ 2 697
4	GERMANY	4 069 222	84 552 242	$ 55 800
5	SOUTH KOREA	3 849 326	51 717 590	$ 36 239
6	SPAIN	1 918 244	47 910 527	$ 35 297
7	BRAZIL	1 895 020	211 998 574	$ 10 280
8	CZECH REPUBLIC	1 452 881	10 735 859	$ 31 707
9	USA	1 432 615	345 426 571	$ 85 810
10	INDONESIA	1 026 976	283 487 931	$ 4 925
11	SLOVAKIA	993 000	5 506 760	$ 26 148
12	IRAN	977 776	91 567 738	$ 4 771
13	MEXICO	947 726	130 861 007	$ 14 158

Table 1 (Compiled by the author based on [7]

The data presented in Table 1 indicate that reaching annual passenger car production (in 2024 y.) at or above one million units does not necessarily depend on a country's population size or GDP per capita. Countries with very different income levels and population appear among large passenger car producers. For example, high-income countries with relatively small populations, such as Czech Republic and Slovakia are among the lower-income and highly populated countries like India and Indonesia.

This variation suggests that neither population of the country nor income level alone is enough to explain large-scale passenger car production.

Instead, the evidence points to other factors. One of the most important is the price segment of vehicles produced. Countries focusing on affordable models are able to generate higher production volumes even with lower GDP per capita, as local demand depends on the lower price of the cars. Another key factor is the availability of export markets. Several countries with limited domestic demand reach high production volumes through export-oriented manufacturing.

In addition, localization level plays a critical role. Countries that have developed good supplier networks locally and competitive cost structures easily support large production volumes regardless of income level.

To understand the role of localization in achieving large-scale automobile production, it is necessary to examine how the cost of a passenger car is formed.

Table 2.

Cost structure of a produced car

№	Cost of vehicle
1	Knock down (KD) parts and raw materials

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1.1.	Import KD and raw materials
1.2.	Local KD and raw materials
1.3.	KD logistic cost
2	**Manufacturing cost**
2.1.	Depreciation of equipment
2.2.	Direct labor cost
2.3.	Energy utility costs
2.4.	Others (including rent of building, etc.)
3	**Selling, General and administrative costs (SG&A)**
4	**Expenses on financial activities**

Table 2. (Compiled by the author)

In a typical automotive cost structure, vehicle cost consists of components, raw materials (both local and import) and their logistics costs, manufacturing cost (labor, energy utility cost, depreciation of equipment), SG&A, expenses on financial activities. In countries with a high level of localization, a large share of components is supplied domestically, allowing manufacturers to shorten transport distances, lead times to manufacture and reduce inventory warehouse requirements. As a result, cost of the vehicle can be controlled predictably and planning the production can be more stable. When a significant amount of components is imported, additional costs are added to the value chain. Logistics costs are added directly in the unit cost of each vehicle. Moreover, imported components usually require larger safety stocks due to longer and less predictable delivery times. Another important factor is the freezing of working capital money. Long lead times for imported components mean that manufacturers must pay for parts months before they are used in production. During this period, financial resources are frozen in inventories and cannot be used for other operational needs such as increasing production volume, investing in equipment, or supporting suppliers.

Let's try to make a case study. The case study below is an example of alloy wheel localization in the automotive industry based on production data related to JSC ''UzAuto Motors''. The purpose of this case study is to show how dependency on imported components affects logistics costs, working capital requirements and how localization could reduce these expenses.

In 2024, ''UzAuto Motors'' JSC produced 164,800 units of Chevrolet Cobalt model, which remains one of the company's best-selling passenger car models. Each vehicle is equipped with four alloy wheels, while the spare wheel is typically a steel wheel. Based on this configuration, total annual demand for alloy wheels for the Cobalt model alone is:

- 164,800 vehicles × 4 wheels = 659,200 alloy wheels per year

At present, alloy wheels are fully imported, as no local production facilities exist in Uzbekistan or neighboring countries. Suppliers are typically located in China, South Korea or other countries.

For the purpose of this case study, the price of one imported alloy wheel is assumed to be $40 (LME cost for aluminium alloy – raw material for alloy wheel in the time of writing this paper is $2479/ton, adding machining, painting and othe production expenses will get at least $40/wheel).

Each alloy wheel weighs approximately 8,6 kg, with dimensions 15''× 6.0J. Based on packaging and weight informatio, a standard container can take a maximum of 1,728 wheels.

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The average logistics cost for transporting one container from Korea to Uzbekistan is estimated at $10,000–12,000. Using $10,000 per container, total annual logistics costs for alloy wheels used in the Cobalt model amount to:

382 containers * $ 10,000 = $ 3,82 million per year

This figure reflects logistics costs only, excluding customs, insurance, handling, and internal transportation.

Transportation of alloy wheels from Korea to Uzbekistan typically takes 20–30 days. Due to long and uncertain lead times, automotive manufacturers usually maintain safety stock to avoid production stops. In this case, it is assumed that ‘‘UzAuto Motors’’ JSC maintains:

- 1 month of safety stock in the warehouse;
- 1 month of inventory in transit;
- 1 month of confirmed orders with the supplier;
- Based on an annual volume of 659,200 wheels, monthly demand equals:
- 659,200 / 12 ≈ 54,933 wheels per month.

If suppliers require 100% prepayment for the ordered goods, the value of three months of inventory reaches:

- 54,933 * 3 * $ 40 ≈ $ 6,59 million

This amount represents working capital frozen at all times.

Due to the size and packaging requirements of alloy wheels, storage space is another important cost factor. Based on typical stacking and packaging standards, it is estimated that imported alloy wheels occupy at least 600 m² of warehouse space at “UzAuto Motors” JSC. This space could otherwise be used for other purposes like production volume increase.

All of the above costs - international logistics, inventory financing, and warehousing - are not related to alloy wheel production itself but come from import dependency. If alloy wheels were produced locally, these costs could be significantly reduced or eliminated, leading to:

- lower unit cost per vehicle;
- reduced working capital;
- shorter lead times and greater production flexibility.

Looking forward, as Uzbekistan set a goal to increase the car production volumes to one million units per year by 2030, it can be assumed that at least 600 thousand vehicles per year will be equipped with alloy wheel (still some budget models or options will have stamping wheels).

In this scenario, annual demand for alloy wheels would reach 2,4 million alloy wheels per year. Based on reference above, 2,4 million alloy wheels per year will require 1389 containers per year (2,4 million / 1728 wheels per container). This means at least $ 13,89 million (1389 containers * $ 10,000) expenses for carmaker per year for logistics. Considering the savings that can be reached, investing in alloy wheel local manufacturing could be feasible in 6-8 years after the start of production.

This case study illustrates that localization is not only a measure to reduce the cost of vehicle but also a requirement to support large-scale production.

From the beginning of establishment of automotive industry, automakers in Uzbekistan focused on establishing good local supplier network. For example, according to reports currently “UzAuto Motors” JSC works with 135 local tier-1 and 235 tier-2 suppliers. They produce 1577 knock-down parts to the auto manufacturer. “UzAuto Motors” JSC’s newest models Chevrolet “Onix” and

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"Tracker" have already reached the localization level of 58 % [8]. The company also is setting a target to reach 80% localization level in the coming 3 years period.

This means, the company is targeting to localize more technologically difficult parts like chassis and steering parts.

In the past, most of the big tier-1 auto component manufacturers used to be mainly joint-ventures of foreign companies and "Uzavtosanoat" JSC (wholly owned by government). However, based on the new privatization trends in Uzbekistan's economy, the government has developed new legislative documents. The Resolution of the President of the Republic of Uzbekistan from 19th of April 2024 #PR-162 specifies the list of auto parts manufacturing enterprises belonging to "Uzavtosanoat" JSC, which should be privatized. This list includes manufacturers of automotive cooling systems and HVAC systems, windows, stamped parts, headlights, seats, chassis parts, steering wheels, window regulators and a number of other components. This is a very important and correct step in an era of transition to the principles of a market economy. Because of the growing market, the demand for quality, and the increasing number of car manufacturers require suppliers to be very flexible and independent. In the meantime, growing market requires car manufacturers to develop local suppliers to sustain their increasing production volumes. "ADM Global" (group of companies belonging to "Roodell" LLC) in recent years has established several suppliers like "ADM DASAN" LLC (plastic and interior parts), "ADM COMPONENT" LLC (chassis parts), "KCC PAINTS" LLC (paint materials), "YOUNGSAN" LLC (seats), "DMC JIZZAKH" LLC (weatherstrips), "ADM STAMPING" LLC (stamping parts), "ADM ELECTRICS" LLC (electric parts) to support its OEM company – "ADM JIZZAKH" LLC (KIA, Chery, HAVAL) despite the existence of such parts manufacturers in Uzbekistan.

Apparently, the current reality in the automotive sector is creating new opportunities and challenges for Auto makers in localization of components. The lack of enough technical and technological capabilities of local manufacturers, forces OEMs to seek for foreign international companies to join for localization projects. Currently, car manufacturers have the opportunity to offer 2 different concepts of cooperation to foreign companies:

1. To establish their own local factory;
2. To make Technical License Agreement with local private companies to make know-how transfer.

In both cases, car manufacturer itself plays a role of a bridge to bring these suppliers: to establish a partnership with private companies or with local governing bodies.

When foreign companies create own local factory, they may need support in terms of choosing location, to rent a building, to hire local employee, even to open a legal entity.

While establishing a cooperation with local private companies, foreign companies often seek assistance and guarantees from the automaker.

As one of the instruments to support such processes, "Localization Support Center" (Center) was established under "Uzavtosanoat" JSC, which started serving as a coordination platform between government institutions, private companies and foreign investors. Center conducts feasibility studies of the localization projects, identifies local and foreign partners and accompanies investors throughout each stage of project implementation – from component analysis to plant placement.

Conclusion

For the past 30 years, Uzbekistan's automotive industry has been experiencing its unique path to reach higher car production volumes. Current target – to reach production of 1 million cars per year,

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creates a lot of challenges for the local carmakers including huge investments for the establishment of new production capacities, prepare qualified personnel, finding new export markets and using different financing tools to increase the sales. Because of high logistics costs and dependance on imported parts, production without localization will lead higher car prices and as a consequence lower demand. The paper suggests that achieving large-scale production volume like 1 million vehicles per year, requires deeper localization of complex parts to reduce the cost. Uzbekistan's case demonstrates that to sustain high-scale production volumes, localization of components plays crucial role because of landlocked location of the country and it is not a policy choice but necessity for sustainable development.

References:

1. UzStat. (2025). Most Cobalt cars were produced in Uzbekistan in 2025. https://stat.uz/ru/press-tsentr/novosti-goskomstata/66467-2025-jilda-zbekistonda-eng-k-p-cobalt-avtomobili-ishlab-chi-arildi-3

2. President of the Republic of Uzbekistan. (2024). Decree No. DP-37 "On the State Program for the Implementation of the Strategy 'Uzbekistan — 2030' in the 'Year of Support for Youth and Business'". National database of legislation of the Republic of Uzbekistan.

3. Normalizing industrial policy (Commission on Growth and Development Working Paper No. 3). World Bank.

4. Amsden, A. H. (2001). The rise of "the rest": Challenges to the West from late-industrializing economies. Oxford University Press.

5. Sturgeon, T. J., & Van Biesebroeck, J. (2011). Global value chains in the automotive industry. International Journal of Technological Learning, Innovation and Development, 4(1–3), 181–205.

6. World Bank. (2014). Improving trade and transport for landlocked developing countries.

7. OICA. (2024). World motor vehicle production statistics; World Bank. (2024). World development indicators; International Monetary Fund. (2024). World economic outlook database.

8. Spot.uz. (2025, September 15). UzAuto Motors localization level reaches 58% for new models [News article]. https://www.spot.uz/ru/2025/09/15/uzauto-localization/