Attaining Middle Income Status - Tanzania

Growth and Structural Transformation Required to Reach Middle Income Status by 2025

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March 2010

IGC

International Growth Centre

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Tanzania: Growth and Structural Transformation Required
to Reach Middle Income Status by 2025

FIRST DRAFT

March 31st, 2010

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1. INTRODUCTION

The Government of Tanzania aims to transform the nation into a middle income country by 2025. This paper analyses the rate of growth and the transformation of the economy that would be required in order to achieve this goal.

a. Background

In his speech to the Parliament in late 2010, President Kikwete outlined his Government's intentions to review the Tanzania Development Vision (TDV) 2025 and prepare a 5-year development plan to accelerate growth and increase the nation's prosperity. Tanzania's President's Office Planning Commission (POPC) is currently leading this work with the assistance of the University of Dar es Salaam (UDSM) and the Economic and Social Research Foundation (ESRF). This paper serves as an input to the POPC's broader strategy revisions and aims to (i) encourage a review of the economic growth targets for the country, and (ii) envisage the structure of Tanzania's economy in 2025 and the growth path required to get there.

The paper describes the sort of structural transformation that Tanzania may be expected to undergo as it grows to middle income status. This is achieved by assembling data for a set of comparator countries that reached middle income status over the past 50 years and reviewing the structure of their economies as they reached this target.[1] It then analyses what would be required for Tanzania to transform into a country akin to these middle income comparator countries.

b. Main Findings

In order to cross the threshold into lower middle income status by 2025, Tanzania will need to sustain per capita growth of approximately 5% per year, equivalent to an overall GDP growth of approximately 7.7%. This is broadly consistent with the growth targets stated in the TDV 2025 (8% or above) and MKUKUTA II (8-10%). However, sustaining an 8% rate of growth will require an acceleration compared to the country's recent past: Tanzania grew at an average rate of 5.5% over the past 15 years, and 6.7% over the past 10 years. As described by the Commission on Growth and Development, only a few other countries in the world have been able to sustain 7-8% annual growth over 25 year periods, as would be required of Tanzania.[2]

As Tanzania transforms into a middle income country, the structure of the economy is likely to change significantly. The model used in this paper suggests that agriculture as a share of GDP will fall from 28% to around 20%, while the manufacturing sector sustains high growth (13%) and doubles its share of a rapidly-growing GDP (from 9% to 18%). The service sector and non-manufacturing industry sector stay relatively constant in proportion to GDP. This transition from an agricultural based economy into an industrial economy as income rises is a common pattern globally. The transition tends to be accompanied by rising agricultural productivity, which releases labour from the farms and lowers domestic food prices, as labour is absorbed into a faster growing manufacturing sector. This causes significant changes to the labour structure: employment in agriculture falls, while employment in manufacturing rises, and the urban population expands as a share of total population.

Sustaining high growth and structural transformation in Tanzania will require very large productivity gains in agriculture. In the model used, agriculture is the slowest growing sector of the economy (5.6% growth). However, even at this relatively slower growth rate, a very high growth in output per agricultural worker (5.8%) is required in order to sustain the anticipated employment shifts. Few

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[1] This methodology was developed by Bevan et al. (2003).
[2] See Commission for Growth and Development (2008).

countries have sustained such high productivity gains in agriculture over long periods of time, and Tanzania is no exception: over the past 10 years, output per agricultural worker grew at a rate of only 3.4% per year (own calculation using ES (2009) data).

Other economic variables may need to grow in proportion to GDP to enable this structural transformation: the model suggests that exports need to double as a share of GDP; gross capital formation, domestic savings, foreign direct investment and government revenue are likewise expected to increase substantially. Aid is expected to fall in proportion to GDP, from 13% to 5%, as Tanzania increasingly relies on domestic resources and private capital markets.

Tanzania's historical growth rates suggest that this transition is already in part underway. Over the past 15 years, Tanzania's economy has changed significantly: agriculture as a share of GDP has fallen, while the industry and services sectors have increased proportionally. Growth has been strongly driven by the service sector and the construction and mining sub-sectors. Other factors have helped to facilitate these shifts, including strong growth in exports and imports, gross fixed capital formation, domestic savings and government revenues.

However, Tanzania's past growth performance falls significantly short of target in the manufacturing sector, which has grown at about the same rate as overall GDP. In the future, manufacturing sector growth will need to accelerate dramatically.

This paper singles out a number of special issues for further discussion, including agriculture and demographic shifts, natural resource-driven growth, and Tanzania's skills gap. It finds that there are some countries that have made the transition into middle income status with a relatively higher proportion of GDP in agriculture (around 28-30%). However, in these countries agricultural production for export has constituted a relatively large share of GDP, while Tanzania's current agricultural production is not strongly dominated by crops for export.

Tanzania's transition into middle income status will require a higher skilled labour force. This paper analyses Tanzania's skills gap, and finds that the largest gap is in the high skilled category. It shows that large investments in tertiary education are required to raise Tanzania's skill level to that of our comparator middle income countries.

Next to the scenario described above, we studied an alternative growth path for Tanzania, which would be one dominated by natural resource extraction. A number of comparator countries made the transition into middle income status through high rates of growth sustained by an extractive industry (primarily hydrocarbons or minerals). However, these resource rich countries tend to have higher poverty and inequality rates than Tanzania has today.

In Annex 2 we provide the growth scenario of an optimistic 10 % growth target. We observe that the task of increasing the real GDP growth rate from 8% to 10 % is considerably harder than a similar 2% increase in growth from 6% to 8%. The sectoral growth rates exhibit a non-linear increase in demand for resources as the required growth rate increases, which renders the feasibility of such a big leap questionable. Considering the ground realities of Tanzania, an 8% real GDP growth for fifteen consecutive years itself stands as an optimistic scenario.

2. TANZANIA'S GROWTH IN HISTORICAL PERSPECTIVE

The aim of this section is to highlight Tanzania's past growth path and inter-sectoral shifts. In order to do so, we will first look at the country's growth rate over the past 15 years, before analysing the evolution of the economy's GDP composition in greater depth.

a. Tanzania's growth path (1993-2009)

Between 1993 and 2009, Tanzania has radically changed its growth path and its inter-sectoral contribution to GDP. Whilst the economy was growing at rates below 4% until 1996, growth rates steadily increased until 2008 (reaching above 7%), before slowing down in 2009 (mainly due to the effects of the global financial crisis, see Ndulu (2009)). On average, the Tanzanian economy has been growing at around 5.5% per year over the last 15 years, but it has been growing at around 7% on average per year during the last 10 years (Economic Survey (ES) (2006-2009)). The figure below plots the annual growth rate between 1994 and 2009, and the contribution of each of the main economic sectors to this growth.[3]

Figure 2.1: Contribution (in real terms) of the Economy's Sectors to Total GDP Growth[4]
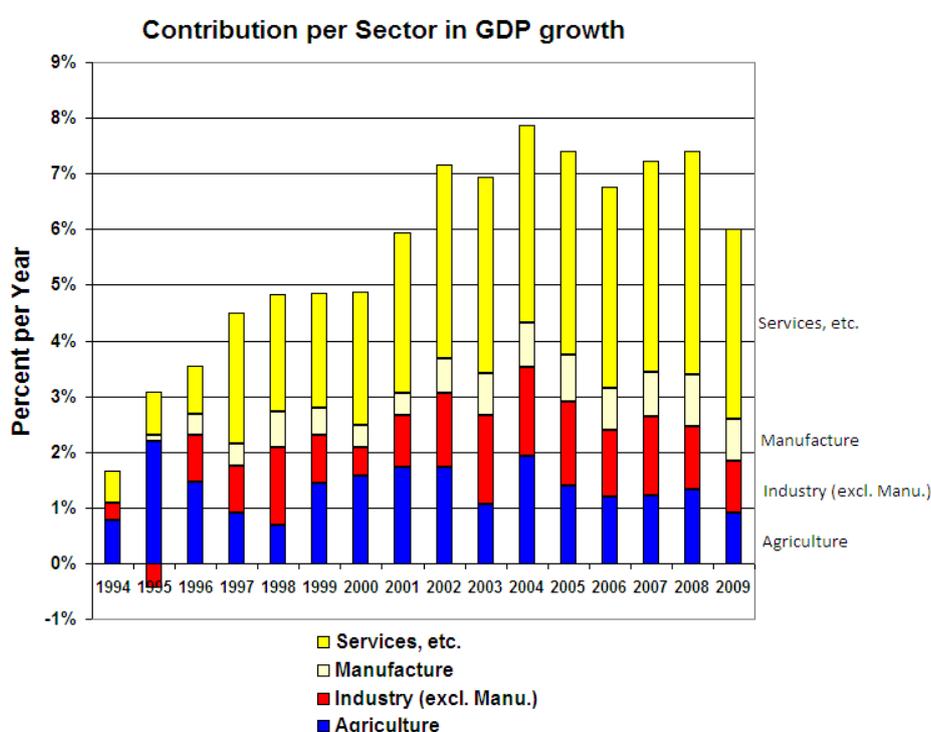
Source: Author's calculation, ES (2006-2009)

Figure 2.1 shows the volatility of the growth path, especially from year 2000 onwards. Furthermore, it illustrates a shift in sectoral contributions to growth: whilst agricultural growth contributed the biggest share to GDP growth in the 1990s, the service sector has clearly been driving the country's growth during the 2000s. Table 2.1 below shows the average annual growth rate by sector over the past 10 year and 15 year period.

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[3] This division of the economy (i.e. Agriculture, Industry (excl. Manu.), Manufactures and Services) will be used throughout the paper, in order to follow the division of GDP given in the WDI database. The sum of the four sectors gives us the entire economy.
[4] For each year, the sum of the sectoral contributions is equal to the annual GDP growth: for instance, total GDP growth was around 6% in 2009.

Table 2.1: Average Annual Growth Rate

|	Average annual growth rates	
	1999-2009	**1994-2009**
Industry (excluding Manufacturing)[5]	9.0%	7.7%
of which Mining &Quarrying	*13.28%*	*13.05%*
Manufacturing	8.0%	6.6%
Services	7.5%	5.9%
Agriculture	4.4%	4.0%
GDP	6.7%	5.5%

Source: ES (2006-2009)

Over these periods, industry, due to the significant contribution of the mining sector, has been the fastest growing sector in the economy, followed by the service sector, whilst agriculture is the slowest growing sector (with an average annual growth rate below average GDP growth). Furthermore, the past 10 year average annual growth rates are significantly higher than the 15 year ones, which highlights the acceleration in economic growth over the 2000s.

b. GDP composition (1993-2009)

The differential growth rates of sectors of the economy imply that the share of each sector's contribution to GDP has also evolved over time. The figure below shows the country's real GDP between 1993 and 2009 (indexed at 1993 = 100), segmented by sectors: the share of agriculture to GDP has declined over time, whilst the share of all other sectors have been increasing, with the industry sector (excluding manufacture) gaining the most.

Figure 2.2: GDP Decomposition per Sector
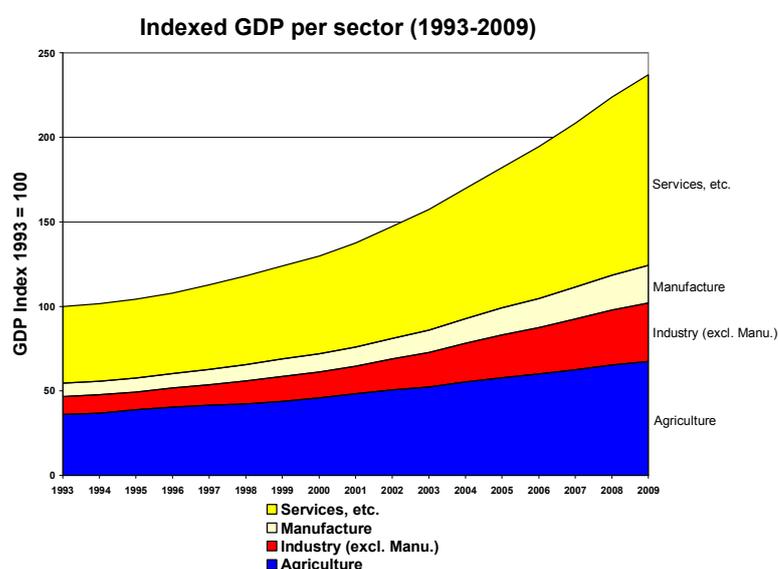
Source: Author's calculations, ES (2006-2009)

This is further illustrated in Figure 2.3, which compares the composition of GDP in 1993 and 2009. Whilst the share of agriculture decreased from 36% to 28% (which implies a decrease in the share of about 1.5% a year), the service sector (by far the largest sector) increased its share by about 2 percentage points (which implies an 0.3% annual increase in its share of GDP), the manufacturing sector increased by 1.4 percentage points (representing an annual growth in share of about 1%), and

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[5] Composed of construction, electricity, gas, water and mining/quarrying.

the industry sector (excluding manufactures) increased its share by about 4 percentage points (meaning an increase in share of about 2% a year).

Figure 2.3: Change in Share of GDP Per Sector Between 1993 and 2009
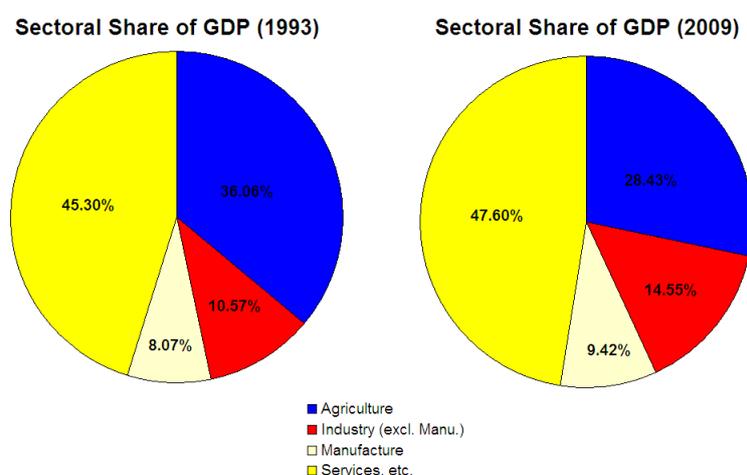
Source: ES (2006-2009)

There is thus a clear trend: services remains the biggest sector in proportion to GDP over the course of the past 15 years, the importance of the agricultural sector declines (shifting resources to the other sectors of the economy), and the industry (excluding manufactures) sector experienced a large increase in share (mainly due to strong growth in mining/quarrying and construction sub-sectors, see ES (2009)).

Another way of analysing the structure of GDP is from the demand or expenditure side. Table 2.2 below looks at the GDP decomposition (at current and constant prices) between consumption, investment and trade balance, and compares the evolution of the shares between 1993 and 2009 in Tanzania.

Table 2.2: GDP and Expenditure at Current and Constant Prices

	Current Prices		Constant Prices	
	1993	**1999**	**1993**	**1999**
Total Consumption	103.15%	82.95%	103.65%	88.03%
Household Consumption	83.76%	65.49%	85.87%	69.14%
Government Consumption	19.39%	17.46%	17.78%	18.88%
Investment	25.13%	28.97%	24.62%	25.33%
Trade Balance	-29.72%	-11.92%	-28.27%	-13.36%
Exports	17.98%	23.23%	16.48%	22.13%
Imports	47.71%	35.15%	44.75%	35.49%

Source: ES (2006-2009)

Consumption at private and public level has decreased as a share of GDP between 1993 and 2009, and so has the trade deficit. On the other hand, investment as a share of GDP seems to remain constant, with only a 0.7 percentage point increase in constant prices terms (which implies a close to zero annual growth rate).

3. METHODOLOGY

In the remaining sections of this paper we will analyse the growth path – and the structural change this may entail – if Tanzania is to achieve its objective of becoming a lower middle income country by 2025.

There are many alternative ways to project the growth rates and required structural transformation that would bring Tanzania to middle income status by 2025. We have chosen to apply a historical lens to this question, by analysing what the economies of richer countries looked like at the time they reached middle income status.[6] By singling out a set of comparator countries that reached middle income in the past 50 years and sketching out the structure of their economies in the year in which they reached this target, we hope to draw some lessons about the possible transformation that Tanzania faces.

This approach has the advantage of simplicity: the method is easy to follow and easily replicable. However, it also has limitations. Firstly, it assumes a generic set of middle income country features rather than generating assumptions about how Tanzania's unique features are likely to steer its growth. Secondly, it assumes that the conditions for growth are basically the same today as they were in the past. It therefore disregards any changes to the international trade regime or global economic conditions that may change the path to middle income country (or MIC) status. Thirdly, the paper does not study the preconditions for achieving high growth and structural transformation. It focuses on the outcome – the structure of the comparator economies as they reached the lower middle income country (or LMIC) goal - not on the policy choice taken to get there.

With these qualifiers in mind, we hope the findings of this study will be used not as a forecast of Tanzania's growth path, but rather as a general indication of the types of challenges and trade-offs that Tanzania is likely to face over the coming 15 years as it travels the path towards middle income status.

a. GDP and Population Growth Targets

Three national strategy documents provide growth targets for Tanzania: the Tanzania Development Vision (TDV) 2025, MKUKUTA I and MUKUTA II. The TDV 2025 is a long term plan, implemented from 2000 onwards, to guide Tanzania's efforts in economic and social development. It states Tanzania's intention to become a middle income country by 2025, and specifies that the country should grow at a rate of "8% per annum or more" between 2000 and 2025.

MKUKUTA, also known as the National Strategy for Growth and Reduction of Poverty (NSGRP), is a 5-year strategy plan aiming at accelerating economic growth, poverty reduction, improving governance and the achievement of the Millennium Development Goals (MDGs). The first of those plans (MKUKUTA I) started in 2005 (and thus integrated the long term objectives of the TDV 2025) and ended in 2010. Under this plan, the country targeted a growth of between 6% and 8%. MKUKUTA I was revised in 2010, and the new MKUKUTA II plan targeted a growth rate between 8% and 10% per year.

Population growth projections have been made by the National Bureau of Statistics (NBS) for the period 2010-2025. According to this study, the growth rate was of 2.9% in 2009, and will gradually fall to 2.5% by 2020, remaining at that level until 2025. For the sake of simplicity, this paper uses the average growth rate over the projection period in our calculations, i.e. a 2.7% annual population growth rate.

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[6] This methodology was developed by Bevan et al. (2003).

b. Growth Rate Required to Reach Middle Income Status

The low, middle and high income categories are World Bank operational lending categories. A country's status is determined on the basis of its GNI per capita in international dollars, using the Atlas method of currency conversion. The categories are divided as follows: low income, $995 or less; lower middle income, $996 - $3,945; upper middle income, $3,946 - $12,195; and high income, $12,196 or more. Tanzania's current GNI per capita is $500 (2009), and for the purposes of this paper we will assume that Tanzania aims to cross the $995 GNI per capita threshold into lower middle income status in 2025.

However, a better way to compare incomes in different countries is to use Purchasing Power Parities (PPPs). They account for differences in price levels between countries, and therefore better capture their relative wealth. Using Tanzania's current PPP conversion rate, the lower middle income cut-off would be roughly $2,700 GNI per capita PPP in 2009 dollar terms.

The table below shows what Tanzania's GNI per capita would be by 2025 at growth rates of 5%, 4% and 3% respectively, using both the Atlas and PPP methods.

Table 3.1: GNI Per Capita Projections:

Growth rate	GNI per capita (Atlas) constant 2009 $			GNI per capita PPP constant 2009 $		
	2009	2025	LMIC cut-off	2009	2025	LMIC cut-off (TZ PPP conversion rate)
5% growth	500	1091	995	1,350	2,946	2,700
4% growth	500	936	995	1,350	2,528	2,700
3% growth	500	802	995	1,350	2,166	2,700

Source: Author's calculations, WDI

We can see that at 5% per capita growth, Tanzania would comfortably exceed the LMIC cut-off mark by 2025 (achieving a GNI pc PPP of $2,946), while at 4% per capita growth, Tanzania falls just short of the target. In the figure below, the horizontal black line represents the threshold into lower middle income in GNI per capita (PPP). The red line illustrates Tanzania's actual GNI per capita over the period 1995-2009, and the green, purple and blue lines project GNI per capita at three growth rates: 5%, 4% and 3%. We see that at 5% Tanzania crosses into LMIC status before 2025, at 4% by 2027, and at 3% by 2033.

Figure 3.2: Comparing Tanzania's Actual and Simulated Growth Paths to the LMIC Threshold
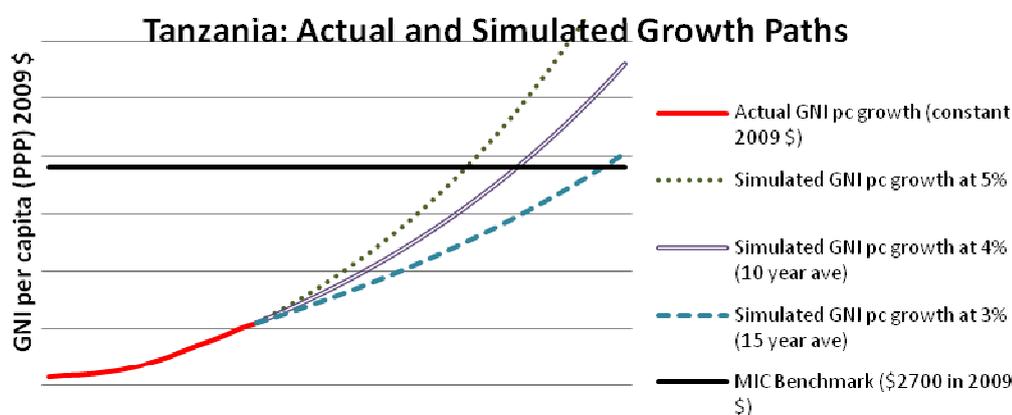
Source : Author's calculations, WDI

For the purposes of this paper we have therefore chosen to work with a 5% GNI per capita growth rate and a GNI per capita (PPP) target of $2,946 in 2009 $. Given a projected population growth rate of 2.7%, this implies an overall GDP growth rate of 7.7%, which is roughly equal to the TDV 2025 and MKUKUTA growth targets of 8%.

It is worth noting that the Tanzania Development Vision 2025 is not specific about where in the middle income country spectrum it expects Tanzania to be by 2025. For the purposes of this paper we target the lowest bound: the threshold into lower middle income status. Should we set a higher target, e.g. the cut-off between lower and upper middle income status ($3,945), growth rates would need to be significantly higher. Tanzania would have to grow at 14% per capita to reach this target by 2025, which would be well above the TDV and MKUKUTA targets and unprecedented in world history.

c. Tanzania's Growth Targets Compared

For the sake of comparison, we have projected Tanzania's growth at three different rates over the 16 year period from 2009 to 2025: (i) the target one expressed above (with a 7.7% GDP growth and a 5% GDP per capita growth) or the "high growth" path, (ii) a "medium growth" path in which the real GDP would grow at 6.7% per year (i.e. 4% pc), and (iii) a "low growth" scenario in which real GDP would grow at 5.7% per year (i.e. 3% pc). To give perspective to these growth paths we overlay the graph with the *actual* growth trajectory achieved over the last 16 years, from 1993 to 2009.

Figure 3.3: Comparison of the three projected growth paths and the past 16 years in Tanzania
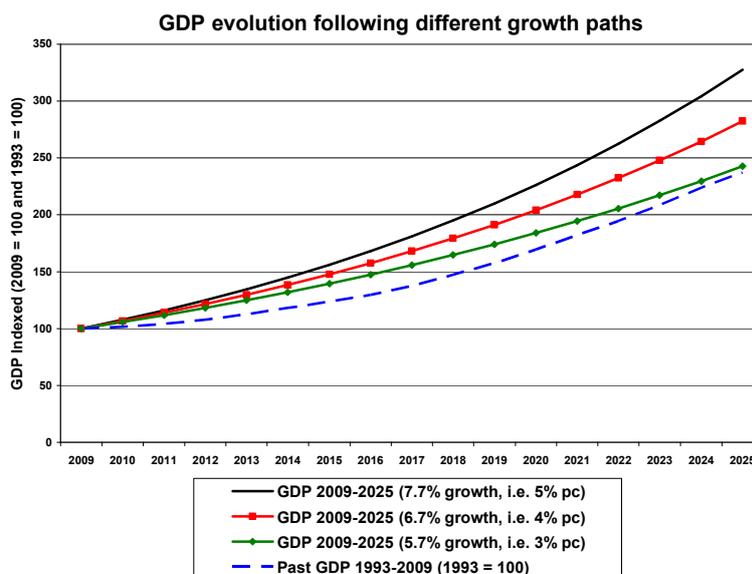
Source: Author's projections, ES (2006-2009)

As can be seen, the growth path Tanzania has followed during the last 16 years is well below the path that the country targets for the next 16 years: the historical path (represented by the dotted line) is even below the "low growth" scenario.

In the preceding sections, it has been highlighted that Tanzania has been growing at an average of just below 7% for the last 10 years, and has targeted to grow at around 8% for the next 15 years. As a means of comparison, we decided to analyse the WDI (2010) database to see whether other countries had been able to sustain such high growth rates over such long periods of time. As it turns out, only eight countries have been able to sustain an average growth rate of above 8% for a 25 year period (these countries are Bhutan, Botswana, China, Equatorial Guinea, Hong Kong, Korea, Oman

and Singapore), and an additional five countries have managed to keep their growth rate above 7% for 25 years (these are Indonesia, Malaysia, Malta, Syria and Thailand).

This comparison between Tanzania's targeted growth rate, its historical growth path and the international comparison have shown that Tanzania will have to maintain exceptionally strong growth in order to meet its targets.

d. Selecting comparator countries and benchmark years

In order to analyse the likely structure of Tanzania's economy if it achieves middle income status by 2025, we now move to an analysis of comparator countries that reached middle income status over the past 50 years. Table 3.1 shows that at 5% per capita growth, Tanzania will have a GNI per capita of $2,946 (PPP, 2009 $) in 2025. In order to select a sample of comparator countries we therefore reviewed historical GNI per capita PPP data for all lower and middle income countries in the world and singled out those countries that crossed the $2,946 GNI per capita PPP (2009 $) threshold between 1960 and 2009 (the years for which the WDI provides data).

WDI only provides GNI per capita PPP data in current terms, thus the series had to be adjusted for inflation. We made the assumption that GNI per capita growth rates are equivalent to GDP per capita growth rates, and thus extrapolated a country's GNI per capita in real terms using the 2009 value and projecting it backwards using the GDP per capita growth rate. We then looked for years in which a country crossed the $2,946 threshold and selected the year closest to the $2,946 mark.

As we aimed to select a sample of countries that could be compared to Tanzania, we excluded countries with vastly different structural features to Tanzania, or very unique growth experiences. From our sample we thus excluded small island states and other countries with a population of less than a million, as these countries tend to have unusual economic structures that would provide little guidance for Tanzania on what it takes to become a middle income country.

We also excluded benchmark years where growth was falling, i.e. countries with a GNI per capita of above $2,946 that fell back into lower income status, and countries that hovered around the LMIC threshold for extended periods of time. Based on these criteria we excluded a number of former Soviet and Balkan states (Albania, Armenia, Bosnia, Georgia and Moldova), a number of Latin American countries with very volatile growth paths (Honduras and Nicaragua), as well as Iraq. As our initial sample primarily included Asian, African and Middle Eastern countries, we decided to focus exclusively on those regions.

We arrived at the following list of countries and benchmark years: China (2000), Cote d'Ivoire (1975), Egypt (1983), India (2007), Indonesia (2004), Jordan (1976), Korea (1968), Malaysia (1968), Morocco (1991), Philippines (1976), Sri Lanka (1997), Syria (1975), Thailand (1987), Tunisia (1974), and Vietnam (2009).[7] We separated out the following set of resource rich countries and analysed their economies separately, as their economies exhibit special features: Angola (2004), Azerbaijan (2002), Botswana (1977), Cameroon (1985), Congo (1982), and Mongolia (2006).

Using the WDI database, we then pulled out a set of economic and social variables for the above countries and corresponding benchmark year. The averages of these variables formed our "model middle income country" (or MMIC), discussed in Section 4. The averages for our resource rich MIC are discussed separately in Section 8. The full set of data for each benchmark country is presented in Tables 1-4, Annex 1.

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[7] Vietnam is just shy of the $2,946 threshold in 2009, but we have chosen to include it in the sample because it shares some important characteristics with Tanzania, and has maintained a strong growth performance in recent years that Tanzania may do well to learn from.

To the extent possible, all data for Tanzania is taken from national sources (primarily Economic Surveys and NBS released data). The benchmark country data is taken from WDI 2010.

e. Data

To the extent possible, all data for Tanzania is taken from national sources (primarily Economic Surveys and NBS released data). The benchmark country data is taken from WDI 2010.

4. THE MODEL MIDDLE INCOME COUNTRY

This section compares our model middle income country, or MMIC, with Tanzania in 2009. We assume that Tanzania will evolve into the MMIC by 2025 if it sustains an annual GNI per capita growth rate of 5%. Table 4.1 compares the MMIC and Tanzania 2009 using a number of economic variables, while Table 4.2 provides a further set of socioeconomic and employment indicators.

Table 4.1: Comparison of Tanzania and the MMIC on macroeconomic indicators[8]

|	Agric (% of GDP)	Industry (% of GDP)	Manufact. (% of GDP)	Service (% of GDP)	Exports (% of GDP)	Imports (% of GDP)	GFKF (% of GDP)	FDI (% of GDP) in 2007*	G Dom savings (% of GDP)	Net ODA (% of GNI)	Rev (% of GDP)
MMIC	20.7	30.7	17.8	48.6	30.5	37.4	26.6	4.5	21.6	4.5	20.7
Tanzania 2009	28.4	24.0	9.4	47.6	13.2	29.0	25.0	3.9	17.9	12.9	16.2

Sources: WDI database, ES 2009

Table 4.2: Comparison of Tanzania and the MMIC on human and socio-economical indicators

	Employ. in agric (% of total)	Employ. in indust. (% of total)	Rural pop (% of total)	Secondary enrolment, (% gross)	M2 as % of GDP	Electric power (kWh per capita)	Poverty headcount at $2 a day (PPP)	GINI index	Pop growth (annual %)
MMIC	41.2	20.5	62.3	46.5	51.5	403.7	48.4	38.9	2.2
Tanzania 2009	74.6	5.0	74.0	31.3	27.5	81.7	46.0	34.6	2.9

Sources: WDI database, ES 2009

The most striking differences between our model middle income country and Tanzania lie in the shares of GDP in agriculture and manufacturing (Figure 4.3). If Tanzania were to develop into our MMIC, agriculture as a share of GDP would fall from 28.4% to 20.7%, while manufacturing would rise from 9.4% to 17.8%. This transition from an agricultural based economy into an industrial economy as income rises is a common pattern throughout history and across continents. The transition tends to be accompanied by rising agricultural productivity, a release of labour from the farms and lowered domestic food prices, as labour is absorbed into a faster growing manufacturing sector.

Figure 4.3: Comparison of GDP composition between Tanzania (2009) and the MMIC

Composition of GDP

■ Agriculture ■ Industry (excl manu) ■ Manufacturing ■ Services
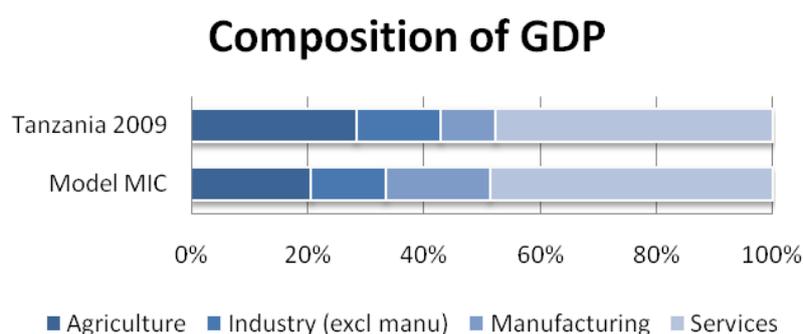
Source: WDI database, ES 2009

The agriculture-to-industry transition is also evident in our employment trends (see Table 4.2). The share of employment in agriculture in our MMIC is 41%, compared to 75% in Tanzania today, while industrial employment is 20% of total employment in our MMIC, compared to Tanzania's 5%. This

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[8] Due to the similarity of the means and medians (which minimizes the outlier effect) for all the MMIC indicators, we have decided to base our comparative analysis on the means.

suggests that Tanzania will undergo a large labour force transition as it grows to middle income status.

The model middle income country has substantially higher exports to GDP than Tanzania, at 30.5% compared to Tanzania's 13.2% of GDP. Thus exports in proportion to GDP would have to more than double to reach our MMIC target. The MMIC's imports are also higher than Tanzania's, but only by about 25%, thus the MMIC trade deficit (6.9%) is substantially lower than Tanzania's (15.8%).

Gross fixed capital formation is higher for the MMIC than for Tanzania today, at 27% and 25% of GDP respectively. However, Table 4.2 also includes an indicator measuring electricity consumption, which is a useful proxy for infrastructure stock. Tanzania's per capita electricity consumption is less than a fifth of that of our MMIC, which suggests that Tanzania may well need an even higher rate of capital formation to close its large infrastructure gap.

Tanzania's 2009 FDI inflows cannot be directly compared with FDI inflows to our comparator countries in past decades due to the dramatic increase in FDI flows globally since the liberalization of capital markets in the 1980s and 1990s. From a global average of 0.5% of GDP in the 1970s, FDI inflows grew to 2.6% of GDP in the 2000s (UNCTADStats, 2010). However, to give a sense of the current importance of FDI in developing economies, we compared FDI inflows for all our benchmark countries in 2007,[9] to Tanzania's 2007 FDI inflows. The average FDI inflow among our comparator countries was 4.5% of GDP in 2007, compared to 3.9% in Tanzania (ES 2009, WDI 2010). A current high growth performer, Vietnam, recorded FDI inflows of 9.8% of GDP in 2007. This suggests that Tanzania may be able to boost growth by attracting higher levels of FDI.

The tables also reveal that ODA is likely to fall in proportion to GDP as Tanzania transforms, from 13% to 5%. To the extent that aid has contributed to growth in the past, Tanzania will increasingly need to rely on domestic resources and private capital inflows (FDI, equity and other portfolio capital flows) instead. This is also evident in the gross domestic savings rate, which we expect to increase from 18% to 22% as Tanzania transforms into a MMIC.

The socioeconomic indicators in Table 4.2 also highlight Tanzania's skills gap, proxied by secondary school enrolment. The MMIC has a gross secondary enrolment of 47%, compared to 15% in Tanzania. The relationship between human capital and growth are well documented. Tanzania will likely need to rapidly raise the overall level of education in order to sustain high growth rates and structural transformation. A detailed analysis of the skill gap associated with the economic transition is provided in section 7.

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[9] We selected 2007 to avoid capturing the effects of the global economic crisis (Ndulu (2009)).

5. THE PATH TO MIDDLE INCOME STATUS

We now move to analysing the required rate of growth of each individual economic sector, if Tanzania is to transform into the model middle income country by 2025. We take the target growth scenarios discussed earlier (i.e. 5% per capita), and calculate the sectoral growth rates that the country would have to sustain in order to (i) meet the 5% per capita growth target and (ii) achieve our MMIC sectoral distribution. In Table 5.1 we sketch out this growth scenario, and add, for comparison, Tanzania's actual growth rates over the last 10 and 15 years.

Table 5.1: Implied sectoral growth rates following our three growth scenarios and historical data for Tanzania

	Next 15 Years (Transformation into MMIC)	Average annual growth rates	
	High Growth (5% pc)	1999-2009	1994-2009
Agriculture	5.60%	4.40%	4.00%
Industry	9.40%	8.60%	7.20%
Manufacturing	12.10%	8.00%	6.60%
Services	7.80%	7.50%	5.90%
GDP growth	7.70%	6.70%	5.50%

Source: Author's projections, ES (2006-2009)

It appears that Tanzania's past 10 year average sectoral growth rates are very close to a 4% per capita scenario, whilst the 15 year average sectoral growth is closer to a 3% per capita scenario. Hence, both past performance trajectories fall below the 5% per capita target. Comparing the ten year average with the 5% per capita targeted growth gives a clear picture of the size of the required transformation: agriculture will have to increase its annual growth rates from 4.4% to 5.6% (a 27% increase), industry will have to go from 8.6% to 9.4% per year (a 9% increase), manufacturing from 8% to 12.1% per year (a staggering 51% increase), whilst services need to start growing at 7.8% (compared to 7.5%, meaning a 5% increase). Furthermore, not only should the annual growth rates in each of the economy's sectors increase (in some cases dramatically), but the country has to sustain this growth path for the next 15 years in order to transform into the MMIC by 2025.

Figure 5.2 shows Tanzania's 2009 sectoral decomposition, and what those sectors would look like in real terms if we apply, for the next 15 years, (i) the targeted 5% per capita annual growth, (ii) the past 10 years average growth rates, and (iii) the past 15 years average growth rates.

Figure 5.2: Sectoral decomposition comparison between 2009 and 2025
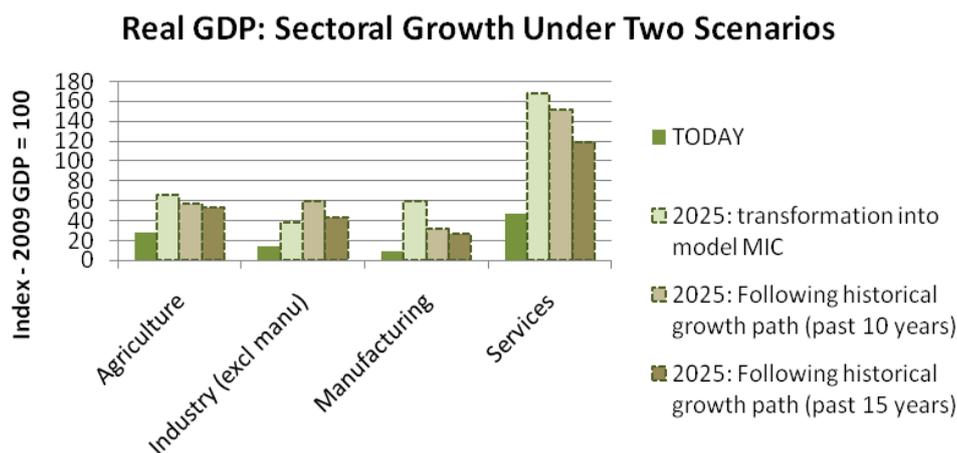
Source: Own projections, WDI (2010), ES (2006-2009)

If the country continues to grow like it did in the past, there will be a significant difference between actual output in 2025 and that of our MMIC. To be more specific, if the sectors continue to grow at their past 10 (15) year averages: in the year 2025, agriculture will represent 85% (80%) of the MMIC level, manufacturing will represent 54% (44%) of the MMIC level[10], and services will represent 90% (71%) of the MMIC level. The only sector which would actually out-perform our MMIC benchmark is the industry (excluding manufacturing) one: this can be explained by the high growth experienced in the past, due to a booming construction sector and a heavy development in mining in the country. The implications of a future growth path driven by mining or petroleum will be outlined in section 8.

It is also a useful exercise, after having outlined the necessary growth rates and sectoral transitions to achieve the lower middle income status in 2025, to analyse the required transition over the next five years. The table below displays the sectoral decomposition of GDP today, what it will look like if the country follows the 5% per capita growth rate target during the next 5 years, and what the total five year increase in each sector's GDP would be.

Table 5.3: A 5-year forward view

	Agriculture	Industry	Manufacturing	Services
Share of GDP today (2009)	28.40%	24.00%	9.40%	47.60%
Share of GDP 5 years forward (at 5% pc growth)	25.80%	26.00%	11.60%	48.10%
Overall 5 year growth (in real terms)	*31.10%*	*56.60%*	*76.90%*	*45.90%*

Source: ES (2006-2009), author's projections

In essence, in a span of five years, agriculture will have to grow by one third, industry and services by one half, and manufacture will have to nearly double. This gives us a shorter-term vision of the challenges at stake.

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[10] This basically means that the manufacturing sector will be half the size of the manufacturing sector in our MMIC.

6. AGRICULTURE

a. Introduction

"Enhance efforts to develop the economy and reduce poverty in the country by taking concrete steps to speed up the agricultural revolution, animal husbandry, fishing and industry". President Jakaya Kikwete – 10th Parliament Inaugural Speech.

Tanzania is one of the many developing economies that are highly dependent on agriculture[11]. According to national statistics, almost 75% of Tanzania's labour force is involved in agricultural production activities and contributing to 28% of the country's GDP (see Table 4.1). This means that agriculture lies at the heart of the country's economy and constitutes the livelihood basis of three quarters of the country's population.

The Government of Tanzania (GoT) is continuously making great effort to boost the agriculture sector within its borders. In 2009, the GoT launched the "KILIMO KWANZA" (AGRICULTURE FIRST) initiative which aimed at speeding up agricultural growth. In addition, President Jakaya Kikwete, in his 2010 parliament inaugural speech, mentioned poverty reduction through a revolution in the agricultural sector as one of the 13 priorities for his government in the second 5-year period of his leadership. Since poverty is more pronounced amongst the population involved in agriculture compared to those in other sectors (Lokina et al. (2011)), there is a need to evaluate carefully the role of agriculture in Tanzania's growth and especially with respect to the country's goal of becoming a middle-income country by 2025.

This section asks whether Tanzania can reach middle-income status with such a large share of its population employed in agriculture, and a large share of GDP in agriculture, by looking at the agricultural economic structures of lower middle-income countries. We will also discuss the possible challenges accompanying the transition towards a more industrialised economy, such as increased agricultural productivity and increased urbanization.

b. What does Agriculture look like in Lower-Middle Income Countries?

Looking at the relationship between agriculture and wealth, we see that as income per capita increases, the share of agriculture in GDP falls. This negative relationship is clearly illustrated in Figure 6.1 below, where the dots represent the countries of the world (larger dots represent more populated countries).

Table 4.1, which compares Tanzania to our MMIC, shows Tanzania having a 28% share of agriculture in GDP compared to 20% in our MMIC. However, there are exceptions. Countries such as Côte d'Ivoire, Malaysia and the Philippines had a similar share of agriculture in GDP when they reached middle-income status.

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[11] Our definition of agriculture in this document follows the NBS and WDI one, meaning that it includes hunting, fishing, forestry, cultivation of crops and livestock production (the ISIC divisions 1-5).

Figure 6.1: International relationship between income per capita and agriculture as a share of GDP
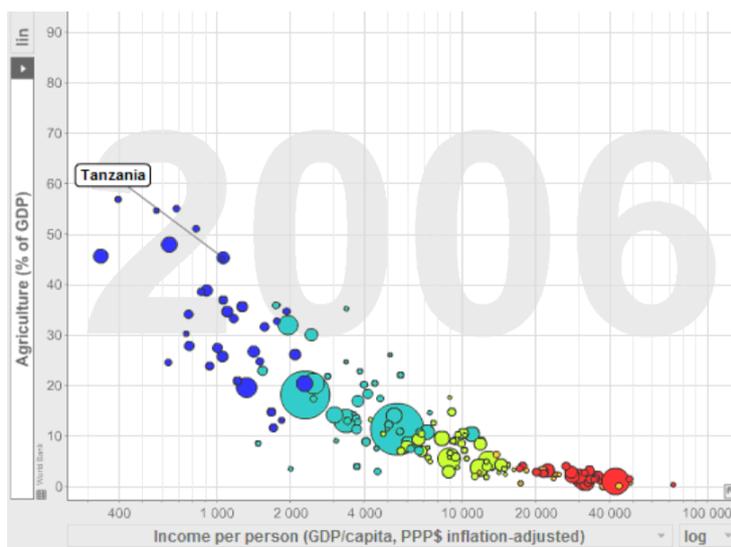
Source: Gap Minder, WDI (2010)

Before drawing any conclusions about whether reaching a LMIC status with a large share of agriculture in GDP is feasible, it is important to understand the agricultural structure of these economies. We therefore mapped the top ten agricultural products by country in the year they reached middle-income status in each of the following categories: (i) highest quantity produced, (ii) highest valued products (in $ terms), and (iii) most exported products. From this analysis, we find that products which are in the top ten in terms of value or volume produced are also in the top ten export of the country. Hence, a large share of agricultural production in the LMICs goes towards exports, which suggests that these economies were at the time export-driven cash crop agricultural economies. In contrast, Tanzania's agricultural production is not in line with exports. Only one top ten value product (cotton lint) is also in the top ten exports. This difference is crucial and may imply that the current status of Tanzania's agricultural economy may not be appropriate to lead the country into becoming an agricultural MIC unless major changes are made to the structure of the agricultural sector.

c. How should Agriculture in Tanzania Evolve to Reach Middle-Income Status?

From Table 4.1 we see that the shares of manufacturing and industry in GDP in our MMIC are much higher compared to those in Tanzania. If Tanzania is to look like our MMIC in 2025, it would require a huge reduction in the number of people engaged in agriculture and an accompanying increase in productivity of those who remain in agriculture.

Figure 6.2: Evolution of the share of labour force in Agriculture
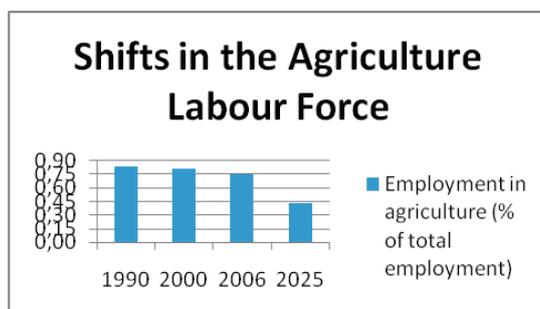
Source: ES 2009, author's computation

As seen in Table 4.2, labour force in agriculture will have to change from the current 75% to 40% in 2025, where the difference (35%) gets absorbed into the non-agricultural sectors. The evidence from rural Tanzania shows that there is excess supply of labour in the farming sector implying a low marginal productivity of labour. Therefore, releasing this excess labour into other non-agricultural sectors is not expected to have a significant impact on output (Christiaensen et al. (2006)). The following subsection will look into the implications of labour movement from agriculture to non-agriculture sectors.

d. Inevitability of Urbanisation

Figure 6.3 shows the inevitability of urbanization: without exception, rich countries have a higher share of urban population. According to a study by the NBS (2010), Tanzania's annual population growth in 2009 was about 2.9%. According to this same study, the average annual population growth rate between 2009 and 2025 will be 2.7%: if this growth projection is maintained[12], there will be 64 million Tanzanians in 2025. Assuming Tanzania has a similar urban-rural distribution as MMIC, this will imply an increase in urban population from 10.6 million in 2009 to 25.6 million in 2025, while increasing from 30.1 million to 37.7 million in rural areas over the same period.

Figure 6.3: Positive relationship between income per capita and share of urban population
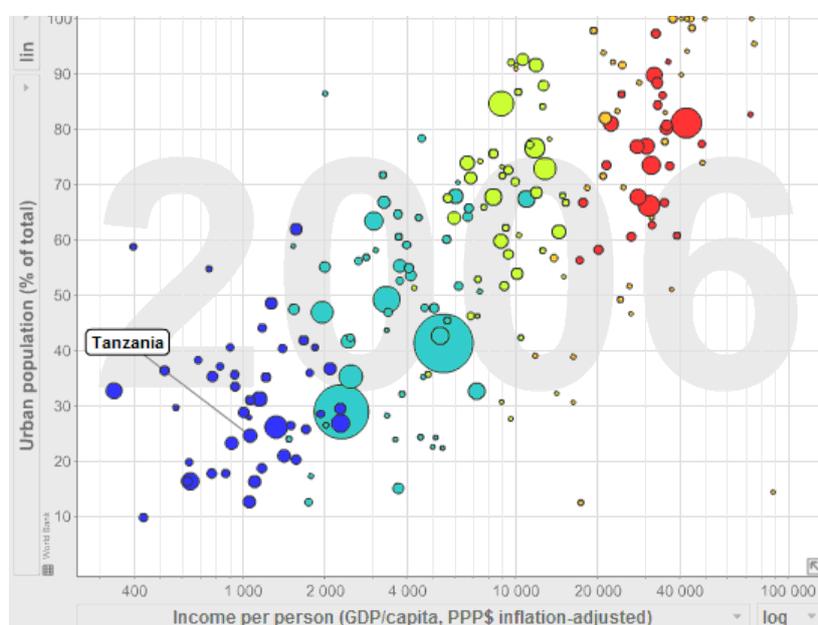
Source: Gap Minder, WDI (2010)

According to a 2010 UN-HABITAT (UN-HABITAT (2010)) report on the state of African cities, it is likely that much of the urban growth will happen in Dar es Salaam, as it is one of the 10 fastest growing cities in Africa. The total population in Tanzania is expected to hit 64 million as seen in Table 6.4.

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[12] Although evidence shows that overall population growth declines with increasing economic growth, for simplicity we assume a constant population growth over the 16-year period.

Table 6.4: Evolution of Tanzania's rural and urban population
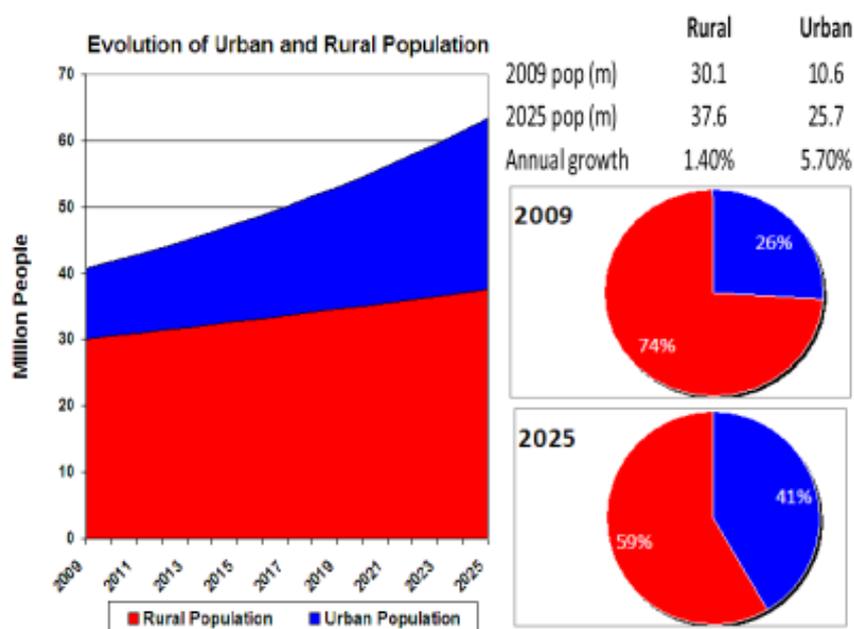
Source: ES (2009), NBS (2010), author's calculations

e. The Need for a Productivity Increase in Agriculture

Currently in Tanzania, 30 million farmers need to produce food for 41 million people. Excluding their subsistence, every farmer will have to provide for 0.3 urban dwellers. In 2025, 38 million farmers will have to produce food for 64 million people. This implies that every farmer will have to provide for 0.7 urban dwellers (over and above their own subsistence) which is well over double the 2009 figure.

Another way to think about this is to look at the desired agricultural GDP and the total population employed in agriculture. A ratio of the two figures would give the agricultural product per labourer in the agricultural sector. If Tanzania is to look like our MMIC country by 2025, product per labourer needs to grow at 5.8% annually as shown in Table 6.5.

Table 6.5: Evolution of agricultural product per labourer

	1990	2000	2006	2025
Agricultural product (in constant 2001 Tsh.) per worker	185,260	174,238	212,671	621,489

	1990-2006	2000-2006	2006-2025	
Implied product per labourer growth rate	0.9%	3.4%	5.8%	

Source: ES (2006-2009), ILFS (2007), NBS (2010), author's calculations

It is important to note that the implied annual product per labourer growth rate of 5.8% is quite high[13]. While the Tanzanian government has made considerable effort to increase productivity

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[13] It has to be noted that this figure might actually be higher, as we projected, for 2006 onwards, a growth rate of agricultural output at 5.6% (which is well above today's figures), and a population shift from agriculture to the other sectors starting directly in 2006 (which is not the case actually). With a lower agriculture growth rate

through the adoption of modern input and farming technologies, the returns to such investments have proven to be minimal (Lokina et al. (2011)). Collier and Dercon (2009) point out the lack of managerial skills, basic science and good numeracy as plausible explanations to these low returns, especially amongst small-scale farmers. Hence, if Tanzania is to look like our MMIC, there is a need for major reform and carefully thought-out strategies to change the structure of agricultural production.

and a share of labour force in agriculture remaining relatively high until 2010, the product per labour growth required after that date might be higher than 5.8%.

The skill level of the labour force is considered a major economic growth driver (Krueger and Lindahl (2001)). As discussed in the previous two sections, the transformation of Tanzania into a middle income country will involve unprecedented migration out of the rural-agricultural sector towards more productive manufacturing and service sectors, centred in urban areas. In order to facilitate this migration process, the labour force needs to be equipped with the necessary skills required to meet the demands of the evolving manufacturing and service sectors. At the same time, even a more productive agriculture sector will require a higher level of skill-base to efficiently manage and operate the modern farms, which involve machinery and high yielding crops. Hence, it is advisable to quantify the existing skill-base in Tanzania and contrast it with the future skill requirements and fathom the existing gap.

Quantifying and measuring the skill level is a difficult task. There is no tangible measure of the skill level of a person. Two often used proxies for skill level are the occupation category and educational attainment of employees (Köksal (2008)). We use the former as the proxy for skill level of the population, as it could further shed light on the specific skill gap pertaining to varied occupational categories.

The labour force surveys give us detailed distribution of employees into diverse occupation categories ranging from managers to agricultural labourers. The manager of the firm, by definition, is expected to have educational qualifications and the skill level required by his occupational category; hence he/she can be classified as high skilled. Based on the International Standard Classification of Occupations (ISCO-88), the following table illustrates some major occupational categories and the associated skill levels.

Table 7.1: ISCO 88 Occupation-Skill Linkage

ISCO-88 one-digit (Occupation type)	Associated Skills
0 Armed forces	Not included in the analysis
1 Legislators, senior officials, managers	High skilled
2 Professionals	High skilled
3 Technicians and associate professionals	High skilled
4 Clerks	Medium skilled
5 Service workers and shop and market sale workers	Medium skilled
6 Skilled agricultural and fishery workers	Medium skilled
7 Craft and related trade workers	Medium skilled
8 Plant and machine operators and assemblers	Low skilled
9 Elementary occupations	Low skilled

Source : Köksal (2008)

Following the methodology described earlier, we categorize the labour force of Tanzania using data from the Integrated Labour Force Survey (ILFS (2007)).

Figure 7.2: Division of Tanzania's working population into High, Medium and Low skilled workers
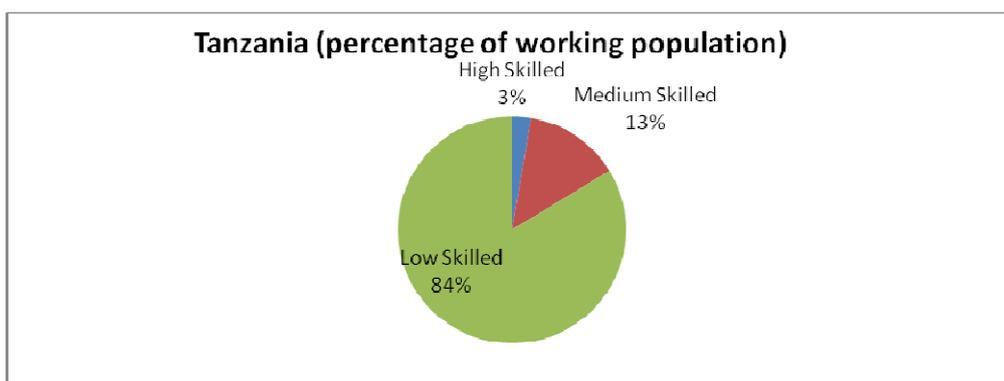
Source: ILFS 2007, Author's Calculations

The overall skill level picture of Tanzania is rather bleak, with only 3% of Tanzanian working population being classified as high-skilled, while the majority of working population (84%) is low-skilled, with an intermediate contribution from the medium skilled workers (13%). But it is interesting to compare Tanzania's current skill level with the skill base of our MMIC[14].

Figure 7.3: Division of the MMIC's working population into High, Medium and Low skilled workers
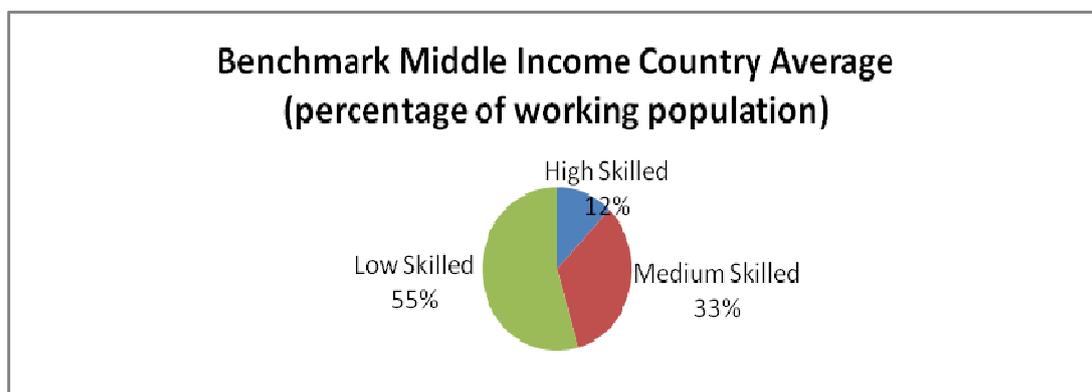
Source: Labour Force Surveys, Author's Calculations

The two charts (Figure 7.2, 7.3) above clearly depict the overall skill-gap of Tanzania vis-à-vis a benchmark middle income country average. The transition to a middle income country will involve a considerable shift in the skill composition of the economy. The proportion of the high skilled working population will need to quadruple (from 3% to 12%), while the proportion of medium skilled work force need to more than double (from 13% to 33%). While this overall-picture gives us the flavour of the skill base transformation associated with the economic transition, we further study the specific skill gap associated with different occupational categories in the next section.

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[14] For each benchmark middle income country we take the Labour Force Survey closest to its transition year to middle income status, for example, Egypt became a middle income country in 1983, so we used the Labour Force Survey of 1985 for the purposes of skill analyses.

Table 7.4: Detailed Skill-Gap Analysis

Skill level	Occupation Category	Tanzania (% of working population)	MMIC Average
High	Legislators, Senior Officials, Managers	0.2	2.72
High	Professionals	0.7	4.66
High	Technicians and associate professionals	1.8	4.73
Medium	Clerks	0.4	4.55
Medium	Service workers and shop and market sale workers	9.1	11.77
Medium	Craft and related trade workers	4.1	17.35
Medium	Skilled agricultural and fishery workers	NA[15]	0.42
Low	Plant and machine operators and assemblers	1.3	5.66
Low	Agriculture and elementary occupations	83.7	48.83

Source: Labour force surveys of benchmark countries, Tanzania ILFS 2007, Author's calculations

Looking at occupation categories and skill gap in Table 7.4 we can see the proportional shift is largest in the high skilled labour force. Also, developing a high-skilled labour force will involve investments in the educational infrastructure well in advance, as most of the high-skilled labour force will require higher-educational technical qualifications. In order to prioritize the educational investments and to analyze the requisite skilled work force to meet the demands of a middle income economy, we further classify the high skilled labour force into detailed occupational categories in Table 7.5 In calculating the target number of workers in 2025, we assume that the working-population of Tanzania, which stood at 18.3 million in 2009[16], grows at a rate equivalent to the projected population growth of 2.7% per annum.

Table 7.5: High Skill Labour: Detailed Analysis

Occupation Categories	MMIC Average (% of working population)	2025 Target for Tanzania ('000)
Physical scientists and related technicians	0.32	87.7
Architects, engineers and related technicians	1.07	290.8
Life scientists and related technicians	0.27	73.1
Medical, dental, veterinary and related workers	0.78	212.2
Health assistants/workers	0.97	263.8
Statisticians, mathematicians, systems analysts and related technicians	0.05	13.4
Economists & Economics related professionals	0.37	100.0
Accountants & Financial sector professionals	0.77	208.9
Jurists & legal professionals	0.20	54.4
Teachers	3.90	1,061
Authors, journalists and related writers	0.06	17.5
Administrative and managerial workers	1.58	430.6
Government executive officials	1.02	278.0

Source: ES 2009, Labour force Surveys of benchmark countries, author's calculations

In Table 7.5, we look at the average work-force composition of the MMIC; by applying these percentages to the projected working population of Tanzania in 2025 we derive a crude demand for the number of high-skilled workers within each sub-category. Contrasting these target numbers with

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[15] This data could not be found in the ILFS (2007) for Tanzania.
[16] Economic Survey (2009).

the existing labour force in these high-skilled occupation categories gives an approximate measure of the specific skill-gap in Tanzania. We provide a rough estimate of the skill-gap in the educational and health sector of Tanzania in Table 7.6.

Table 7.6: Education and Health Sector Skill Gap:

Sector	Tanzania 2010 (approximate number of employees (in thousands))	Target number of skilled labour in 2025 (in thousands)
Education	238	1,061
Health	110	476

Source: Labour Force Survey 2007, Author's Calculations

The sheer magnitude of the skill-gap calls for urgent attention of policy makers to make necessary interventions in this often-neglected area. Higher education investments need to be prioritized based on the magnitude of the skill gap. For example, we can compare the projected demand of engineers from Table 7.5 with the expected number of engineering graduates from all domestic institutions (we can assume a constant flow of immigrant engineers) and decide on how many more engineering graduates would be required by 2025. As Table 7.6 indicates, the health sector would require four times the existing skill-base by 2025 and the education sector will involve a near five-fold increase. The number of physicians per 1,000 inhabitants in Tanzania is approximately 0.01 while the corresponding figure for the benchmark middle income country is 1.2[17]. Questions need to be raised on whether the country's existing educational infrastructure can meet such a surge in skill demand. Similar exercise needs to be followed for each profession-category, to direct necessary investment and policy attention.

There is an ongoing debate on the order of occurrence of skill enhancement and economic development. One school of thought portrays the skill level as a crucial determinant of economic performance (New Growth Theories), while the other school of thought proposes that it is economic development that determines the skill level of the population (Bils and Klenow (2000)). Though there is no definite answer to this question, one can easily conclude that skill development occurs simultaneously with economic development. Of course, the increase in demand for high skilled workers emanating from a buoyant economy will encourage the labour force to seek training and skill-enhancement, but the pertinent problem will be whether Tanzania's higher education infrastructure has the capacity to meet this demand. The recent figure for the gross enrolment ratio in tertiary[18] education in Tanzania is 1.5%, while the similar figure for the MMIC (when attaining the MIC status) stood at around 13%. Also, Tanzania's gross enrolment ratio is one of the lowest in sub-Saharan Africa[19]. All these facts point at the need for an improvement in Tanzania's higher educational infrastructure.

Our analyses provide a rough estimate of the magnitude of the skill-gap that Tanzania might confront on its course to attain a MIC status. Though we did not delve into the qualitative aspect of skill level (the level of managerial skills and entrepreneurial abilities and like wise), the skill gap is well reflected even in quantitative terms. A radical shift in the skill-base of the country is required to meet the demands of an industrialized middle income economy. Policy actions need to be formulated to transform Tanzanian higher education infrastructure to meet demands of this economic transition.

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[17] World Development Indicators, World Bank, 2010.
[18] Source UNESCO, 2009.
[19] Source UNESCO, 2009.

8. THE RESOURCE RICH PATH TO MIDDLE INCOME STATUS

This section analyses an alternative path to middle income status: one where growth is driven by natural resource extraction. Using a smaller sample of resource-dependent countries that reached middle income status between 1960 and 2009, we analyse the structural transformation that Tanzania would undergo if growth was driven by a resource boom.

The tables below compare our resource rich MIC to Tanzania in 2009. Table 8.1 also lists the annual growth rate required for each variable if Tanzania was to transform into a resource rich MIC by 2025.

Table 8.1: Comparison of Tanzania and the resource rich MIC on macroeconomic indicators

	Agric (% of GDP)	Industry (% of GDP)	Manufact. (% of GDP)	Service (% of GDP)	Exports (% of GDP)	Imports (% of GDP)	GFKF (% of GDP)	FDI (% of GDP)	G Dom savings (% of GDP)	Net ODA (% of GNI)	Rev. (% of GDP)
Resource Rich MIC	17.8	46.7	7.7	35.5	57.0	58.5	29.9	7.7	31.1	5.4	34.9
Tanzania 2009	28.4	24.0	9.4	47.6	13.2	29.0	25.0	3.0	17.9	12.9	16.2
Growth (5% pc)	4.6	12.3	6.3	5.7	18.0	12.5	8.9	14.2	11.5	2.0	14.1

Sources: WDI 2010, ES 2009

Table 8.2: Comparison of Tanzania and the resource rich MIC on human and socio-economical indicators

	Employ. in agric (% of total)	Employ. in indust. (% of total)	Rural pop (% of total)	Secondary enrolment, (% gross)	M2 as % of GDP	Electric power (kWh per capita)	Poverty headcount at $2 a day (PPP)	GINI index	Pop growth (annual %)
Resource Rich MIC	50.5	11.9	56.2	48.3	18.4	987.8	50.5	41.3	2.3
Tanzania 2009	74.6	5.0	74.0	31.3	27.5	81.7	46.0	34.6	2.9

Sources: WDI 2010, ES 2009

The mining or hydrocarbon sector, which falls under the industry sector, is clearly the growth driver in this scenario. In our resource rich MIC, industry accounts for 47% of GDP compared to 24% in Tanzania today. Tanzania's industrial sector would need to grow at 12.3% a year to achieve this transformation. Figure 8.1 compares the shares of GDP in Tanzania 2009 and the resource rich MIC. All sectors of the economy shrink in proportion to GDP, except the industrial sector.

Figure 8.1: Comparison of GDP composition between Tanzania (2009) and the resource rich MIC
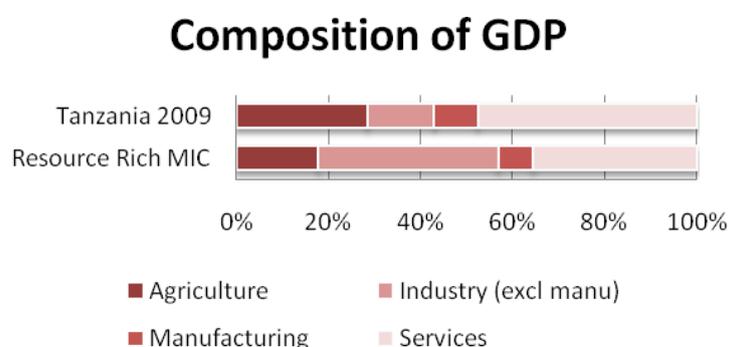
Source : ES 2009, author's calculations

The resource rich MIC also has a very high share of exports and imports to GDP. Tanzania's exports would need to increase four-fold and imports double in proportion to GDP, if it was to develop into a

resource rich MIC by 2025. Gross capital formation and FDI are likewise high in proportion to GDP, but investment is mainly concentrated in the extractive sector.

Were Tanzania to develop along the resource-driven path, government revenue would most probably increase sharply in proportion to GDP; this is because extractive industries generate high rents that are shared between the mining company and the State. The extractive industry is a comparatively easy sector to tax. Our resource rich MIC has a revenue to GDP ratio of 35%, compared to 16% in Tanzania in 2009.

However, it is also evident that while the extractive sector generates income for the government, it does not create jobs. In our resource rich MIC, industry accounts for 47% of GDP but only 12% of employment. Compared to our model MIC, a larger share of the population remains in agriculture (51% compared to 43%), while service sector employment remains equal despite a slower growth rate in our resource rich example. In this scenario therefore, the output per labourer ratio in both the agriculture and service sectors grow slower than in the MMIC scenario. If Tanzania were to develop into a resource rich MIC, output per worker in the service sector would stagnate over the transformation period: the service sector would absorb underutilized labour without a corresponding growth in output.

Economists often refer to these features of resource rich economies as the "resource curse". While resource booms will rapidly increase the level of GDP, they often generate slower general development and fail to reduce poverty. The latter often occurs because the sector's income accrues mainly to the Government, being therefore more vulnerable to elite capture. Resource booms also tend to make a country's other exports less competitive as a result of exchange rate appreciation (so called 'Dutch Disease'). In our resource rich MIC, the resource curse is evidenced by high rates of poverty and inequality. The poverty headcount is 51% and the Gini coefficient is 41, compared to Tanzania's poverty rate of 46% in 2009, and Gini coefficient of 35 (see Table 8.2).

There are a range of mitigation measures that governments can take to minimize the impact of a "resource curse". Such measures tend to focus on transparent and productive ways of allocating the revenue from the extractive sector. Should Tanzania embark upon a resource-driven growth path, it would do well to study the experiences of other resource rich countries in greater detail and draw on the extensive literature about natural resource management.

9. CONCLUSION

This paper provides a historical context of the sectoral transition in Tanzania over the past fifteen-years. By comparing the current economy of Tanzania with that of a 'model middle income country', we analyse the growth paths and sector specific transformation which Tanzania would have to undergo in the future. In order to attain the MIC status by 2025, all sectors need to drastically increase their respective growth rates, but the most pronounced growth spurt is called-for in the manufacturing sector. Although the percentage contribution of agriculture to GDP will diminish, a considerable increase in productivity of agriculture will be required to meet the growing food demand in the country. Also, we argue that Tanzania's agriculture sector might not be capable of acting as the source of growth momentum for the country. An evolving economy will be accompanied by a more dynamic labour force, with unprecedented rates of migration to urban areas. We further discuss the challenge of skill-gap associated with demands arising from an urban centred industrialized economy. Finally, we study an alternative growth path for Tanzania in terms of a hypothetical resource boom and the ramifications of such a path on poverty and income distribution.

We have repeated the same analyses in Annex 2, but with a more optimistic double-digit growth rate and a higher income target by 2025 (called the MMIC-O scenario). We found that the transition from 6% to 8% real GDP growth is characterized by an inter-sectoral reallocation of both labour and resources from the relatively less to the relatively more productive sectors. As described in the Appendix, the MMIC and the MMIC-O cases have very little difference in terms of their sectoral composition of the economy. This means that the increase in growth from 8% to 10% puts excessive strain on intra-sectoral growth rates (through the required increase in each sectors' productivity). Hence, the jump from a 6% real GDP growth (2009 figure, ES (2009)) to a 10% one can only happen through the combination of an inter- and intra-sectoral transformation, which implies a very different, and much more complex, task than the one related to the 8% growth target.

It is to be noted that this study assumes that the take-off conditions required for a higher growth trajectory are in place, such as: favourable institutional features, an efficient and pro-reform mind set of the Government and a dynamic business environment. While we recognise the relevance of these 'soft-conditions', a detailed analyses of the same is beyond the scope of this paper. Another limitation, associated with the rather simple methodology implemented in this paper, is the fact that some of our comparator countries achieved middle income status as early as 1968. Placing the structure of their economy back then as the predicted structure for Tanzania in 2025 is debatable, considering the dramatic changes that the world economy witnessed over the last few decades. Nevertheless, the consoling factor is that the broad structure of a LMIC has remained similar over the past few decades and this study attempts to capture this broader transformational picture for Tanzania.[20]

This paper only provides some indicative transformative paths of the Tanzanian economy in its attempt to achieve MIC status by 2025. The simulated growth paths may prove useful in formulating the medium and long term national development plans for the country, as well as the revision exercise of the TDV 2025. Further research would be required to better understand how Tanzania could attain the targeted growth path, the transformation of the economy resulting from this path, and the caveats and challenges it entails. We hope that the broad transition story outlined in this paper will prove useful as a good starting point to all such endeavours.

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[20] This point is substantiated by the fact that altering the sample set of middle-income countries did not significantly affect the conclusions of this study.

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11. ANNEX 1: TABLES

TABLE 1: KEY ECONOMIC INDICATORS FOR MODEL LOWER MIDDLE INCOME COUNTRY

Country Name	Year	Agriculture (% of GDP)	Industry (% of GDP)	Manufact. (% of GDP)	Services (% of GDP)	Exports (% of GDP)	Imports (% of GDP)	Gross fixed capital formation (% of GDP)	FDI, net inflows (% of GDP) in 2007*	Gross domestic savings (% of GDP)	Net ODA (% of GNI)	Revenue, excl. grants (% of GDP)
China	2000	15.1	45.9	32.1	39.0	23.3	20.9	34.1	4.0	37.5	0.1	
Cote d'Ivoire	1975	28.2	17.0	9.4	54.7	36.7	36.6	22.0	2.2	22.6	2.7	
Egypt	1983	19.6	30.0	13.2	50.4	25.5	36.4	29.6	8.9	17.8	5.5	
India	2007	18.0	29.1	16.1	52.9	20.6	24.7	33.0	2.0	33.7	0.1	14.0
Indonesia	2004	14.3	44.6	28.1	41.0	32.2	27.5	22.4	1.6	28.7	0.1	18.4
Jordan	1976	8.8	23.5	9.9	67.7	33.6	82.7	32.8	14.8	-13.8	28.1	
Korea	1968	30.7	24.5	16.5	44.8	12.3	25.3	26.2	0.2	14.0	4.1	
Malaysia	1968	28.5	25.3	10.8	46.2	39.4	36.2	16.4	4.5	21.5	0.9	
Morocco	1991	20.7	31.8	17.8	47.5	24.1	28.5	22.2	3.7	18.2	4.6	26.0
Philippines	1976	29.3	36.2	25.4	34.6	19.3	25.2	26.3	2.0	26.9	1.1	
Sri Lanka	1997	21.9	26.9	16.4	51.2	36.5	43.6	24.4	1.9	17.3	2.2	18.5
Syria	1975	19.5	25.2		55.3	21.9	34.6	26.9	3.1	14.1	9.6	
Thailand	1987	15.7	33.3	24.3	50.9	28.9	28.3	27.6	4.6	28.4	0.9	
Tunisia	1974	18.7	27.1	10.0	54.2	35.4	32.2	20.7	4.3	29.0	4.6	
Vietnam	2009	20.9	40.2	20.1	38.8	68.3	78.7	34.5	9.8	27.8	2.9	26.4
Mean		**20.7**	**30.7**	**17.8**	**48.6**	**30.5**	**37.4**	**26.6**	**4.5**	**21.6**	**4.5**	**20.7**
Median		**19.6**	**29.1**	**16.4**	**50.4**	**28.9**	**32.2**	**26.3**	**3.7**	**22.6**	**2.7**	**18.5**
Tanzania	**2009**	**28.4**	**24.0**	**9.4**	**47.6**	**13.2**	**29.0**	**25.0**	**3.9**	**17.9**	**12.9**	**16.2**

Source: WDI 2010, ES (2009)

TANZANIA'S TRANSFORMATION INTO LMIC: ANNUAL RATE OF GROWTH FOR EACH VARIABLE AT DIFFERENT RATES OF GDP GROWTH

Per capita GDP growth	GDP growth	Agriculture	Industry	Manufacturing	Services	Exports	Imports	GFKF	Domestic Savings	ODA	Revenue
5	7.7	5.6	9.4	12.1	7.8	13.5	9.4	8.1	9.0	0.9	9.4
Tanzania (Ave. growth 1999-2009)		4.4	8.6	8	7.5	12.0		11.7	10.7		10.9
Tanzania (Ave. growth 1995-2009)		4	7.2	6.6	5.9						

A 5-YEAR FORWARD VIEW: SHARES OF GDP IN FIVE YEARS TIME

		Agriculture	Industry	Manufacturing	Services	Exports	Imports	GFKF	Domestic Savings	ODA	Revenue
5 years forward at 5% pc growth		26.0	26.1	11.6	48.4	17.3	31.7	25.7	19.2	9.4	17.6
5 year growth		*31.1*	*56.6*	*76.9*	*45.9*	*88.3*	*56.9*	*47.8*	*53.6*	*4.3*	*56.4*

Source: WDI 2010, ES (2009)

TABLE 2: EMPLOYMENT AND SOCIAL INDICATORS FOR MODEL LOWER MIDDLE INCOME COUNTRY

Country Name	Year	Employment in agriculture (% of total employment)	Employment in industry (% of total employment)	Rural population (% of total population)	School enrollment, secondary (% gross)	Money and quasi money (M2) as % of GDP	Electric power consumption (kWh per capita)	Poverty headcount ratio at $2 a day (PPP) (% of pop)	GINI index	Poverty gap at $1.25 a day (PPP) (%)	Population growth (annual %)
China	2000	46.3	17.3	64.2	61.1	124.1	993.2	58.0		10.3	0.8
Cote d'Ivoire	1975			67.8	12.1	28.0	122.0				4.8
Egypt, Arab Rep.	1983	41.0	21.2	56.1	51.0	81.9	490.1				2.6
India	2007			70.7	57.0	65.0	542.1	75.6	36.8	10.8	1.3
Indonesia	2004	43.3	18.0	53.1	65.2	43.1	489.4	53.8	39.4	4.6	1.3
Jordan	1976			41.9	62.0	62.1	231.8				3.6
Korea	1968			62.6	41.6	21.0	298.2				2.2
Malaysia	1968			67.9	34.2	28.2	311.3				2.6
Morocco	1991	3.9	36.1	50.9	35.6	51.3	371.5	15.9	39.2	0.5	1.8
Philippines	1976	51.8	15.4	64.0	55.9	18.9	323.6				2.7
Sri Lanka	1997	37.4	23.5	83.9	79.5	35.0	231.0	45.5	36.4	2.9	0.8
Syria	1975			54.9	44.1	32.6	236.4				3.4
Thailand	1987	64.4	11.8	71.4	30.2	62.9	480.4	41.4	44.0	3.7	1.6
Tunisia	1974			53.2	21.4	31.4	206.8				1.9
Vietnam	2009			71.7		86.9	727.7	48.4	37.8	4.6	1.2
Mean		**41.2**	**20.5**	**62.3**	**46.5**	**51.5**	**403.7**	**48.4**	**38.9**	**5.3**	**2.2**
Median		**43.3**	**18.0**	**64.0**	**47.6**	**43.1**	**323.6**	**48.4**	**38.5**	**4.6**	**1.9**
Tanzania	**2009**	**74.6**	**5.0**	**74.0**	**31.3**	**27.5**	**81.7**	**46.0**	**34.6**		**2.9**

TANZANIA'S TRANSFORMATION INTO LMIC: ANNUAL RATE OF GROWTH FOR EACH VARIABLE

	Population growth	Agricultural employment	Industrial employment	Rural population	School enrolment	M2	Electricity consumption	People living in poverty
	2.7	-1.0	12.2	1.6	2.5	12.1	13.5	3.0
Tanzania (Average growth rate 1999-2009)		1.4		2.2				

Source: WDI 2010, ES (2009), own calculations

TABLE 3: KEY ECONOMIC INDICATORS FOR RESOURCE RICH MODEL LOWER MIDDLE INCOME COUNTRY

Country Name	Year	Agriculture (% of GDP)	Industry (% of GDP)	Manufact. (% of GDP)	Services (% of GDP)	Exports (% of GDP)	Imports (% of GDP)	Gross fixed capital formation (% of GDP)	FDI, net inflows (% of GDP)	Gross domestic savings (% of GDP)	Net ODA (% of GNI)	Revenue, excluding grants (% of GDP)
Angola	2004	8.6	66.1	4.0	25.3	69.7	53.7	9.1	7.3	25.1	6.6	36.9
Azerbaijan	2002	15.2	50.2	8.1	34.6	42.8	50.0	34.1	22.3	27.3	6.0	26.8
Botswana	1977	24.9	35.8	6.7	39.3	50.9	69.3	25.5	2.7	15.1	10.2	
Cameroon	1985	21.6	36.0	11.5	42.5	33.4	31.6	17.2	3.9	26.8	1.9	
Congo, Rep.	1982	7.9	52.6	4.8	39.6	55.3	68.5	59.7	1.6	46.5	4.5	
Mongolia	2006	21.9	42.3	3.9	35.9	65.3	59.7	32.3	11.0	40.8	6.5	40.9
Turkmenistan	2001	24.4	44.3	14.6	31.4	81.4	76.9	31.7	4.8	36.2	2.1	
Mean		17.8	46.7	7.7	35.5	57.0	58.5	29.9	7.7	31.1	5.4	34.9
Median		21.6	44.3	6.7	35.9	55.3	59.7	31.7	4.8	27.3	6.0	36.9
Tanzania	2009	28.4	24.0	9.4	47.6	13.2	29.0	25.0	3.0	17.9	12.9	16.2

Source: WDI 2010, ES (2009)

TANZANIA'S TRANSFORMATION INTO LMIC: ANNUAL RATE OF GROWTH FOR EACH VARIABLE AT DIFFERENT RATES OF GDP GROWTH

Per capita GDP growth	GDP growth	Agriculture	Industry	Manufacturing	Services	Exports	Imports	GFKF	FDI	Domestic Savings	ODA	Revenue
5	7.7	4.6	12.3	6.3	5.7	18.0	12.5	8.9	14.2	11.5	2.0	13.0
4	6.7	3.9	10.5	5.4	4.9	15.4	10.8	7.7	12.2	9.9	1.7	11.1
3	5.7	3.4	9.0	4.7	4.2	13.1	9.2	6.6	10.4	8.4	1.5	9.5
Tanzania (Average growth rate 1999-2009)		4.4	8.6	8.0	7.5	12.0	0.0	11.7	0.0	10.7	0.0	10.9
Tanzania (Ave. growth 1995-2009)		4	7.2	6.6	5.9							
COMPONENTS OF GDP - A 5-YEAR FORWARD VIEW												
5 years forward at 5% pc growth		24.8	29.8	8.9	43.8	21.0	36.5	26.7	4.1		9.9	20.8
5 year growth		*25.1*	*78.5*	*35.9*	*32.2*	*128.8*	*80.5*	*53.3*	*94.1*		*10.5*	*84.1*

Source: WDI 2010, ES (2009), own calculations

TABLE 4: EMPLOYMENT AND SOCIAL INDICATORS FOR RESOURCE RICH MODEL LOWER MIDDLE INCOME COUNTRY

Country Name	Year	Employment in agric	Employment in industry	Rural population	School enrollment, secondary (% gross)	M2 as % of GDP	Power consumption (kWh per capita)	Poverty headcount ratio at $2 a day (PPP) (% of population)	GINI index	Poverty gap at $1.25 a day (PPP) (%)	Population growth
Angola	2004			47.0	17.3	12.8	118.7	70.2	58.6	29.9	3.1
Azerbaijan	2002	40.2	11.5	48.7	82.8	12.1	2102.2	20.8	31.6	1.0	0.7
Botswana	1977	46.1	12.0	86.3	18.5	25.6	535.4				3.8
Cameroon	1985	76.9	6.8	63.8	21.3	21.0		74.5			2.9
Congo, Rep.	1982			50.4	59.4	14.8	102.0				3.1
Mongolia	2006	38.8	17.3	43.1	90.5	36.1	1299.5	37.2	34.2	4.3	1.2
Turkmenistan	2001			53.9		6.6	1769.2	49.7	40.8	7.0	1.4
Mean		**50.5**	**11.9**	**56.2**	**48.3**	**18.4**	**987.8**	**50.5**	**41.3**	**10.5**	**2.3**
Median		*43.2*	*11.8*	*50.4*	*40.3*	*14.8*	*917.4*	*49.7*	*37.5*	*5.6*	*2.9*
Tanzania	2009	74.6	5.0	74.0	31.3	27.5	81.7	46.0	34.6	46.0	2.9

TANZANIA'S TRANSFORMATION INTO LMIC: ANNUAL RATE OF GROWTH FOR EACH VARIABLE

	Population growth	Agricultural employment	Industrial employment	Rural population	School enrollment	M2	Electricity consumption	People living in poverty
	2.7	0.2	8.4	0.9	2.8	5.1	20.0	3.3
Tanzania (Average growth rate 1999-2009)	1.4			2.2				

Source: WDI 2010, ES (2009), own calculations

1. Introduction

The aim of this Annex is to give the policymakers a better idea of what it would mean for Tanzania, macro-economically speaking, to grow at a rate of 10% per year (meaning, following the NBS (2010) projections, a 7.3% per capita growth). After analysing the sectoral shares and transformation implied by this new growth rate projection, we will analyse a series of macroeconomic and social indicators to show the broader picture of what is implied by moving from a low income country (LIC) to a middle income country (MIC)[21]. We will finally conclude by highlighting our findings, and the implications of a double-digit growth rate.

2. Methodology

The methodology used in this Annex is the same as the one presented in section 3 of the main paper, only with another GDP and GDP per capita growth target. The choice of the target follows internal discussions at the POPC and at the meetings with ESRF and UDSM, on the fact that the country's 5% per capita growth (7.7% real GDP growth) might not be ambitious enough.

The hypothesis that was suggested to us by the POPC, referred to as the Model Middle Income Country – Optimistic scenario (or MMIC-O), was to aim at a per capita (Atlas) of US$ 1,500 GNI rather than the US$ 995 that had been used in section 3.b of the main paper. Growing from US$ 500 in 2009 to US$ 1,500 in 2025 (both in GNI per capita (Atlas)), means a per capita growth rate of 7.1%, which, for simplicity, we set at 7.3%, in order to have a round figure (i.e. 10%) for GDP growth.

In order to find the comparator countries, we convert the GNI per capita Atlas target into PPP format, which gives us a GNI per capita PPP target for Tanzania in 2025 of US$ 4,070 (compared to the US$ 1,350 of today). Table 2.1 gives the GNI per capita PPP and Atlas targets (as of this paper), and compares them with the level in Tanzania in 2009, the lower-middle income country (or LMIC) cut-off and the MMIC target given section 3 of the main paper.

Table 2.1: Comparison of the GNI per capita Atlas and PPP targets

	GNI per capita (Atlas) constant 2009 $	GNI per capita PPP constant 2009 $
Tanzania 2009	500	1,350
LMIC cut-off	995	2,700
MMIC	1,091	2,946
MMIC-O	1,500	4,070

Source: WDI (2010), own computation

Once this new target was set, we analysed the WDI data in order to find countries which, between 1960 and 2009, had been able to cross this new threshold. As explained in the MMIC scenario, we excluded countries which had different structural features to the ones in Tanzania, or countries that would not give us an interesting comparison point. We thus excluded small island states, other micro countries, the resource rich countries, and countries with a volatile growth pattern.

In this case, our sample includes several Latin American countries which we have decided to include. We were thus left with a set of 15 countries: Brazil (1969), China (2004), Colombia (1970), Costa Rica (1965), Egypt (1998), El Salvador (1992), Guatemala (1998), Republic of Korea (1973), Malaysia

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[21] All the complete tables can be found in the appendix at the end of this annex.

(1976), Morocco (2007), Paraguay (1980), Sri Lanka (2006), Syria (2004), Thailand (1990), and Tunisia (1990).

Before proceeding to the analysis, we would like to put this new 10% growth rate into perspective. First, it is interesting to see that there is only one single (non-resource rich) country in the world which has been able to keep a 10% growth rate (on average) for a period of 15 years: China[22]. Second, it has to be highlighted that because Tanzania is currently growing at a rate of about 7%, and that it will take time to reach the 10% growth level, the country will have to grow at rates well above 10% in the years closer to 2025 to keep the 10% average growth over the fifteen years. In Figure 2.2 we represent two different growth scenarios with a 10% average: a jump increase to 10% in scenario 1 (which is rather unlikely), and a linear increase in the country's growth rate in scenario 2, where growth fluctuates between 7% and 12.7%.

Figure 2.2: Illustration of two different GDP growth scenarios
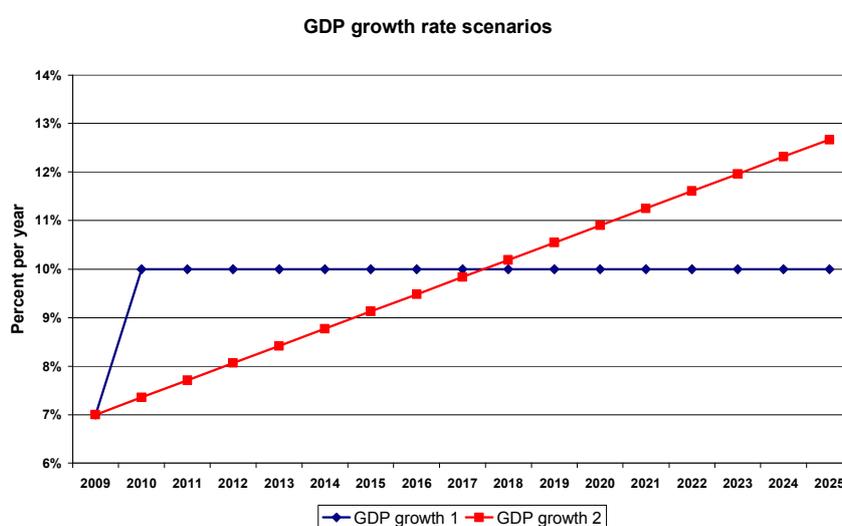
Source: Own computation

It has to be reminded, as an aside, that countries growing at rates above 10% start facing an entire new range of issues (inflation and an overheating economy being the most important ones), which we will not study in depth here.

3.   Sectoral Transformation and Implied Growth

This section compares the MMIC-O sectoral distribution with the one presented in sections 4 and 5 of the main paper (or MMIC distribution) and the Tanzanian one in 2009. In this scenario we assume that Tanzania will evolve into the MMIC-O by 2025 if it sustains an annual GDP growth rate of 10%[23]. Table 3.1 represents the sectoral distribution following MMIC-O, MMIC and the current Tanzanian one. As was highlighted in the main paper, the country would undergo a drastic shift from agriculture to industry if it was to grow at a 10% rate per year. Nevertheless, it is interesting that the sectoral distribution does not drastically change between the MMIC and the MMIC-O scenarios, and the sectoral transition seems to slow down as the country develops.

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[22] In the resource rich countries, Liberia and Equatorial Guinea were also able to grow above 10% for 15 years, but with growth fluctuating between -31% and 106% and between -5% and 71% respectively. This excessive fluctuation is the reason why we do not take them into account.

[23] As explained in the methodology section, the actual growth rate required to attain the MMIC-O GNI per capita level by 2025 is 9.8 %.

In the MMIC scenario, with an 8% GDP growth, the increase in growth rate (from the 6% growth in 2009) would happen primarily because of a sectoral transformation: shifting resources from a relatively less productive sector (agriculture) to a more productive one (industry). But in the 10% GDP growth scenario, the inter-sectoral shifts will not be enough to generate the extra 2% growth (between 8% and 10%). The sectoral transformation will thus have to be accompanied by a drastic increase in the intra-sector growth (through a dramatic increase in each sector's productivity, for instance), which is one of the reasons why increasing GDP growth from 8% to 10% is far more complex than increasing it from 6% to 8%.

Table 3.1: Sectoral Transformation comparison between Tanzania (2009), MMIC and MMIC-O

	Agric (% of GDP)	Industry (% of GDP)	Manufact. (% of GDP)	Service (% of GDP)
MMIC-O	**19.34**	**31.07**	**20.25**	**49.59**
MMIC	20.7	30.7	17.8	48.6
Tanzania 2009	28.4	24	9.4	47.6

Sources: WDI database, ES 2009

The sectoral transition depicted here with the MMIC-O scenario is of course more extreme than in the MMIC scenario: the share of agriculture declines even further, whilst the shares of industry, manufacturing and services increase even further. This trend will of course have an impact on the required growth rates in each of the sectors in the following 15 years. To analyse this, we index Tanzania's 2009 GDP decomposition at 100, we apply a 10% annual growth to the index (giving us the 459.50 value below), and we apply to this inflated index the GDP decomposition given in the MMIC-O scenario in Table 3.1. Once this is done, we calculate the implied annual sectoral growth rates, as presented in Table 3.2.

Table 3.2: Implied real GDP and sectoral growth

	GDP (Index/growth)	Agric (% of GDP)	Industry (% of GDP)	Manufact. (% of GDP)	Service (% of GDP)
Tanzania (2009)	100	28.4	24	9.4	47.6
Tanzania (2025)	459.50	88.88	142.77	93.05	227.85
MMIC-O	**10.00%**	**7.39%**	**11.79%**	**15.40%**	**10.28%**
MMIC	7.70%	5.60%	9.40%	12.10%	7.80%
Tanzania : Past 10 Years	*6.70%*	*4.40%*	*8.60%*	*8.00%*	*7.50%*
Tanzania : Past 15 Years	*5.50%*	*4.00%*	*7.20%*	*6.60%*	*5.90%*

Source: WDI (2010), ES (2009), own computation

Comparing the implied MMIC-O growth rates with the past 10 years growth in Tanzania gives a clear idea of the challenge related to a 10% GDP growth: growth in agriculture needs to increase by about 3 percentage points per year (a 68% increase), growth in industry has to increase by about 3.2 percentage points per year (a 37% increase), growth in manufacturing needs to increase by about 7.4 percentage points per year (a 93% increase, i.e. close to double the actual growth rate), and finally growth in the service needs to increase by about 2.8 percentage points per year (a 37% increase). Of course, the challenge is not only to drastically increase the growth rates in each of the sectors, but is also to maintain this growth rate for the next 15 years. Besides, as highlighted at the end of the preceding section, if the country takes time to reach those growth rates, the growth rate required in the years just preceding 2025 might be even higher.

4. Other Macroeconomic Indicators

Table 4.1 below displays a set of macroeconomic indicators, comparing the situation in the MMIC-O scenario, the MMIC scenario and the current Tanzanian situation.

Table 4.1: Comparison of the Macroeconomic indicators between Tanzania (2009), MMIC and MMIC-O

	Exports (% of GDP)	Imports (% of GDP)	GFKF (% of GDP)	FDI (% of GDP)*	G Dom savings (% of GDP)	Net ODA (% of GNI)	Rev (% of GDP)	M2 (% of GDP)
MMIC-O	**27.18**	**32.17**	**25.14**	**4.3**	**20.61**	**1.87**	**22.80****	**50.72**
MMIC	30.5	37.4	26.6	4.5	21.6	4.5	20.7	51.5
Tanzania 2009	13.2	29	25	3.9	17.9	12.9	16.2	27.5

Source: WDI (2010), ES (2009), own computation. * = 2007 data; **= data based on 4 observations

The MMIC-O scenario shows an export share of GDP over twice as high as the actual Tanzanian one, whilst the import share of GDP is only 11% higher: in order to reach this, exports and imports would have to grow by 15% and 10.7% per year respectively. This also means that the trade deficit should fall sharply, from the current 16% to 5% in 2025. Gross fixed capital stays roughly at the same level, meaning that it has to grow just above 10% per year in order to keep the same share of GDP.

The FDI level for the MMIC-O in the year they reached a GNI per capita PPP of US$ 4070 is similar to the MMIC scenario one. If we take the 2007 level for all our benchmark countries in 2007 (as explained earlier, in order to avoid the effects of the global financial crisis), on average they received about 4.3% in FDI in 2007: with this target, Tanzania's FDI would have to grow by 10.7% per year.

The shares of gross domestic savings, revenues and M2 in GDP in the MMIC-O scenario remain roughly the same as in the MMIC case. The implication is that gross domestic savings would have to grow at a rate of 11% per year, revenues at a rate of 12.4% a year, and finally M2 at a rate of 14.3% per year. On the other hand, ODA as a share of GDP is now less than half the MMIC figure, and only 14% of the actual ODA Tanzania is receiving.

5. Social and Human Development

Transformation of Tanzania into a MMIC-O will entail significant changes in the Social and Human development sectors. The Table 5.1 draws a broad picture of these changes.

Table 5.1: Comparison of different social and human development indicators

	Employ. in agric (% of total)	Employ. in indust. (% of total)	Rural pop (% of total)	Secondary enrolment, (% gross)	Electric power (kWh per capita)	Poverty headcount at $2 a day (PPP)	GINI index	Pop growth (annual %)
MMIC-O	**37.66**	**22.84**	**56.07**	**48.97**	**551.17****	**20.95***	**45.59***	**2.07**
MMIC	41.2	20.5	62.3	46.5	403.7	48.4	38.9	2.2
Tanzania 2009	74.6	5	74	31.3	81.7	46	34.6	2.9

Source: WDI (2010), ES (2009), ILFS (2006), own computation. * = based on three observations, **=median.

The employment in agriculture sector is expected to contract to around 38 % from a current figure of 75 %, with a concomitant rise in industrial employment from 5 % to 23 %. Hence, a more rapid urbanisation than that was predicted in the MMIC case, with the percentage of rural population reducing from 74 % to 56 %.

Education levels of the population also need to be improved to meet the skill-demand of a middle income country. This is reflected in the requirement to increase the secondary school enrolment from a current 31.3 % to 49% (a 57% increase). While this reflects a huge shift in the soft-

infrastructure of the country, an even larger increase is required in the hard-infrastructure. The per capita electricity consumption is widely used as a proxy for a country's infrastructure level. A shift to MMIC-O will involve a gargantuan increase from 82 kWh per capita at present to 672 Kwh per capita if we take the mean rather than the median). To decrease the effect of outliers, we decided to use the median, i.e. 551.2 kWh pc; in this case, the country still needs to roughly multiply the per capita consumption by 6.7 (implying an annual growth rate of about 12.7% in per capita terms, or 15.7% in total kWh production terms). So the anticipated increase in infrastructure is enormous and this could be a very important hurdle in Tanzania's progress towards a MMIC-O.

The poverty levels are expected to lower significantly, while there could still be an increase in inequality due to the disproportional increase of income among the urban elites; this is reflected by the increase in the Gini-index (from 35 to 46).

In order to better understand the required transformation, Table 5.2 represents a 5-year snapshot of the economy, from 2000 to 2025, and compares the implied growth rates pre- and post-2009.

Table 5.2: Historical and projected values for the main social and human development indicators[24]

	Tanzania 2000	Tanzania 2005	Tanzania 2009	Tanzania 2010 (p)	Tanzania 2015 (p)	Tanzania 2020 (p)	MMIC-O 2025 (p)	Implied annual growth 2000-2009	2010-2025
Employ. in agric (% of total)	82.10	-	74.60	71.48	60.21	48.93	37.66	-1.06%	-4.18%
Employ. in indust. (% of total)	2.60	-	5.00	5.50	11.28	17.06	22.84	7.54%	9.96%
Rural pop (% of total)	77.32	75.80	74.00	72.73	67.18	61.62	56.07	-0.49%	-1.72%
Secondary enrolment, (% gross)	7.00	11.70	31.30	34.00	38.99	43.98	48.97	18.11%	2.46%
Electric power (kWh per capita)	58.01	69.29	81.70	92.05	245.09	398.13	551.17	3.88%	12.67%
Poverty headcount at $2 a day (PPP)	-	-	46.00	43.79	36.18	28.56	20.95	-	-4.80%
GINI index	-	-	34.60	35.20	38.66	42.13	45.59	-	1.74%
Pop growth (annual %)	2.80	3.00	2.90	2.84	2.58	2.33	2.07	0.39%	-2.09%
Pop growth (annual %), NBS (2010)	2.80	3.00	2.90	2.90	2.70	2.50	2.50	0.39%	-0.92%

Source: WDI (2010), ES (2009), ILFS (2006), own computation. NB: the 2010 value for the GER in secondary schools is not a projection, but comes from the MoE (2011).

The shift in employment between agriculture and industry is already present, but it needs to accelerate (especially in agriculture) in order to meet the new MMIC-O target. This shift in population and the massive increase in the required growth rate of the sector, means that the output per worker in the agricultural sector will have to increase by 8.4% per year in the MMIC-O case (compared to the required 5.8% in the MMIC case, both far higher than the country's 2000-2006 average of 3.4%). In the same vein, the shift from rural to urban areas is already happening in the country, but it is likely to accelerate quite dramatically in the next 15 years. The gross enrolment in secondary school has already been increasing; these efforts need to be maintained without losing out on quality.

Electricity consumption has been increasing far below the required rate in order to reach the MMIC-O target: this shows the impressive gap in infrastructure in the country. To put it into perspective, the electricity production (in total kWh production terms) will need to be multiplied by 3.5 by 2015, and by 10 by 2025. As poverty and inequality data is missing, we can't make any definitive statement. Finally, we can see that the population growth projections made by the NBS (2010) are much higher than the targeted ones in the MMIC-O scenario. This, of course, will have a negative impact on the possibility of reaching any "per capita" target, especially the GNI ones.

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[24] The projections are found by applying the MMIC-O implied annual growth rate to the initial 2009 values.

6. <u>Conclusion</u>

The aim of this Annex is to show what it would imply for Tanzania to grow at around 10% per year for the next 15 years. We started by briefly highlighting the methodology we were using, and gave some comments on the new target and the 10% growth scenario. In section 3 we analysed the sectoral transformation and growth, and realised that the MMIC-O target translated into an even more rapid sectoral transformation and implied sectoral growth than the one in the MMIC scenario. Section 4 highlights the challenges and developments implied by a 10% growth target, especially concerning exports and the trade balance. Finally, section 5 presents the social and human developments that will have to accompany the economy's high growth target, and a 5-year snapshot of this evolution.

Growing at a 10% rate per year implies changes in each and every sector of the economy, and taking into account the relationships between those indicators will be crucial in order to reach the target. For instance, if Tanzania truly wants to have its manufacturing sector growing at over 15% per year, radical changes will have to happen: (i) in order to have enough labourers in the sector, productivity will have to increase drastically in the agricultural sector (which will also trigger a population shift which will have to be dealt with in the main cities), (ii) in order for these newcomers in the manufacturing sector to have the correct skills, major investments will have to happen in the education sector (which implies school buildings, books and study material, teachers training…), (iii) in order for the companies to compete efficiently, infrastructure will have to improve significantly (with an increase in electricity production, road and railway constructions…), and so forth. GDP and sectoral growth needs to go hand in hand with structural changes, otherwise the country will stand no chance of achieving its targets.

The double-digit growth rate also brings other challenges, which are far graver than the ostensible inflated sectoral growth rates. The political-economy of a double-digit growth and the associated requirements for social-stability are totally different from a moderate growth scenario. For instance, the environmental stress and other issues arising from alarming rates of urbanization concomitant should not be undermined. Also, excessive growth rates introduce us to scenarios where economies of scale turn to diseconomies of scale, as in the case of megacities, or a situation where the economy is divided into high growth islands and stagnant rural areas, having disastrous distributional consequences. Hence, by aiming at double-digit growth for Tanzania, we are entering the terrains of a world we know very little about. This calls for extreme caution and realism in our targets and development plans.

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Appendix:

TABLE 1 : KEY MACROECONOMIC INDICATORS COMPARISON												
Country Name	Year	Agriculture (% of GDP)	Industry (% of GDP)	Manufact. (% of GDP)	Services (% of GDP)	Exports (% of GDP)	Imports (% of GDP)	Gross fixed capital formation (% of GDP)	FDI, net inflows (% of GDP)*	Gross domestic savings (% of GDP)	Net ODA (% of GNI)	Revenue, excl. grants (% of GDP)
Brazil	1969	13.22	37.36	28.85	49.42	6.62	6.55		2.53	22.42	0.52	
China	2004	13.39	46.23	32.37	40.38	33.95	31.40	40.73	3.96	45.81	0.09	
Colombia	1970	25.69	28.30	21.15	46.02	14.31	15.82	18.08	4.36	18.66	2.29	
Costa Rica	1965	24.57	21.72		53.71	25.26	28.75	16.38	7.22	12.50	2.63	
Egypt	1998	17.11	30.86	18.29	52.02	16.21	25.71	21.33	8.87	12.00	2.28	
El Salvador	1992	14.56	30.28	24.40	55.16	16.09	32.43	17.18	7.40	2.18	6.78	
Guatemala	1998	23.44	19.99	13.57	56.57	18.17	26.25	16.65	2.18	9.31	1.21	9.53
Korea, Rep.	1973	26.74	29.21	22.23	44.04	28.68	31.85	24.18		22.44	2.06	
Malaysia	1976	27.64	35.05	18.52	37.31	48.95	39.03	22.52	4.53	31.18	0.56	
Morocco	2007	13.73	27.31	15.04	58.95	35.75	44.86	31.25	3.73	23.37	1.44	34.75
Paraguay	1980	28.62	27.44	16.01	43.93	15.31	28.70	30.17	1.69	18.26	0.66	
Sri Lanka	2006	11.34	30.64	19.23	58.02	30.13	41.13	24.87	1.86	16.98	2.82	16.23
Syria	2004	21.86	34.64	9.75	43.50	40.57	37.78	23.83	3.06	20.20	0.43	
Thailand	1990	12.50	37.22	27.20	50.28	34.13	41.65	40.38	4.58	33.84	0.94	
Tunisia	1990	15.72	29.79	16.89	54.49	43.56	50.60	24.36	4.30	20.02	3.29	30.71
Mean	**MMIC-O**	**19.34**	**31.07**	**20.25**	**49.59**	**27.18**	**32.17**	**25.14**	**4.31**	**20.61**	**1.87**	**22.80**
Median	**MMIC-O**	**17.11**	**30.28**	**18.87**	**50.28**	**28.68**	**31.85**	**24.00**	**4.13**	**20.02**	**1.44**	**23.47**
Mean	**MMIC**	**20.7**	**30.7**	**17.8**	**48.6**	**30.5**	**37.4**	**26.6**	**4.5**	**21.6**	**4.5**	**20.7**
Median	**MMIC**	**19.6**	**29.1**	**16.4**	**50.4**	**28.9**	**32.2**	**26.3**	**3.7**	**22.6**	**2.7**	**18.5**
Tanzania	**2009**	**28.4**	**24**	**9.4**	**47.6**	**13.2**	**29**	**25**	**3.9**	**17.9**	**12.9**	**16.2**

MMIC-O = MMIC Optimistic scenario
MMIC = IGC-POPC paper definition
* = 2007 data

Source: WDI 2010, ES (2009)

TABLE 2 : KEY HUMAN AND SOCIAL DEVELOPMENT INDICATORS COMPARISON

Country Name	Year	Employment in agriculture (% of total employment)	Employment in industry (% of total employment)	Rural population (% of total population)	School enrollment, secondary (% gross)	Money and quasi money (M2) as % of GDP	Electric power consumption (kWh per capita)	Poverty headcount ratio at $2 a day (PPP) (% of pop)	GINI index	Poverty gap at $1.25 a day (PPP) (%)	Population growth (annual %)
Brazil	1969			45.30		17.92					2.52
China	2004	44.10	17.70	60.52	66.97	141.81	1586.25				0.59
Colombia	1970			45.20	23.98	19.84					2.60
Costa Rica	1965			64.50		19.61					3.38
Egypt	1998	29.80	22.30	57.32	70.07	73.28	867.32				1.88
El Salvador	1992	35.80	22.70	48.88	40.85	30.10	385.01				1.55
Guatemala	1998	37.60	23.20	55.70	31.27	19.53	344.44	29.85	55.65	15.65	2.29
Korea, Rep.	1973			54.92		31.47	399.06				1.99
Malaysia	1976			61.44		60.15	463.90				2.30
Morocco	2007	43.30	20.30	44.32	55.85	97.40	707.05	13.97	40.88	2.50	1.20
Paraguay	1980			58.30	26.52	19.43	240.40				2.78
Sri Lanka	2006	32.20	26.60	84.90	87.00	37.93	399.23				1.10
Syria	2004	27.00	25.60	47.12	63.11	74.18	1322.46				3.07
Thailand	1990	63.30	13.60	70.60	29.06	68.42	708.13				1.36
Tunisia	1990	25.80	33.60	42.10	44.03	49.67	638.43	19.04	40.24	5.87	2.43
Mean	MMIC-O	37.66	22.84	56.07	48.97	50.72	671.81	20.95	45.59	8.01	2.07
Median	MMIC-O	35.80	22.70	55.70	44.03	37.93	551.17	19.04	40.88	5.87	2.29
Mean	MMIC	41.2	20.5	62.3	46.5	51.5	403.7	48.4	38.9	5.3	2.2
Median	MMIC	43.3	18	64	47.6	43.1	323.6	48.4	38.5	4.6	1.9
Tanzania	2009	74.6	5	74	31.3	27.5	81.7	46	34.6		2.9

Source: WDI 2010, ES (2009)

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