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Investment and Taxation Strategies: Examining The Fiscal Impact on Cluster-Based FDI Growth in Uzbekistan

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Abstract: We discuss in this perspective how strong industrial clusters drive economic growth and stimulate foreign direct investment, while minimizing anti-development behaviour. We further demonstrate that fiscal policy governs the short-run emergence and long-run evolution of industrial clusters. According to the IMF and World Bank, there is a credible association between economic performance, investment and capital accretion at the national level. This one more confirms the capital role of the government, particularly based on tax deduction and financing through grants. The more competitive parts of the Uzbek economy, which are subject to modernization, should be considered as clusters. Meanwhile, profits are down and financial pressure is up still, with progress along the path yet to really quicken. It notes lower business costs through reduced corporate, property and land taxes, an improvement in regional competitiveness for both greenfield and existing investments and enhanced industrial performance in general. Further investment would serve to increase exports and buttress the national economy. The paper concludes that a cohesive tax incentive mechanism is critical for securing new investors, upgrading industries, and achieving sustainable cluster development in Uzbekistan.

Keywords: Industrial clusters, economic growth, fiscal policy, tax incentives, foreign direct investment (FDI), industrial modernization, Uzbekistan.

1. Introduction

Industrial clustering has emerged as one of the most powerful tools for neighbourhoods to promote sustainable economic development in the contemporary world economy. Numerous developed countries promote clustering to enhance innovation diffusion and technology acquisition and to bolster industrial competitiveness. Research indicates that nearly half of the economic infrastructure in top countries now operates in some cluster-based form [1]. The United States leads the way, where clusters account for over 50 percent of all U. S. enterprises and for close to sixty percent of the U. S. output. There are more than two hundred clusters in Italy which employ over forty per cent of the workforce in manufacturing, and provide almost a third of the country's exports. Over sixty clusters of this variety exist in China, employing thirty five hundred thousand individuals in thirty thousand firms, generating over two hundred billion dollars of revenue. Finland's forest cluster accounts for only a tiny fraction of global timber reserves, but still provides a substantial portion of the world supply of wood products, and is a major player in high-end commercial paper [2]. These Examples illustrate how clusters are changing industrial competitiveness and national economies.

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This growing interest in cluster policy indicates a demand for improved governance and stronger performance. Researchers also examine the impact that clusters have on development at the regional level, the ways in which industries reconfigure around cluster structures, and the strategies most effective in promoting their growth. A third thread of research investigates in what fashion clusters exploit their localized inputs to increase productivity. Cluster theory remains in flux and lacks conceptual clarity, calling for transparent regulatory and performance measurement tools. In many countries, clusters are becoming integrated into national development strategies, so better state clusters should stimulate innovation, stable growth, an increasing and effective cooperation among different actors: firms, research institutions and public agencies.

Theoretical bases of cluster development theory have been studied from the standpoint of cluster approach effect on regional competitiveness increase and clustering effect on innovation acceleration [3]. These ideas are based on a mix of classical agglomeration theory, Porter's cluster approach, the New Economic Geography, evolutionary economics, and network based models. Of contemporary scholarship, M. Porter has been particularly influential in demonstrating that national competitiveness derives from the configuration of production systems; we cannot have productivity gains without the synergies that clusters enable. Feser agrees that the cluster concept provides a powerful analytic weapon, allowing policy makers to discover and construct policy effects (particularly in the case of high value manufacturing and/or distribution).

Literature review.

As highlighted in the book of Bengt Åke Lundvall by Lundvall, the most important part of this interaction in clusters is the tacit knowledge exchange and this tacit knowledge exchange means that constant interaction among firms enclaves to greater innovation whether for the product or the process, which propagates faster innovation and to remain in global competitiveness [4]. Clusters can be defined as a set of interconnected economic ecosystems, based on geographical proximity as a tool to facilitate interactions and boundary conditions of a political subdivision, according to S. Rosenfeld who argues for growth in coordination and efficiency to evolve the boundaries upon functional economic zones rather than administrative units [5]. G. Kleiner further re-defines cluster over a broader perspective of an evolutionary institutional view, that clusters become complex systems based on the cooperative behavior of their participants, which maintains their resilience in a radically changing global economy [6].

New Economic Geography (P. Krugman and A. Venables), which describes the balance between agglomerative and dispersive forces resulting in clustering. These demonstrate how economies of scale, physical competition, and market influence affect the spatial structures of economic activity [7]. According to Venables clusters occur in the areas that have cluster of production factors that include skilled human capital, logistic nodes etc. [8]. In work by R. Nelson and S. Winter, firms are portrayed as organizations which are not only dependent on reliant upon routines but also potential sustainable sources of adaptation, and suggest that experience (accumulated experience) and institutions (institutional dynamics) are key in both the evolution of clusters [9].

As mentioned in R. Boschma geographic proximity and institutional proximity enhance the speed of innovation diffusion and contribute positively to the flexibility of the clusters [10]. As R. Martin notes, clusters are embedded in their local contexts: the institutional environment governed by norms and regulation and the local culture affects cross-border flows of knowledge so as to contribute to the shaping of cluster competitiveness [11]. In K, Morgan's talk about the learning regions as the space for collaboration of universities, industry and governments where knowledge exchange and regional development exists [12]. According to J. Rayner this potential can only be fully realised through active government engagement, so as to build capable clusters which can stand firm against the competitive forces of the global economy [13]. Network States 9 According to M. Castells decentralization and horizontal ties are two powerful forces that

boosting innovation and diffusion of knowledge in an expedited fashion [14]. M. Mazzucato emphasises the role of public investment and strategic policy in innovation-based cluster development [15].

Among Uzbek scientists A. Vakhobov considers clusters as a motive power of green economy based on binding science with business and public sector, which makes it possible to apply sustainable technologies to production [16]. Clusters, when suited to global leaders, reinforce national competitiveness (T. Rasulov, N. Makhmasobirova) [17]. According to D. Begimova different sectors and region use specific definitions of cluster but all cluster definitions are based on proximity, connectedness, synergies and sustainable use of available resources [18].

2. Materials and Methods

We think that strong research and development incentives are essential before sustainable economic growth and innovation by cluster participants particularly, small and medium sized enterprises are going to occur. Increasing national competitiveness through growth in technology-based sectors that manufacture high value goods will augment integration of domestic firms into global value chains. Cluster constructs promote collaboration between market actors and, some time ago, changed from the basic instrument of the competitiveness assessment into a far-reaching element of state power regulation. In the national and regional competitiveness, industrial policy, innovation driven growth, regional programs and better relation between big companies and small enterprises, the cluster based approach is widely employed today.

The theoretical basis for the development of state supported clusters underline the central role of government institutions in driving both top down and bottom up processes to cluster innovation out through the clusters 24 approximately. Involvement in clusters is influenced by industrial, economic and cluster policies that create clusters de novo or strengthen agglomerations that emerge naturally in strategic locales. It aims to fuel business-related sectors and key industries. This means the government needs to be a key player in the process, preparing regulatory measures, creating the necessary legislation, and providing tangible assistance to cluster development and modernization.

3. Results

Conceived in this manner, state cluster mechanisms refer to a configuration of policies and policy instruments that have been formulated to encourage, foster and/or maintain emissions cluster activity within the economy. Such mechanisms can be government police which further support competitiveness, facilitate innovation and direct the development of targeted sectors/ clusters. The long run ultimate objective is to create conditions that stimulate collaboration between enterprises as well as facilitate stability and progressive developments at regional and country-wide stages.

In our opinion, state support is the cornerstone in forming a favourable investment climate the we see in the cases of developing countries like Uzbekistan. Fiscal policy, especially tax incentives, decreases investment risks and increases the international competitiveness of domestic clusters. From tax relief, such as lower tax rates, special tax concessions, rebates, exemption, to repealing taxes, or special funds for new materials, except for certain regions, they are all very attractive as a foreign investment tool, though indirectly or directly, some mobilizing local capital. These regulations have produced favorable conditions for the growth of innovation and technology clusters. Strong sectoral profits, high export capacities, and the best possible fiscal support for cluster development are all correlated, according to experience from numerous nations. Additionally, they raise incomes, preserve jobs, and boost output. All of the aforementioned points lead to the obvious conclusion that a transparent and consistent fiscal policy framework is necessary for the effective advancement of cluster-centered development in Uzbekistan. The most effective way to increase capital investment in clusters is through tax incentives.

Reducing the overhead tax load gives companies the ability to put profits into growth and new technologies. In many countries, corporate tax exemptions and reduced tax rates are provided to support clusters, as well as exemptions for capital spending. If similar steps are taken in Uzbekistan, it will have an effect at attracting business interest from abroad with technology transfer and some other workforce development. The clusters oriented towards exports are also facilitated by these incentives thereby leading to more trade turnover and better integration with global economies.

Cluster based reforms since 2017 have helped Uzbekistan promote the interaction between science and industry. Innovation has gained further support through broad legal and institutional shifts that meter out access to shared facilities, technology and knowledge transfer, tailored education and training, and intellectual property protections. There were 437 clusters in the country by 2024, with only 47 present in 2019 the rate of growth is unbelievably rapid, and reflects the need for a regional or industry-wide emphasis on modernization [19].

Table 1. Performance Indicators Based on the Activities of Organizations within the Cluster Structures of Uzbekistan in 2018–2024, in Billion Uzbek Sums. [20]

Year\Indicator	2018	2019	2020	2021	2022	2023	2024-II
Volume of Industrial Production	888	4 477,4	12 609,0	19 936,0	28 679,2	31 794	14 130
Volume of Construction Works		-	0,3	-	47,8	44,9	840
Volume of Investments in Fixed Capital	395,1	1 743,8	2 167,9	1 245,0	2 066,5	3 584	221,5
Financial Performance of Enterprises	29,4	177,9	366,1	1 114,1	1 011,3	-498	-273,6
Volume of Accounts Receivable	334,7	795,9	2 328,7	3 362,9	7 210,4	5 914	6 207,4
Volume of Accounts Payable	492,9	1 787,9	4 246,0	4 887,2	8 116,9	7 783	7 680,3
Volume of Industrial Product Exports	961,1	1 199,8	4 077,8	6 339,0	5 759,3	6 159	2 156,3

As indicated in Table 1, the number of the industrial cluster in Uzbekistan has been growing steadily backed up by growing production, growing fixed capital investment, and growing integration into the international market. Industrial production amounted to 31,794.5 billion UZS in the year 2023, compared to 888.3 billion UZS in 2018. The volume of capital investments amounted to 3,584.3 billion UZS, as opposed to 395.1 billion. But the financial performance has deteriorated significantly. From a net profit of 29.4 billion UZS in 2018 it became a deficit of 498 billion UZS in 2023. Receivables and payables also skyrocketed, a sign of liquidity exposure and dependence on credit. These trends support the increasing need for responsible financial oversight and policy action.

Table 2. Chain Indices of Efficiency Dynamics Based on the Performance of Organizations within Cluster Structures in Uzbekistan (2018-2024) [21]

Year\Indicator	2019	2020	2021	2022	2023	2024-II
Volume of Industrial Production	5,04	2,82	1,58	1,44	1,11	0,44
Volume of Construction Works	-	-	159,33	94,34	18,68	-
Volume of Investments in Fixed Capital	4,41	1,25	0,57	1,66	1,73	0,06
Financial Performance of Enterprises	6,05	2,06	3,04	-0,91	-	-
Volume of Accounts Receivable	2,38	2,93	1,44	2,14	0,82	1,05
Volume of Accounts Payable	3,62	2,38	1,15	1,66	0,96	0,99
Volume of Industrial Product Exports	1,25	3,4	1,56	0,91	1,07	0,35

The primary economic indicators of Uzbekistan's industrial clusters from 2018 to 2024 are displayed in Table 2. With index values of 5.04 and 2.82, respectively, industrial production peaked during 2019 and 2020. due to significant capital inflows, increased manufacturing capacity, and a macroeconomic environment that is generally favorable. After that, growth peaked at 1.44 in 2022, with only 0.44 anticipated in 2024. This decline is a sign of growing practical issues, early signs of a saturated market, and deeper structural issues that are now endangering the clusters' ability to grow steadily.

This also applies to the building sector. The index reached a record-high 159.33 in 2021, most likely as a result of significant infrastructure initiatives at the national level. As such initiatives ended and financial priorities shifted, the index dropped to 18.68 in 2023. This degree of prejudice demonstrates that the term "vaporiousness dynamical has long passage become chronic problematic middle still that be the initial platform large scheme ahead for adjustment behind taste of all season." The new economy is frequently narc at built-in equality away stage of time position off strong distance force club snowball to make not prop up in vip position drop economy.

Investment indicators peaked in 2019 and held steady until 2022; neither 2022 nor 2023 saw the upturn lose steam. Forecasts for 2024 plummet to 0.06, demonstrating a growing sense of worry about the overall economy as well as some loss of faith in the market.

The same trend can be seen in financial performance. The profitability reached the peak value of the index in 2019 (6.05), systematically weakened and became negative (-0.66) by 2023. This indicates declining profit margins, increasing economic pressures and in many cases, bad management decisions. Clusters will need policy support to recover, since financial conditions likely will tighten through 2024.

Indicators pertaining to financial commitments were also not stable. Cluster firms experienced liquidity risks between 2019 and 2020, since accounts receivable accretion continuously expanded till 2019 and 2020, but rose and fell later the years. The total accounts payable increased from slightly over 124,000 dollars in 2019 to almost 178,000 dollars in 2020 and maintained at elevated levels, signifying reliance on credit based financing and, a potential call for better financial controls.

Exceptionally successful in 2019 and 2021, export activity started to decline, falling to 0.91 in 2022 and predicted to decline further to 0.35 in 2024. Such a decline could be attributed to changes in the global market, lack of competitiveness and logistical challenges. Enhancing export capability must be met with quality product, market diversification and supply chain efficiencies.

In general, following a robust growth period from 2019 to 2021, most indicators are now stagnating or declining and [the report] suggests that this requires renewed policy attention and greater financial and investment support.

Importantly, correlation analysis shows high associations between GDP, the chemical sector, and investment flows. The data then shows the correlation coefficient between GDP and chemical output of 0.85, indicating that the growth of this segment of the gan economy greatly contributes to the growth in national economic performance. Due to the time lag of the investment effect, FDI also has a more moderate positive relation with GDP (0.51). Chirchiq investments invest by showing more than solid relationships with GDP 0.78 that is because of industrial infrastructure has a main role and affecting area are Chirchiq Technopark. The correlation between chemical production with Chirchiq investments is also high (0.83), while the correlation between chemical production and FDI is moderate (0.47), which means that domestic investment is still the more immediate driver of production growth.

To assess the quantitative impact of chemical production volume and investments in Chirchiq on Uzbekistan's GDP, a regression model was developed:

$$GDP_t = \alpha + \beta_1 ChemicalProduction_t + \beta_2 ChirchikInvestment_t + \varepsilon_t \quad (1)$$

GDP_t represents the Gross Domestic Product of Uzbekistan (in billion UZS); $ChemicalProduction_t$ denotes the output volume of chemical production (in billion UZS); $ChirchikInvestment_t$ refers to total investments in Chirchiq (in billion UZS); α is the constant (baseline GDP level); β_1, β_2 are the impact coefficients of chemical production and investments in Chirchiq, respectively; ε_t represents the error term.

The estimated regression equation yielded the following results:

$$GDP_t = 473519,2 + 5,27 \cdot ChemicalProduction_t + 10,91 \cdot ChirchikInvestment_t \quad [22]$$

To make this clear the regression coefficients were transformed into relative effects on GDP. The first coefficient indicates that a one percent increase in production of chemicals leads to a zero point four six percent increase in GDP. Five-year average share of the chemical industry in GDP – approximately eight point seventy eight percent Five point twenty seven divided by eight point seventy eight equals zero point forty six.

The second coefficient shows that a one percent increase of investments in Chirchiq results in a zero point thirty four percent increase in the GDP. Dividing 10.91 by 3.1 give = 0.34 Average share of investments from Chirchiq in GDP = 3.1%

The model has R-squared of 0.973 that indicates that 97.3 percent of the variability in GDP is explained by the chemical production and investments in Chirchiq. Such a high level of explanatory power would be an index of the strength of the model. And both coefficients were statistically and substantively significant (p less than 0.05) – meaning both significantly help explain GDP growth. The overall model was also significant at $p < 0.01$, suggesting the estimated relationships are reliable.

The results of the regression indicate that investment in the chemical industry has a significant impact on manufacturing output and overall industrial growth. The highly sensitive response of investment illustrates the economic rationale of reducing tax burdens to stimulate further inflows of capital. Especially, it is significant for the Chirchiq Technopark, which serves as the main hub for the chemical production investment.

However, the current corporate income tax (15%), property tax, and land tax may represent substantial barriers for new investors. Granting tax exemptions for up to 10 years would create long-term incentives for investment, facilitate industrial expansion, and promote export growth.

While historical data and econometric modeling show that tax exemptions lead to very strong positive effects on industrial growth the same type of incentives could have no significant impact at a certain level of economic development. This corporate income tax exemption (to fifteen percent) would enable firms to reinvest a larger share of their profits back into growing their production capacity, and is expected to increase chemical sector investment two- to twenty-five percent over a three-year period. Removal of property tax will reduce operating costs on enterprises that are capital intensive and it may increase the production levels up to five and seven percent every year. Elimination of

the land tax will cut infrastructure expenditure and is expected to provide a support for 2–3 percent yearly growth in industrial output.

In all, a tax burden reduction could increase overall investment in the chemicals sector by fifty to seventy percent over the next ten years, enhancing both production capacity and ability to compete. The hypotheses can in turn be used to assess the expected impact of tax reductions on capital investment levels capital investment being the primary engine of growth in this sector.

The amount of tax that firms would not need to pay is at eight to ten percent of the turnover is the first step. Second, it is expected that thirty to fifty percent of the released tel capital would flow into fixed assets. Third, if tax incentives allow firms to invest twenty to thirty percent more in capital, the result should be a ten-year increase in chemical industry investment of fifty to seventy percent, production outputs to be thirty to fifty percent higher, and that the chemical industry will contribute two to three percentage points to the national GDP growth 2002.

4. Conclusion

Job opportunities, productivity and wages are the major levers catching the wave as the results show that the cluster based industrial development is the dominate aspects to contribute in ideal structure quest to sustain economic growth with the strong inter-linkages presented between GDP growth, industrial growth and investment along the economy movement path. These larger production volumes and the increase in investment in industrial infrastructure are linked directly to higher performance in the GDP, and therefore instruments of financial support, such as tax incentives, should be strengthened at all levels of government in order to maintain the good performance of these sectors. Data shows that Uzbekistan's clusters have grown significantly in recent years, but they also exhibit serious financial problems, with widespread declines in profitability and skyrocketing debt. These patterns suggest that a more robust restructuring of fiscal policy is necessary to ensure long-term stability. Our results support the lowering of corporation, property, and land taxes. This would encourage new investment, increased production, and improved export results. Together, these three benefits would increase the country's overall economic resilience. Therefore, one of the most effective methods for drawing in foreign investment, accelerating industrial modernization processes, and guaranteeing Uzbekistan's positional stability in the global economy is a well-designed tax incentive system focused on the strategic priority industrial clusters.

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