African Scientific Journal
ISSN : 2658-9311
Vol : 03, Numéro 31 Aout 2025

Drivers of Structural Transformation in Morocco: The Role of Capital, Human Capital, and Institutional Quality.

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Pour citer cet article : **CHAABITA .R & BOUSSIF.A (2025)« Drivers of Structural Transformation in Morocco: The Role of Capital, Human Capital, and Institutional Quality », African Scientific Journal « Volume 03, Numéro 31 » pp: 0414 – 0433.**

DOI : 10.5281/zenodo.16754072

African Scientific Journal
ISSN : 2658-9311
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Abstract:

This paper examines the factors driving structural transformation in Morocco, focusing on gross fixed capital formation (GFCF), human capital, trade openness, and institutional quality. Using a VAR model, we analyze their impacts on manufacturing value added as a percentage of GDP and explore the dynamic interactions through impulse response functions. Findings highlight GFCF and institutional quality as critical contributors to manufacturing productivity, while human capital shows a nuanced impact, suggesting the need for tailored policy interventions. The study underscores the significance of robust investment, trade policies, and institutional frameworks to support Morocco's sustainable economic development and structural change.

Keywords: Structural Transformation, Manufacturing Value Added, Institutional Quality, Human Capital, Trade Openness, Morocco

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ISSN : 2658-9311
Vol : 03, Numéro 31 Aout 2025

1. Introduction

Structural transformation remains a pivotal issue in development economics, especially for countries pursuing long-term prosperity. Morocco's case offers a valuable example of this process due to its distinctive historical, socio-economic, and geopolitical characteristics. The evolution of the Moroccan economy has been shaped by intricate factors, including public policy initiatives, shifts in international trade dynamics, and efforts toward industrialization. Analyzing these elements is crucial for understanding the pathways toward sustained and inclusive growth and the roles that various policies and external forces play.

The objective of this paper is twofold :

On the one hand, it aims to describe Morocco's development process since independence, analyzed in terms of growth and structural change.

Second, to explain Morocco's industrial performance through its industrial policies as a whole. In concrete terms, this means identifying the factors contributing to structural transformation and the limitations of the country's industrial policy, and suggesting principles for the development and implementation of future industrial policy.

The approach adopted in this work is deductive. In this approach, we first use the descriptive method, which involves describing the structure and evolution of industrial policy and economic growth in Morocco by analyzing data collected from national and international organizations over a period of more than 62 years, from 1960 to 2022.

This paper examines Morocco's structural transformation, focusing on how diverse factors—ranging from regional industrialization efforts to external market dependencies—impact economic resilience and growth. Despite Morocco's extensive reforms, including efforts to open its economy and strengthen local industries, structural challenges remain. For instance, continued dependency on international market fluctuations and uneven industrial growth across regions underscore the complexity of Morocco's transformation and highlight critical areas for policy evaluation.

To contribute to this analysis, this paper employs Panel Vector Autoregression (PVAR) estimations. This method allows for capturing the dynamic interrelationships among multiple variables over time, enabling a nuanced examination of how factors like industrial diversification, external shocks, and policy measures collectively influence Morocco's structural transformation. Through PVAR, this study aims to quantify the effects of specific policies and external factors, such as foreign direct investment and sectoral shifts, on Morocco's

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growth trajectory. This approach will provide a rigorous, data-driven perspective, contributing insights that are useful for both policymakers and researchers engaged in fostering an inclusive, resilient, and sustainable transformation in Morocco.

Using PVAR estimations, this research not only investigates sectoral dynamics but also explores broader implications for sustainable economic growth, offering a foundation for crafting integrated policy solutions to overcome persistent challenges in Morocco's development path.

2. An overview of thee literature

Theories of structural transformation have evolved to explain how economies transition from traditional agricultural sectors to modern industrial and service sectors. These models emphasize the central role of productivity and sectoral shifts in economic growth. One of the oldest and most influential theories is Lewis's dual-sector model (1954), which posits that developing economies have a traditional sector with surplus labor—mainly agriculture—and a modern sector, typically manufacturing, requiring capital investment. According to Lewis, industrial growth absorbs surplus labor, thereby increasing overall productivity and wages, which fosters economic development. This model highlights the structural divide between sectors and the crucial role of labor reallocation in early development stages.

Kuznets (1966) expanded this model by noting that as countries develop, structural changes are accompanied by urbanization, demographic transitions, and shifts in income distribution. He argued that industrialization drives a transition from agriculture to manufacturing and eventually to services, with productivity gains fueling overall economic progress. His empirical analysis linked economic development to transformations in employment patterns, sectoral contributions to GDP, and urbanization.

Modern theories of structural transformation have adapted to incorporate the complexities of globalization and technological change. For instance, Chenery and Syrquin (1975) proposed a more nuanced view of transformation, highlighting that different sectors—agriculture, manufacturing, and services—respond differently to technological progress and international trade dynamics. Their cross-country comparisons revealed that structural transformation is not a uniform process but varies significantly based on factors such as initial conditions, policy interventions, and external trade shocks.

Rodrik (2016) introduced the concept of premature deindustrialization, challenging the idea that all economies must undergo a robust phase of industrialization before transitioning to a service-based economy. He argued that globalization and technological change have altered

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traditional development pathways. In many developing countries, particularly in Africa and Latin America, the share of manufacturing in employment and GDP peaks at much lower income levels than historically seen in today's developed countries. According to Rodrik, this situation weakens the productivity gains typically associated with structural transformation, making sustained economic growth more challenging.

2.1. Stylized facts in developing countries regarding structural change

Empirical studies on structural transformation in developing countries reveal several stylized facts. First, while the share of agriculture in GDP and employment tends to decrease with economic development, the anticipated growth in manufacturing has often fallen short, especially in sub-Saharan Africa and parts of Latin America (Herrendorf, Rogerson, & Valentinyi, 2014). This has resulted in limited industrial capacity and a persistent, large informal sector. For example, in many African economies, the decline in agriculture has primarily led to growth in services, often in low-productivity urban activities rather than substantial manufacturing expansion.

Second, the pace of structural transformation in developing countries has been slower than the historical experiences of Europe and East Asia. Many countries, particularly in Africa, experience what is frequently termed "growth without structural change," where GDP growth is not accompanied by a substantial employment shift from low- to high-productivity sectors (McMillan & Rodrik, 2011). This pattern reflects limited technological diffusion and barriers to industrial upgrading.

Third, the informal sector remains a dominant feature of many developing economies. Despite urbanization and some industrial growth, a significant portion of the workforce is engaged in low-productivity, minimally capital-invested informal activities (Gollin, Jedwab, & Vollrath, 2016). This is particularly evident in regions where urbanization has outpaced industrial development, resulting in expansive informal urban economies without corresponding job creation in higher productivity, formal sectors.

2.2. The challenges of structural transformation in developing countries

Several obstacles hinder structural transformation in developing economies. First, weak institutions and governance issues reduce governments' ability to implement effective industrial policies. Corruption, bureaucratic inefficiency, and a weak regulatory environment often limit the success of state-led industrial initiatives, resulting in poorly coordinated investments and limited support for nascent industries (World Bank, 2021). This lack of institutional capacity can cripple efforts to enhance competitiveness and innovation.

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Second, infrastructure deficits, especially in energy, transport, and digital technology, constrain industrial growth. Manufacturing industries are capital- and energy-intensive, and unreliable infrastructure significantly raises production costs, deterring domestic and foreign investment (IMF, 2019). In many countries, inadequate transportation networks restrict companies' ability to integrate into global value chains, exacerbating industrial diversification challenges.

Third, limited human capital and a mismatch between labor market needs and educational systems hinder developing countries' capacity to leverage technological advancements. Many developing economies face the dual issue of high unemployment rates and a shortage of skilled workers for industries requiring specialized knowledge. This mismatch stifles industrial productivity and reduces technological absorption capacity (AfDB, 2020).

Globalization also presents mixed challenges for structural transformation. While integration into global markets offers export-driven growth opportunities, it exposes emerging industries to intense international competition. In many cases, domestic firms in developing countries struggle to compete with established global players, especially in manufacturing sectors where economies of scale are crucial. Premature exposure to global competition often prevents these industries from maturing and achieving global competitiveness (UNCTAD, 2020).

Finally, environmental sustainability has become a new challenge in structural transformation for developing countries. Many traditional industrialization paths—fossil fuel energy production, resource extraction, and heavy manufacturing—are increasingly viewed as unsustainable in the context of global climate change. Developing countries face the dual challenge of industrializing while managing environmental constraints and transitioning to greener growth models (UNECA, 2020).

3. Historical Evolution of Morocco's Manufacturing Sector

Early Development (1965–1990)

After gaining independence in 1956, Morocco began developing its manufacturing sector, which represented only 0.48 billion dollars (14.5% of GDP) by 1965. This period saw the establishment of basic industries such as textiles, leather, food processing, and construction materials, alongside parallel infrastructure developments in roads, ports, railways, and electricity. An import substitution industrialization (ISI) strategy aimed to reduce foreign

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dependency and boost domestic production. However, this approach led to challenges, including limited competitiveness, innovation, and diversification, along with a mounting foreign debt burden.

Expansion and Diversification (1991–2010)

Between 1991 and 2010, Morocco's manufacturing sector experienced significant expansion, increasing from 5.92 billion dollars in 1991 to 14.53 billion in 2010 (19.1% of GDP). New industries, such as rubber, plastics, electrical equipment, and pharmaceuticals, emerged, comprising 17.4% of manufacturing output by 2010. Supported by reforms and privatizations driven by institutions like the World Bank and IMF, Morocco liberalized trade, enhanced competitiveness, and attracted foreign investments. Free trade agreements with international partners facilitated market diversification and export growth.

Recent Developments (2011–2023)

From 2011 to 2023, the sector continued to modernize, with output reaching 21.64 billion dollars in 2022 (20.7% of GDP). Growth was particularly strong in industries like rubber, plastics, electrical equipment, pharmaceuticals, and automotive, which together accounted for 28.6% of manufacturing production in 2022. Strategic initiatives, including the Industrial Acceleration Plan (2014–2020) and the National Pact for Industrial Emergence (2009–2015), promoted ecosystem development, skill formation, and regionalization, supporting sustainable industrial growth.

3.1. Challenges in Morocco's Industrialization Process

Despite progress, Morocco's industrialization has been hindered by persistent challenges. Key internal obstacles include weak governance, corruption, inadequate infrastructure, low innovation levels, and limited human capital (World Bank, 2022). These factors have slowed industrial growth, preventing full modernization of infrastructure and limiting competitiveness and diversification (IMF, 2021). Additionally, Morocco faces significant external constraints, including dependency on imported capital goods and protectionist barriers imposed by major trade partners like the European Union (UNCTAD, 2020). Competition from lower-cost Eastern European and Asian countries has further impeded Morocco's capacity to establish a strong presence in global markets (World Bank, 2021).

In the 1960s, Morocco adopted an ISI strategy to boost domestic production. While this approach reduced import dependency, it also created economic imbalances, such as low industrial diversification and high external debt (IMF, 2021). This strategy made Morocco's economy vulnerable to external shocks, especially due to fluctuations in commodity prices.

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Since the 1990s, Morocco has pursued privatization and trade liberalization, signing free trade agreements with key partners like the European Union, the United States, and Arab countries (World Bank, 2021). Although these reforms have opened new markets and facilitated deeper global integration, structural constraints—such as limited skills, lack of innovation, and concentrated industrial growth in sectors like automotive and textiles—continue to restrict industrialization (FEMISE, 2022).

3.2. Premature Deindustrialization in Morocco

Premature deindustrialization is evident in Morocco, marked by a steady decline in the manufacturing sector's share of GDP, which has dropped below 30% in recent years. This trend diverges from historical patterns in industrialized countries, where manufacturing traditionally precedes a shift toward services. Although agriculture remains stable, its contribution to GDP has also diminished, increasing Morocco's dependency on services, particularly tourism and net exports.

Several external factors have driven this premature deindustrialization. Morocco has faced droughts, global economic downturns, and rising commodity prices, which have weakened key sectors like agriculture and manufacturing. While services, particularly tourism, have temporarily supported growth, this shift does not offset the long-term benefits of industrialization, limiting Morocco's ability to create stable jobs and enhance productivity (World Bank, 2021). Rodrik's (2016) model on premature deindustrialization provides relevant insights, arguing that globalization and labor-reducing technologies have restricted industrialization opportunities for developing countries. Morocco, facing competition from low-cost Asian producers, has struggled to modernize its manufacturing sector and diversify exports, resulting in a dependency on less productive, shock-prone sectors, especially in agriculture (IMF, 2021).

Hausmann et al. (2007) emphasize the need for strategic industrial policies in developing countries to counter premature deindustrialization. Key recommendations include investing in human capital, enhancing technological capacities, and modernizing infrastructure to stimulate industrial growth. Despite some reforms, Morocco has struggled to build a competitive international industry, lacking coherent policies to promote innovation and industrial diversification (UNCTAD, 2020). Institutional limitations and the absence of strong industrial support policies have further constrained Morocco's manufacturing competitiveness, hampering its ability to benefit from trade liberalization and globalization opportunities

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(FEMISE, 2022). Without a coordinated industrial policy, production stagnation and job instability persist.

4. Empirical Investigation

We first estimate a standard PVAR model then proceed to determine the optimal lag structure (see table below). It appears that the best lag is the first one.

Table 1. Optimal Lag Criteria

```
. varsoc Manufacturingvalueaddedof growth_GDP TradeofGDP

  Selection-order criteria
  Sample:  1969 - 2022                        Number of obs      =        54
```

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-262.052				3.68081	9.81675	9.85937	9.92725
1	-173.569	176.97*	9	0.000	.194001*	6.87292*	7.04338*	7.31492*
2	-169.684	7.7698	9	0.557	.235308	7.06237	7.36068	7.83586
3	-164.435	10.499	9	0.312	.2727	7.20128	7.62743	8.30627
4	-157.953	12.963	9	0.164	.304172	7.29455	7.84855	8.73104

```
  Endogenous:  Manufacturingvalueaddedof growth_GDP TradeofGDP
   Exogenous:  _cons
```

Source: auteur

Figure 1 below displays the impulse response functions of three variables: manufacturing value added, trade as a proportion of GDP, and GDP growth. These functions measure how each variable responds over time to a unit shock in another variable. For instance, the top-left graph shows that a unit shock to manufacturing value added leads to a positive and persistent response within itself, while the bottom-right graph illustrates that a unit shock to GDP growth results in a temporary negative response. The other graphs display cross-variable responses, such as how a trade shock impacts the manufacturing sector or how a GDP growth shock affects trade.

Figure 1 indicates that none of the variables significantly impact the share of manufacturing in GDP—suggesting that neither GDP growth nor trade exerts a meaningful effect on structural transformation.

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Table 2. The PVAR Model—Interaction Between Industrialization, Economic Growth, and Foreign Trade

Vector autoregression

Sample: 1966 - 2022		Number of obs	= 57
Log likelihood = -180.8607		AIC	= 6.76704
FPE = .1744883		HQIC	= 6.934198
Det(Sigma_ml) = .114447		SBIC	= 7.197156

Equation	Parms	RMSE	R-sq	chi2	P>chi2
Manufacturingv~f	4	.697235	0.8696	379.9643	0.0000
growth_GDP	4	.099654	0.0640	3.896552	0.2729
TradeofGDP	4	5.8863	0.8166	253.7629	0.0000

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Manufacturingvalueaddedof						
Manufacturingvalueaddedof L1.	.9198007	.0572105	16.08	0.000	.8076702	1.031931
growth_GDP L1.	2.274696	.9561343	2.38	0.017	.4007069	4.148685
TradeofGDP L1.	-.005347	.0088526	-0.60	0.546	-.0226978	.0120039
_cons	1.465031	1.30964	1.12	0.263	-1.101817	4.031878
growth_GDP						
Manufacturingvalueaddedof L1.	-.0048792	.0081769	-0.60	0.551	-.0209057	.0111473
growth_GDP L1.	.0970623	.1366576	0.71	0.478	-.1707817	.3649064
TradeofGDP L1.	-.0019718	.0012653	-1.56	0.119	-.0044517	.0005081
_cons	.2509555	.1871832	1.34	0.180	-.1159169	.617828
TradeofGDP						
Manufacturingvalueaddedof L1.	-.5869759	.4829911	-1.22	0.224	-1.533621	.3596693
growth_GDP L1.	8.178444	8.072019	1.01	0.311	-7.642422	23.99931
TradeofGDP L1.	.9450161	.0747371	12.64	0.000	.7985341	1.091498
_cons	13.43779	11.05644	1.22	0.224	-8.232429	35.10801

Source : auteur

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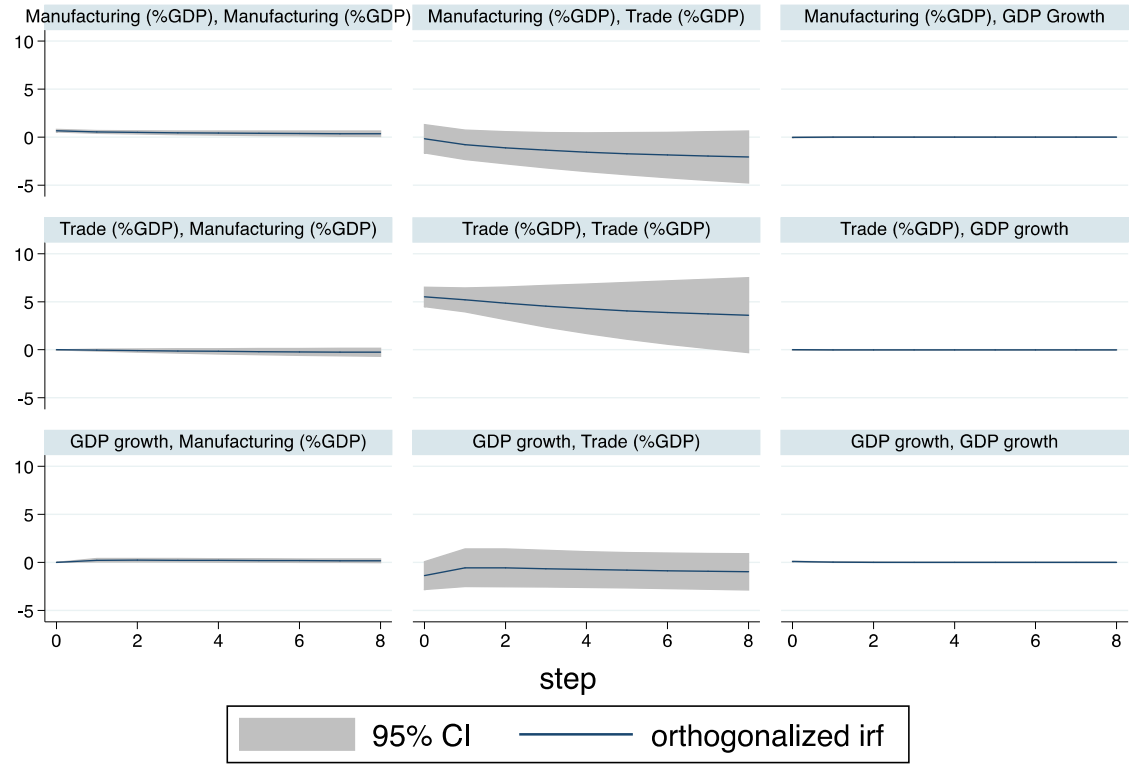
Figure 1. Impulse Responses of the VAR Model



Source : auteur

4.1. Inclusion of Capital in the VAR Model

Table 3 below shows that optimal lag is 1.

Table 3. Optimal Lag

Selection-order criteria
Sample: **1969 - 2019** Number of obs = **51**

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	164.975				3.5e-07	-6.35197	-6.30854	-6.23833
1	278.355	226.76*	9	0.000	5.8e-09*	-10.4453*	-10.2716*	-9.99073*
2	284.221	11.733	9	0.229	6.6e-09	-10.3224	-10.0184	-9.52695
3	287.395	6.3473	9	0.705	8.4e-09	-10.0939	-9.65968	-8.95755
4	290.51	6.2299	9	0.717	1.1e-08	-9.86313	-9.29862	-8.38585

Endogenous: Manufacturingvalueaddedof growth_HC growth_GDP
Exogenous: _cons

Source: auteur

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Table 4. The VAR Model—Interaction Between Industrialization, Human Capital, and Economic Growth

Vector autoregression

Sample:	1966 - 2019	Number of obs	= 54
Log likelihood	= 293.705	AIC	= -10.43352
FPE	= 5.91e-09	HQIC	= -10.26306
Det(Sigma_ml)	= 3.79e-09	SBIC	= -9.991522

Equation	Parms	RMSE	R-sq	chi2	P>chi2
Manufacturingv~f	4	.708888	0.8675	353.485	0.0000
growth_HC	4	.00106	0.9235	652.2809	0.0000
growth_GDP	4	.098916	0.0521	2.966389	0.3968

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Manufacturingvalueaddedof						
Manufacturingvalueaddedof						
L1.	.9545425	.0518213	18.42	0.000	.8529746	1.05611
growth_HC						
L1.	-25.11673	25.42893	-0.99	0.323	-74.95652	24.72305
growth_GDP						
L1.	2.453568	.9670472	2.54	0.011	.5581904	4.348946
_cons	.8446789	.8590154	0.98	0.325	-.8389604	2.528318
growth_HC						
Manufacturingvalueaddedof						
L1.	.0001686	.0000775	2.18	0.030	.0000167	.0003204
growth_HC						
L1.	.9098754	.0380126	23.94	0.000	.8353721	.9843786
growth_GDP						
L1.	.0017562	.0014456	1.21	0.224	-.0010771	.0045895
_cons	-.0018264	.0012841	-1.42	0.155	-.0043432	.0006904
growth_GDP						
Manufacturingvalueaddedof						
L1.	.0021075	.007231	0.29	0.771	-.0120651	.01628
growth_HC						
L1.	-3.196728	3.548289	-0.90	0.368	-10.15125	3.757789
growth_GDP						
L1.	.178923	.1349393	1.33	0.185	-.0855532	.4433992
_cons	.0568932	.1198648	0.47	0.635	-.1780376	.2918239

Source : auteur

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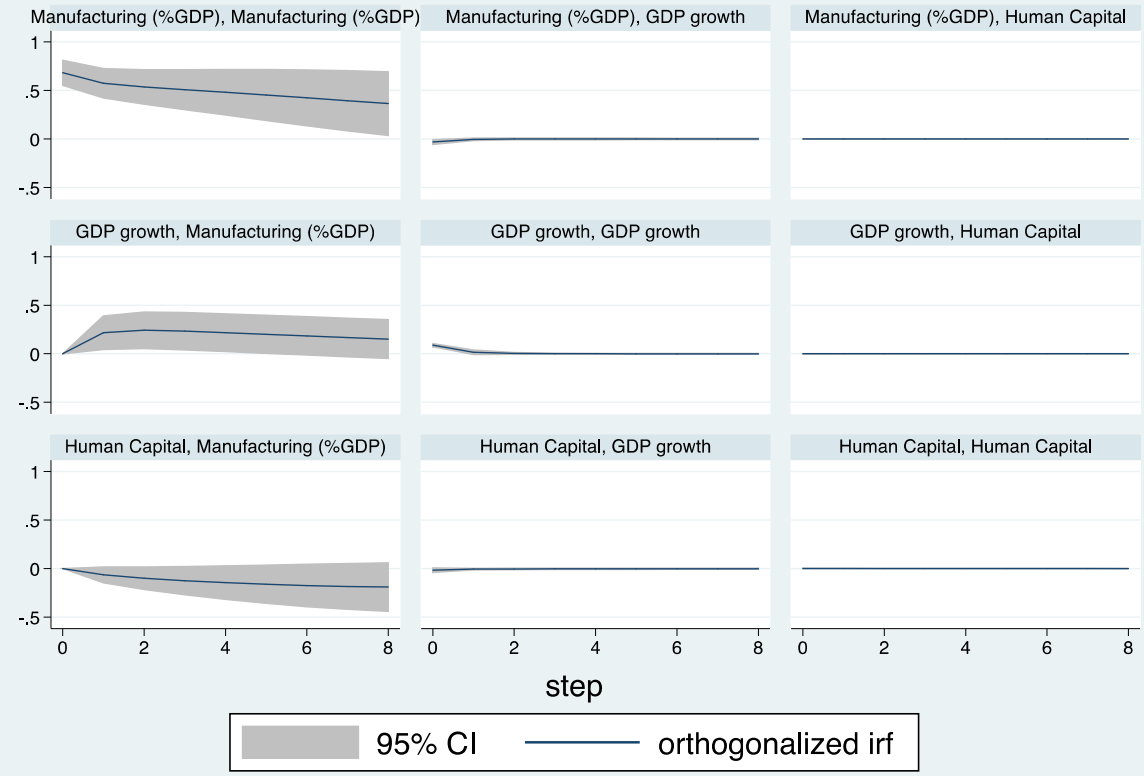
Figure 2. Impulse Responses



Source: auteur

The figure above displays the impulse response functions of three variables : manufacturing value added as a percentage of GDP, foreign trade as a proportion of GDP, and human capital (measured by growth rate). These functions illustrate how each variable responds over time to a unit shock in another variable. For example, the top-left graph shows that a unit shock to manufacturing value added results in a positive and persistent response within itself, while the bottom-right graph indicates that a unit shock to human capital produces a temporary positive response. Other graphs depict cross-variable responses, such as how a trade shock impacts manufacturing or how a shock in human capital affects GDP growth.

Unlike previous impulse responses, manufacturing here demonstrates a strong positive impact on itself, indicating its role as a driver of structural transformation and an increasing share in GDP. Similarly, GDP growth appears to have a significant positive effect on manufacturing value-added growth. However, human capital seems to have a slightly negative impact on structural transformation in Morocco's case.

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4.2. Inclusion of Institutional Quality in the VAR Model

Table 5 below shows that the optimal lag is 4.

Table 5. Optimal Lag

Selection-order criteria
Sample: 2006 - 2022 Number of obs = 17

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-5.64949				.008434	.89994	.909684	.997965
1	2.16633	15.632	4	0.004	.005422	.451021	.480252	.745096*
2	6.97881	9.625	4	0.047	.005069*	.355434	.404154	.84556
3	9.39386	4.8301	4	0.305	.006539	.541899	.610106	1.22807
4	15.979	13.17*	4	0.010	.005526	.237765*	.32546*	1.11999

Endogenous: Manufacturingvalueaddedof Institutional_quality
Exogenous: _cons

Source: auteur

Figure 3 displays the impulse response functions of two variables: institutional quality and manufacturing as a percentage of GDP. The top-left function shows that a unit shock to institutional quality produces a positive and persistent response in itself. Similarly, the bottom-right function indicates that a unit shock to manufacturing results in a positive but temporary response. The impulse response functions suggest that institutional quality has a positive and significant impact on both itself and the manufacturing sector, implying that improvements in institutional quality can stimulate manufacturing growth. The confidence intervals around the impulse response functions indicate the uncertainty of the estimates. If the confidence interval includes zero, the response is not statistically different from zero at a 5% significance level. For instance, the response of the manufacturing sector to a shock in institutional quality is no longer significant after the fourth period, as the confidence interval crosses zero.

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Table 6. The VAR Model—Interaction Between Industrialization and Institutional Quality

Vector autoregression

Sample: 2006 - 2022		Number of obs	= 17
Log likelihood = 15.979		AIC	= .2377651
FPE = .0055258		HQIC	= .3254601
Det(Sigma_ml) = .0005232		SBIC	= 1.119991

Equation	Parms	RMSE	R-sq	chi2	P>chi2
Manufacturingv~f	9	.325238	0.7545	52.25063	0.0000
Institutional_~y	9	.219587	0.7260	45.05354	0.0000

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Manufacturingvalueadde~f						
Manufacturingvalueadde~f						
L1.	.6182892	.2096543	2.95	0.003	.2073743	1.029204
L2.	-.4889606	.2463507	-1.98	0.047	-.9717992	-.006122
L3.	-.2977404	.2604128	-1.14	0.253	-.8081401	.2126592
L4.	.2209644	.197236	1.12	0.263	-.1656111	.6075398
Institutional_quality						
L1.	.1297219	.258275	0.50	0.615	-.3764877	.6359315
L2.	.5520634	.2558672	2.16	0.031	.0505728	1.053554
L3.	.2408261	.2346495	1.03	0.305	-.2190785	.7007306
L4.	.4097839	.2198282	1.86	0.062	-.0210715	.8406393
_cons	16.6143	3.835523	4.33	0.000	9.096814	24.13179
Institutional_quality						
Manufacturingvalueadde~f						
L1.	.2925364	.14155	2.07	0.039	.0151034	.5699693
L2.	-.1277331	.166326	-0.77	0.443	-.453726	.1982598
L3.	-.3530586	.1758201	-2.01	0.045	-.6976596	-.0084576
L4.	.1635712	.1331657	1.23	0.219	-.0974288	.4245711
Institutional_quality						
L1.	.1388605	.1743767	0.80	0.426	-.2029116	.4806326
L2.	.161893	.1727511	0.94	0.349	-.176693	.5004789
L3.	.2981918	.1584258	1.88	0.060	-.0123169	.6087006
L4.	-.0887224	.148419	-0.60	0.550	-.3796184	.2021735
_cons	-.5914472	2.589588	-0.23	0.819	-5.666947	4.484053

Source : auteur

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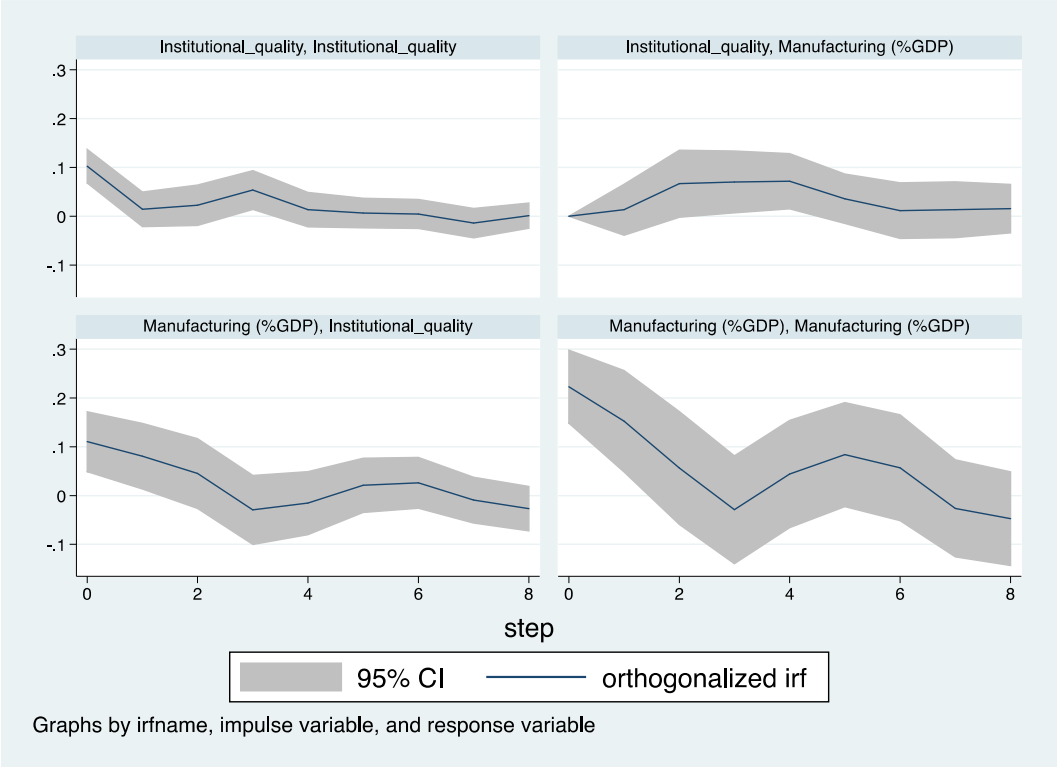
Figure 3. Impulse responses



Source : auteur

5. Discussion

The empirical analysis provides key insights into the factors driving structural change in Morocco's economy, highlighting the roles of gross fixed capital formation (GFCF), human capital, and trade as significant determinants of manufacturing value added. Among these, GFCF emerges as a critical contributor, emphasizing its role in facilitating structural transformation. Although human capital shows statistical significance at the 10% level, it remains a vital factor in enhancing manufacturing productivity.

The expanded model incorporating additional variables, such as public consumption expenditures, underscores the importance of government spending in shaping manufacturing value added, suggesting that public policy can promote economic growth and structural transformation. The analysis of institutional quality also reveals a positive effect of the rule of law on manufacturing value added, underscoring the importance of strong institutions in fostering a conducive environment for economic development and structural change.

Impulse response functions offer additional insights into the dynamics of key variables influencing Morocco's structural transformation. Initial responses show that neither GDP growth nor trade significantly impacts manufacturing's share of GDP, suggesting a limited role

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in driving structural change. However, manufacturing value added exhibits a strong positive impact on itself, reinforcing its role as a driver of structural transformation and a growing GDP component. Similarly, GDP growth positively influences manufacturing value added, although human capital has a slightly negative effect on structural transformation in Morocco's context. Including institutional quality in the analysis highlights its significant positive effect on manufacturing, suggesting that improving institutional quality could potentially stimulate the manufacturing sector. Confidence intervals around impulse responses reflect estimation uncertainty ; responses are statistically significant when confidence intervals do not include zero. For example, manufacturing's response to a shock in institutional quality loses significance after the fourth period, as the confidence interval crosses zero.

These findings align with and expand upon existing literature on economic development. The importance of GFCF, human capital, and trade aligns with previous studies emphasizing their role in economic growth (Acemoglu et al., 2001 ; Blomström et al., 1994; Kalemli-Ozcan et al., 2005). The central role of GFCF echoes research underscoring investment in physical capital for economic transformation (Romer, 1986 ; Jones, 1995). The positive impact of public spending on manufacturing value added is consistent with studies highlighting government policy's role in promoting growth and structural change (Hansen & Prescott, 2002 ; Barro, 1991). Additionally, the positive effect of institutional quality, especially the rule of law, reaffirms the significance of strong institutions for economic development (North, 1990 ; Rodrik et al., 2004).

The impulse response analysis provides a nuanced understanding of the dynamics behind Morocco's structural transformation. While the positive impacts of manufacturing value added and GDP growth on themselves are consistent with prior studies (Kaldor, 1967 ; Solow, 1956), the slightly negative effect of human capital on structural transformation introduces a unique perspective. This finding contrasts with some literature on human capital's positive impact on growth (Mankiw et al., 1992), suggesting a need for further investigation into Morocco's specific context.

The positive effect of institutional quality on both itself and manufacturing resonates with studies on the role of institutions in economic development (Acemoglu & Johnson, 2005; Hall & Jones, 1999). Recognition of estimation uncertainty, as reflected in confidence intervals, emphasizes the importance of robust statistical analysis, aligning with the methodological rigor advocated in empirical research (Angrist & Pischke, 2008).

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Briefly put, these results contribute empirical evidence on the factors driving structural change in Morocco, complementing and extending previous research. They offer valuable insights for policymakers and researchers aiming to promote sustainable economic development and support Morocco's structural transformation.

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Conclusion

Our analysis yielded key findings. First, gross fixed capital formation (GFCF), human capital, and trade share in GDP emerged as significant determinants of manufacturing value added, underscoring the importance of investment, human capital development, and trade openness in driving structural transformation. Additionally, public spending was found to positively impact manufacturing value added, highlighting the role of prudent fiscal policies in promoting economic diversification.

Institutional quality, particularly the rule of law, showed a positive effect on manufacturing, emphasizing strong institutions' role in economic development and structural change. Impulse response analysis further detailed the dynamic interplay between manufacturing value added, GDP growth, human capital, and institutional quality.

These results contribute empirical insights into Morocco's structural transformation, offering valuable guidance for policymakers, researchers, and practitioners focused on sustainable development and inclusive growth. Going forward, prioritizing policies that encourage investment, human capital development, trade liberalization, and institutional strengthening remains essential. Future research should explore how these factors interact to refine policy interventions.

Achieving sustainable economic development and inclusive growth in Morocco calls for a holistic approach that addresses the diverse challenges and opportunities within the structural transformation process. These insights can help build a more resilient, dynamic, and prosperous Moroccan economy for all citizens.

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ISSN : 2658-9311
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