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by Alexei P. Kireyev

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Middle East and Central Asia Department

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Abstract

The paper examines the poverty-reducing and distributional characteristics of Djibouti's economic growth, and discusses policies that might help make growth more inclusive. It covers the period between 2002 and 2013, for which comparable household surveys are available. The main findings are that while in the past decade the overall level of poverty in Djibouti declined, there have been no clear signs of improvements in either equality or growth inclusiveness. Growth has not been inclusive and benefitted mainly those in the upper part of the income distribution. These conclusions should be treated as indicative. Progress in poverty reduction and inclusiveness would require not only sustained high growth but also the creation of opportunities in sectors with high earning potential for the poor. Better targeted social policies and more attention to the regional distribution of spending would also help reduce poverty and improve inclusiveness.

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I. INTRODUCTION

1. Djibouti is a small East African state dependent on rents from ports and military bases. With the population approaching one million and a nominal GDP of about US$ 2 billion, Djibouti remains a low-income economy with high poverty and unemployment rates. The authorities' "Vision Djibouti 2035" development plan aims at making the country a middle-income economy within the next twenty years. The strategy targets raising medium-term growth to 7.5–10 percent and making it more inclusive, tripling per capita income, and reducing unemployment. It comprises five pillars: peace and national unity, good governance, economic diversification, human capital development, and regional integration.

2. The purpose of the paper is to analyze inclusiveness of growth in Djibouti and draw policy conclusions. For the purposes of this paper, inclusive growth is defined as growth that helps reduce inequality across all dimensions – between rich and poor, males and females, and urban and rural areas. Correspondingly, the rate of poverty reduction is split into growth and distributional components.

3. The analysis in the paper is based mainly on national data. Two surveys of household budgets and consumption (EDAM-IS) conducted by the Djiboutian Directorate of Statistics and Demographic Studies (DISED) in 2002 and 2013, although not comparable in all respects, contain sufficient information for an initial analysis of growth inclusiveness in Djibouti. The 2015 surveys on employment, informal sector and household consumption (EDESIC 2015-16), and a survey of the employment situation were used as supplementary sources. Therefore, the period covered in this paper is 2002-13, and the study is based on two household surveys, for 2002 and 2013.

4. The paper concludes that growth in Djibouti in the past decade has not been inclusive. This conclusion should be treated as indicative. The richest groups of the population have benefitted from growth more than the poorest. As a result, inequality increased. The negative impact of the distributional component on poverty reduction has largely offset the benefits of economic growth for the poor. If the distributional aspect of growth had been taken into account, poverty reduction in the past decade, particularly for extreme poverty, would have been faster and deeper. Public policies, in particular fiscal and structural, may play a significant role in making growth more inclusive.

5. The rest of the paper is structured as follows. Part II reviews the factors that affect growth inclusiveness. Among them, the overall growth rate of the economy and consumption, the poverty rate and gap, inequality in income distribution, unemployment and the labor market, and gender disparities. Part III focuses on the diagnostic of growth inclusiveness. In particular, it discusses data requirements and constraints, the growth and distribution components of the changes in the poverty rate, and growth incidence curves. Part IV offers policy options, drawing on the result of the aforementioned analysis for Djibouti and best international practices.

II. FACTORS OF GROWTH INCLUSIVENESS

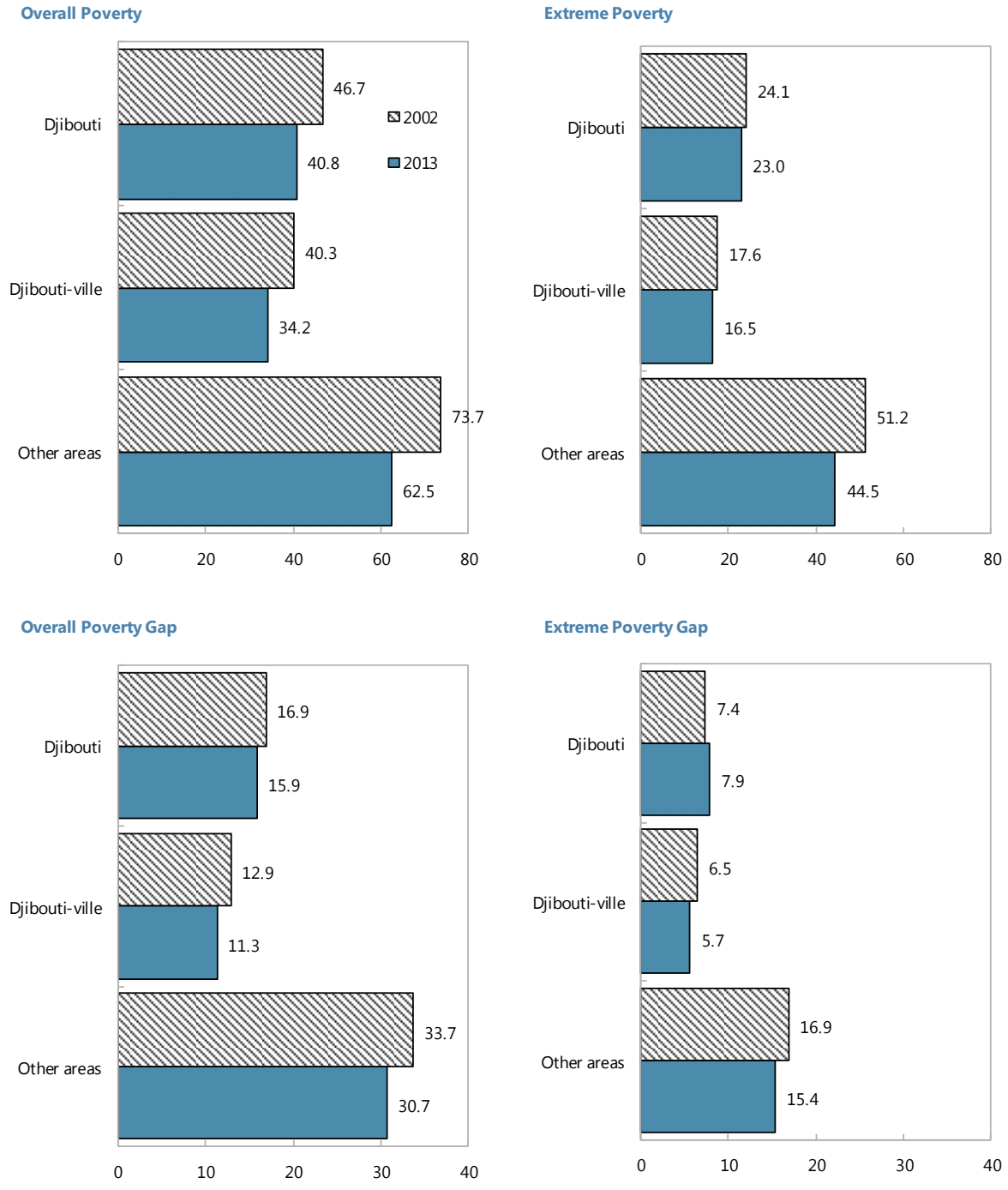
A. Growth and Consumption

6. Djibouti's economic growth in the past decade has been uneven and insufficient to make a meaningful dent in poverty. Economic growth during this period has averaged 4 percent, but fluctuated sharply from 1.6 percent during the crisis of 2009 to over 6 percent in recent years with the start of a massive investment program financed by China (Figure 1). With an average population growth of about 2.8 percent, real growth in per capita terms has been positive for most of the period with the exception of 2009. Under an optimistic scenario, growth is projected to remain robust, including in per capita terms, assuming that the investment will be efficient and the planned reforms will be implemented. In an adverse scenario, growth may return to its trend level of about 4 percent. Both growth and populations rely on estimates, as national accounts and demographic statistics are not sufficiently developed.

7. The poverty rate is calculated in relation to the Djibouti-specific poverty line. The line was last revised in 2013 and is defined as the income in Djiboutian francs needed so that an average Djiboutian adult could preserve his/her physical activity. The poverty line is calculated based on the price of a basket of food that would provide an adult consumer with 2115 kilocalorie daily, which is called the food poverty line. Based on the food poverty line, two further measures of poverty have been defined. An extreme poverty line refers to the food poverty line that is adjusted for a regression-estimated nonfood income needed to get the minimum necessities of life. The assumption of this regression-based estimate is that extremely poor people may decide to substitute their consumption of food with nonfood products equally needed for survival, such as basic clothing and shelter. The overall (global) poverty line refers to the food poverty line that is adjusted for an additional income needed to cover minimal food needs plus some, but not all, nonfood needs. The 2013 overall poverty line in Djibouti was calculated at DJF 147,936 and the extreme poverty line at DJF 98,709 in terms of consumption on an annualized basis (DISED, 2013a).

8. The overall and extreme poverty in Djibouti remains high, at 41 percent and 23 percent, respectively. Despite moderate economic growth over the last decade (Figure 1), the overall poverty rate declined during 2002-13 from 47 percent to 41 percent, while extreme poverty only dropped insignificantly from 24 to 23 percent (DISED 2013a).

Figure 1. Poverty Rates and Gaps, 2002–13
(Percent)



Source: DISED, 2013a.

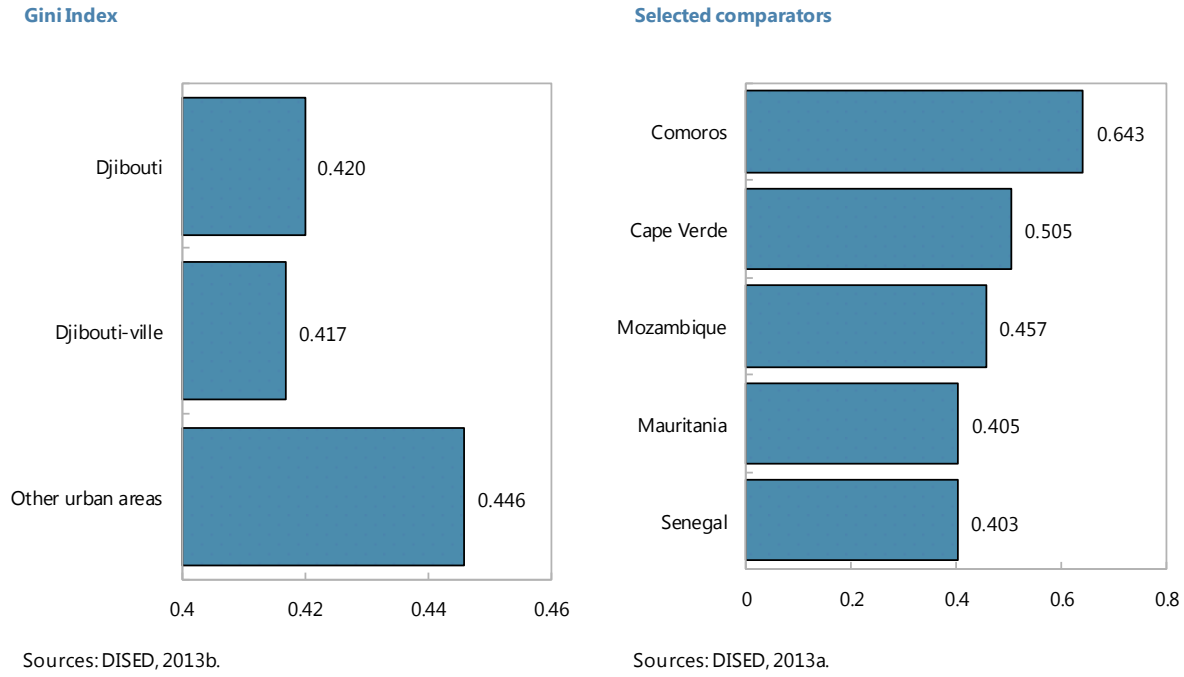
9. Regional disparities in poverty levels vary widely, with the poverty rates higher in rural areas than in urban centers. In 2013, in Djibouti-ville, the capital of the country, overall poverty stood at 34 percent and extreme poverty at 17 percent, whereas in the rest of the country, mainly in rural regions, about 63 percent of the population lived in poverty and 45 percent in extreme poverty (DISED, 2013a). The Ali Sabieh and Obock regions have the highest levels of poverty. Again, while the decline in the overall poverty rates was statistically significant, it was not that case for the extreme poverty rate, which has broadly remained at the unchanged high level in the past decade.

10. The poverty gap seems to have declined, although the margin of error of these estimates is high. This poverty gap is calculated as the mean distance between the actual household consumption and the poverty rate expressed in percent of the poverty line. The poverty gap measures the depth of poverty and the changes of the average consumption of the poor relative to the poverty line. In the case of Djibouti, the overall poverty gap declined in 2002-13, from 17 to 16 percent, mainly at the expense of rural areas. At the same time, the extreme poverty gap increased from 7.4 to 7.9 percent. However, this increase was not statistically significant and it is not possible to assert with a high degree of confidence that there were any substantive changes in the poverty gap.

B. Inequality and Distribution

11. Inequality in household consumption remains high. The 2013 government household survey estimated the Gini index at 0.44, a slight increase from 0.39 in 2002 (Figure 2). Judging by the Gini index, inequality is more pronounced in rural areas and less in the capital, although the differences are not large and may not be statistically significant. At the same time, inequality in Djibouti is higher than in Mauritania, Senegal, or lower-middle-income countries more broadly (0.414 on average for 2005–12), but lower than in Comoros, Cape Verde, Mozambique, and some other comparator countries (DISED, 2013a).

Figure 2. Gini Inequality, 2002–13
(Index)



Source: DISED.

12. With little comparability between household surveys, the internationally harmonized poverty data can be used for the distributional analysis in Djibouti. For this data published by the World Bank, global poverty indicators are based on the international poverty line of $1.9 /a day in 2011 PPP at 2011 prices and thus cannot be directly compared with national level poverty rates, which are derived using country specific poverty lines estimated in local currencies (Figure 3). Therefore, there may be some differences between the national poverty indicators calculated by DISED in Djibouti, which are not comparable across countries as they are based on a country-specific poverty line, and the internationally comparable poverty indicators, recalculated by the World Bank.

13. Several statistical metrics allow for the evaluation of different aspects of inequality. The squared poverty gap[2] assesses inequality as it captures differences in the severity of poverty among the poor. In 2002-13, in Djibouti this indicator increased from 2.8 to 3.6. The Watts index is a distribution-sensitive poverty measure as it reflects the fact that an increase in income of a poor household reduces poverty more than a comparable

[2] The squared poverty gap index averages the squares of the poverty gaps relative to the poverty line. It takes into account not only the distance separating the poor from the poverty line (the poverty gap), but also the inequality among the poor because it places a higher weight on households further away from the poverty line.

(continued…)

increase in income of a rich household. The Watts index[3] also increased in Djibouti from 8.2 to 11.6. The Gini coefficient shows a deviation of income per decile from the perfect equality line also increased in Djibouti from 40 to 44. The mean log deviation (MLD) index[4] is more sensitive to changes at the lower end of the income distribution. It increased in Djibouti from 27.3 to 35.0.

Figure 3. Inequality and Distribution Indicators

Year	Mean ($/month)	Poverty line (PPP$/day)	Headcount (%)	Poverty gap (%)	Squared poverty gap	Watts index	Gini index	Median	MLD index	Population (mil.)
2013	147.7	1.9	22.5	7.5	3.8	11.6	44.1	106.7	35.0	0.9
2002	134.2	1.9	20.6	6.0	2.6	8.2	40.0	100.6	27.3	0.8
					Consumption share by deciles (%)					
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
2013	1.7	3.2	4.2	5.5	6.6	7.9	9.4	11.5	15.9	34.1
2002	2.3	3.7	4.8	5.8	6.9	8.2	9.8	12.0	15.7	30.8
					Consumption decile ratios					
	5th/1st				10th/5th					10th/1st
2013	3.9				5.1					19.9
2002	3.0				4.5					13.3
					Cumulative consumption of bottom *X*					
	x=10%	x=20%	x=30%	x=40%	x=50%	x=60%	x=70%	x=80%	x=90%	All
2013	25.3	36.3	44.9	53.9	62.7	71.7	81.4	92.4	108.1	147.7
2002	31.0	40.3	48.3	55.7	63.1	70.9	79.5	89.7	103.2	134.2

Source: PovCalNet, World Bank, 2017, http://iresearch.worldbank.org/PovcalNet.

14. Other internationally comparable distribution indicators point at strong and growing inequality. The decile ratio is the ratio of the average consumption of a selected 10 percent of the population divided by the average consumption of some other 10 percent. In 2002, households at the median of the distribution had a consumption level 3 times higher than the poorest households located in the first percentile. By 2013, this difference already reached 3.9. In 2002, the richest households consumed on average 4.5 times more than the average households, and 13.3 times more than the poorest households. By 2013, these ratios increased to 5.1 and 19.9, pointing at increasing inequality in consumption.

C. Demographics and Employment

15. Djibouti's demographics are challenging with almost 75 percent of the population younger than 35 years. With the overall population of a little less than 1 million, the economically active population of 15-64 year-olds constitutes 62 percent, over 82 percent of which live in cities. Migration is relatively low as only 13 percent of the population consider themselves migrant. This number may be underestimated as the large-scale migration, exacerbated by the refugee crisis in neighboring Yemen, is exerting

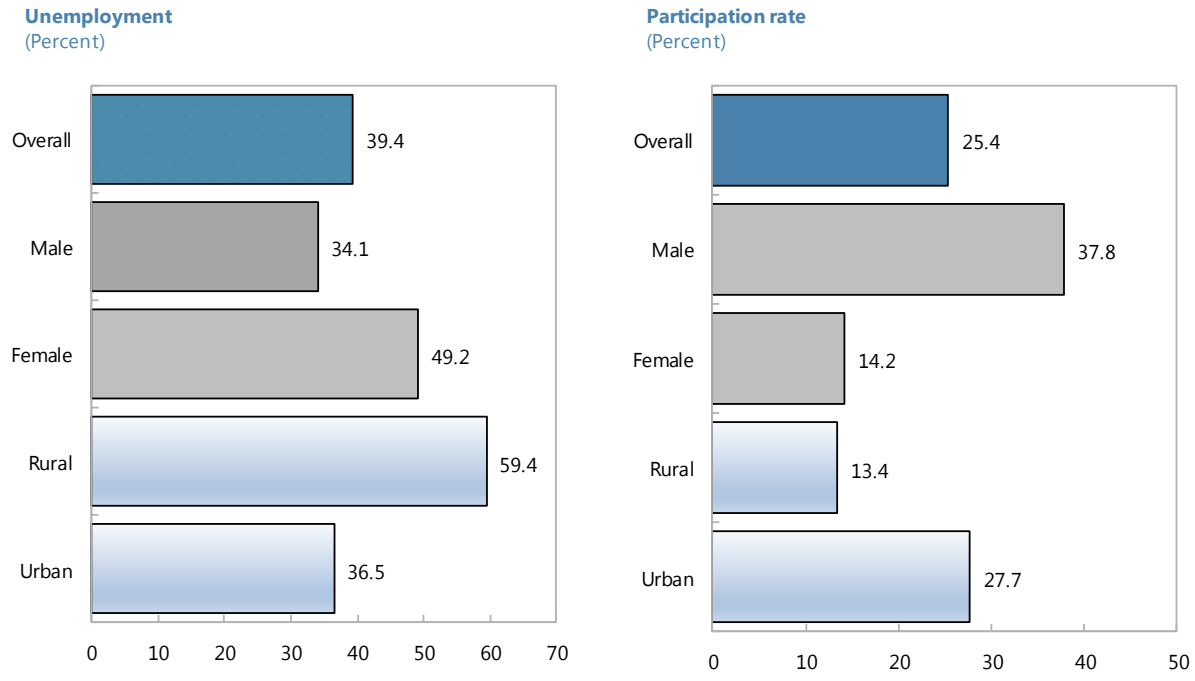
[3] The Watts index is defined as a logarithm of the quotient of the poverty line and a geometric mean of an income standard applied to the censored distribution.

[4] The MLD is an index of inequality given by the mean across the population of the log of the overall mean divided by individual income.

additional pressure on basic social services and on the already tight job market. The population is relatively young—almost 75 percent is less than 35 years old—meaning a large proportion of the labor force are job market entrants who lack the skills needed for employment. Over 80 percent of the economically inactive population is concentrated in urban areas, of them 57 percent do not have any education, but most are of the economically active age of 15-64 years old and represent the main source of labor supply to the job market (DISED, 2016).

16. Unemployment at 39 percent remains widespread and is one of the highest in the world. In Djibouti, an unemployed individual is defined as a person of over 15 years old who has not worked for over 7 days and has been looking for a job for over 30 days. The unemployment rate was estimated by the authorities' survey of employment, the informal sector, and household consumption at 39 percent in 2015 (Figure 4). It is much higher among women (49 percent) than men (34 percent), and in rural areas (59 percent) than in urban areas (37 percent). Youth unemployment is much higher than the overall unemployment rate. The labor participation rate, which measures the share of employed in the economically active part of the population, did not exceed 25 percent. Again, disparities are very large between male and female participation rates and between rural and urban areas, with women and people living in rural areas characterized by substantially lower participation rates (DISED, 2016).

Figure 4. Employment Challenge

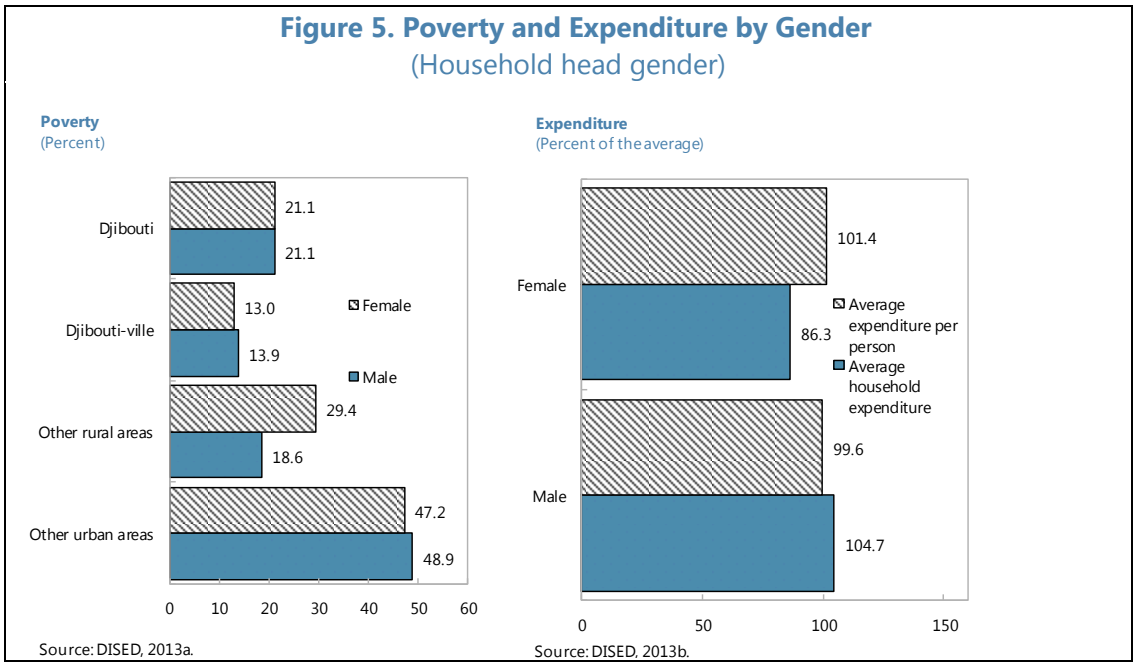


Source: DISED, 2016.

17. Much of the precarious employment situation results from the underdeveloped private sector and an oversized public sector. The public sector cannot generate enough jobs for new entrants, while the private sector remains underdeveloped. The public sector provides 60 percent of jobs, of which, 46 percent is in the central government and 16 percent is in public enterprises. The private sector employs 20 percent and the remaining 10 are self-employed (DISED, 2016). Moreover, economic growth in the past few years has been driven by capital-intensive investment in the ports and related activities, with limited trickle-down effects. Many of the jobs created have been taken by expatriates, because of a low domestic skills base. Other activities remain underdeveloped. Agriculture, the primary source of livelihood in most low-income countries, is miniscule because of the unfavorable climate. Investment has been narrowly concentrated and the business environment has been challenging. Services—the main driver of growth in recent years—and construction activities account for only about 13 percent of formal employment. Much of the current investment boom is also narrowly concentrated on port and transportation services, reinforcing the need for reform to spread the benefits of growth. The business environment remains difficult because of high costs, weak contract enforcement, red tape, and low access to finance.

D. Gender and Inequality

18. Gender is not a major factor in the distribution of poverty. The overall poverty rate within female-headed households (about 19 percent of total households) is 21 percent, same as within male-headed households (Figure 5). There are no significant differences in poverty between female and male-headed households in the capital and in other cities. At the same time, the difference is very significant in rural areas, where the poverty rate of female-headed households is 29 percent compared to 17 percent for male-headed households. The average expenditure per person is broadly equal in both types of households. However, averages of household expenditures in male-headed households are significantly higher than in female-headed households, 105 percent relative to 86 percent of the average.



Gender inequality remains substantial**.** Only one in four women aged 15 to 64 is active in the labor market compared to 54 percent of men. Low literacy rates and educational attainment depress women labor force participation. Only about 54 percent of women with at least three years of university studies are in the labor market compared to 76 percent of men. While overall female literacy is 53 percent relative to 67 percent for men, the literacy rate of women in rural areas is only 20 percent. Similarly, the national primary and secondary school enrollment rate for girls is over 50 percent, but only 40 percent of primary school-aged girls and 24 percent of secondary school-aged girls go to school in rural areas. Djibouti has the highest ratio of maternal mortality in the region and one of the highest in the world (DISED, 2016).

III. INCLUSIVE GROWTH DIAGNOSTICS

A. Measures of Growth Inclusiveness

19. Growth is usually considered inclusive if its benefits are widely shared across the population. Although there is no commonly accepted definition, inclusive growth usually refers to growth that provides equal opportunities while social policies redress inequalities in outcomes, so that all segments of society can share in the benefits of growth (see IMF, 2013, for an overview). For analytical purposes, growth is inclusive if it is high, sustained over time, and broad based across sectors; creates productive employment opportunities; and benefits a large part of a country's population. Additional dimensions of inclusive growth regard gender equality, regional diversification, and empowerment of the poor. Inclusive growth requires also inclusive institutions. This paper focuses only on the distributional characteristics of growth. Therefore, in this paper growth is considered inclusive if it helps improve equality.

20. The quality of the analysis of growth inclusiveness depends on data availability and quality. Such analysis requires at least two household surveys based on a comparable methodology, as well as data on income and consumption by households, which is difficult to collect in Djibouti because most of the population is employed in the informal sector (Foster and others, 2013). The 2016 survey estimates that the informal sector employs about 20 percent of the economically active population, compared with 46 percent employed by the public administration and 14 percent by public enterprises (DISED, 2016). The data may include outliers at both tails of the distribution. Although the outliers have been routinely corrected in Djibouti's household surveys, they may lead to negative growth rates of the incidence curve for both tails of the distribution in some years. Also, some parameters, such as the size of households and other sociodemographic variables (household head, education level, marital status, employment sector, place of residence, regional distribution, etc.) can vary from survey to survey, affecting poverty measures. Finally, the timing and the definitions of key variables, including the coverage of rural and urban areas, should be the same in different surveys to achieve consistent poverty estimates.

21. The analysis of poverty and growth data in Djibouti continues to be limited due to the lack of data and more representative statistics. The World Bank has provided support to the Directorate of Statistics and Demographic Studies (DISED) for the 2017 household income and expenditure survey (EDAM). The strategy aims to apply best practices to understand better household consumption patterns and capture their ability to meet basic needs. The target is to produce reliable indicators, at the national level and disaggregated by region, gender, vulnerability status, etc. The overarching objective is to enhance Djibouti's welfare monitoring systems and its ability to inform policymaking.

B. Change in Poverty: Growth and Distribution Effects

22. As a first step toward growth inclusiveness diagnostics, the change of the poverty rates can be decomposed into the growth and distributional effects. Following Datt and Ravallion (1992), the poverty rate P_t can be expressed as:

$$P_t = f(z/\mu_t, L_t) \qquad (1.1)$$

where z is the poverty line, μ is the mean income and L_t is the Lorenz curve at time t, representing relative income inequalities. From (1.1) it is seen that the poverty rate may change either because the change in the mean income or relative inequality. Intuitively, a generalized salary increase raises the mean income and improves the poverty rate relative to the fixed poverty line for any fixed distribution; a transfer from the richest household to the poorest household reduces poverty by improving distribution with no change in the mean income.

23. Therefore, the change of the poverty rate over time $P_{t+n} - P_t$ can be decomposed into a growth effect and a distribution effect. The growth effect G is defined as the change in poverty because of a change in the mean income of the distribution, while assuming that the Lorenz curve that reflects relative income inequalities does not change L_r. The distribution effect D is defined as a change in poverty because of the change in relative income inequality, while assuming the mean income does not change. R is a residual.

$$P_{t+n} - P_t = G(t, t+n; r) + D(t, t+n; r) + R(t, t+n; r) \tag{1.2}$$

From (1.1 and 1.2), the growth effect is defined:

$$G(t, t+n; r) \equiv P(z / \mu_{t+n}, L_r) - P(z / \mu_t, L_r) \tag{1.3}$$

and the distribution effect is defined as:

$$D(t, t+n; r) \equiv P(z / \mu_r, L_{t+n}) - P(z / \mu_r, L_t) \tag{1.4}$$

In both cases, there are residuals.

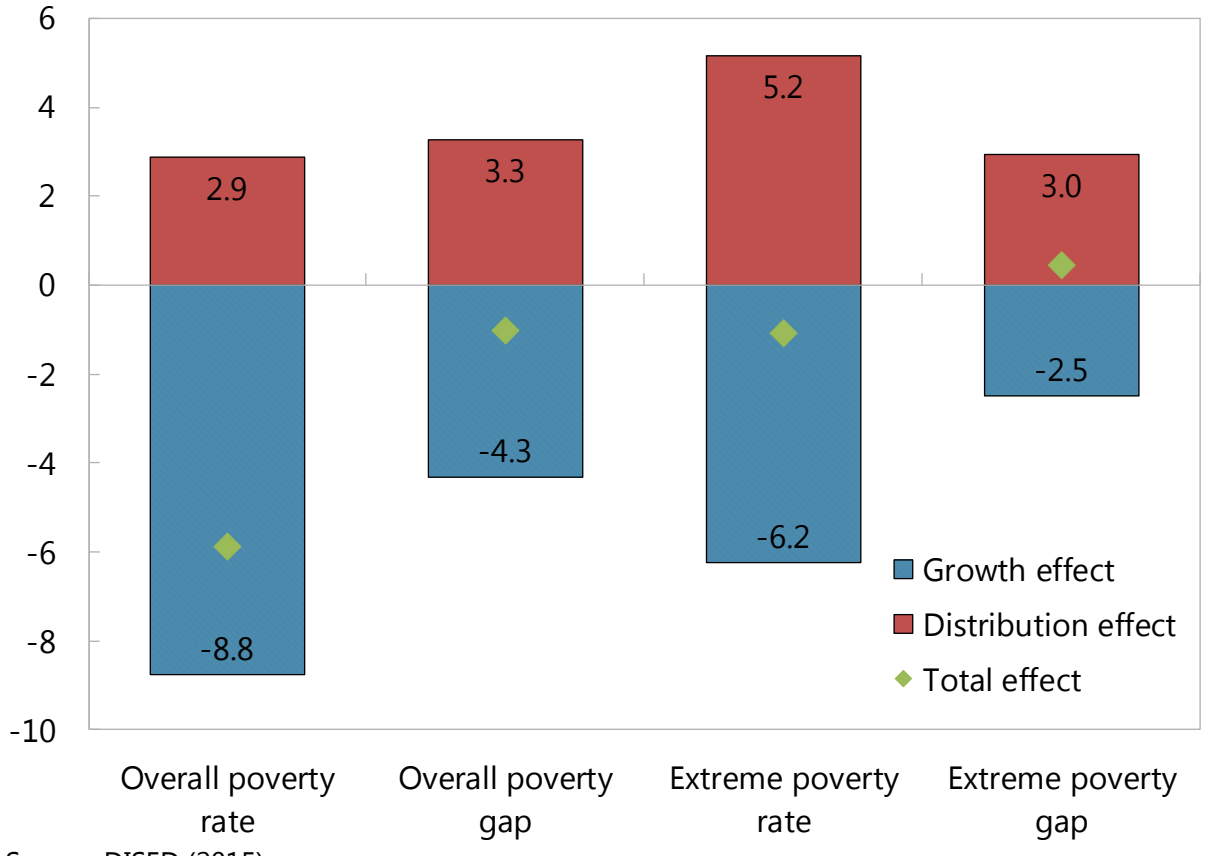
24. For Djibouti, the composition of the change in the poverty measure into two effects can be derived using the 2002 and 2013 household surveys. Generically (Datt and Ravallion, 1992), the poverty rate can be calculated as:

$$P_\alpha = \sum_{y_i < z} \left[(z - y_i) / z \right]^\alpha \Big/ n \tag{1.5}$$

where y_i is income of household i, z is the poverty line, n is the population size, and α is a positive switch parameter. If $\alpha = 0$, the headcount poverty index is calculated, i.e., the proportion of the population that is poor; If $\alpha = 1$, the poverty gap index is calculated, i.e., the aggregate income shortfall of the poor as a proportion of the poverty line and normalized by the population size. After this normalization, the growth and distribution effects can be calculated directly from 1.3 and 1.4.

25. Based on this decomposition, in the past decade in Djibouti the growth effect helped reduce poverty while the adverse distribution effect raised it. Therefore, the two effects impacted the poverty rate in opposite directions. For example, in 2013 relative to 2002, the overall poverty rate dropped by 5.9 percentage points (ppts), of which the growth effect contributed 8.8 ppts, while the distribution effect worked in the opposite direction and subtracted 2.9 ppts (Figure 6). As for the extreme poverty, the improvement was marginal, only 1 ppts, as most of the gains for poverty reduction from growth were offset by losses from the distribution effect.

Figure 6. Growth and Distribution Effects, 2002–13
(Percent)



Source: DISED (2015).

26. The impact of the growth and distribution effects on the poverty gap was somewhat different. The improvement in the overall poverty gap was marginal, at about one percentage point, again because the positive contribution of the growth effect was almost entirely offset by a negative impact of the distribution effect. For the extreme poverty, the gap actually increased by about 0.5 percentage points as the contribution of the distribution effect was strongly negative and could not be offset by the growth effect.

27. At a more granular level, different approaches to the calculations of both effects give broadly similar results. Period 1 refers to 2002, period 2 refers to 2013, the reference years when mean income is held constant to get the redistribution effects and when the distribution is held constant to calculate the growth effect (Figure 7). The Shapley method takes both years as reference and divides them by two to get the average level of effects (for details, see DASP Manual, 2013).

Figure 7. Growth and Distribution Effects by Poverty Measure and Approach, 2002–13

a. Overall Poverty Headcount

Parameter alpha : 0	Threshold:	2002	2013	
Poverty line :		94,636	147,936	
	Estimate	St. error	Lower bound	Upper bound
Distribution_1	0.4670	0.0213	0.4251	0.5089
Distribution_2	0.4081	0.0223	0.3641	0.4520
Difference: (d2-d1)	-0.0589	0.0454	-0.1483	0.0304
	Datt & Ravallion approach: reference period t1			
Growth	-0.0908	0.0542	-0.1976	0.0159
Distribution	0.0256	0.0550	-0.0825	0.1338
Residual	0.0063	---	---	---
	Datt & Ravallion approach: reference period t2			
Growth	-0.0845	0.0342	-0.1518	-0.0173
Distribution	0.0319	0.0440	-0.0546	0.1184
Residual	-0.0063	---	---	---
	Shapley approach			
Growth	-0.0877	0.0283	-0.1434	-0.0319
Distribution	0.0288	0.0236	-0.0176	0.0751

b. Overall Poverty Gap

Parameter alpha : 1	Threshold:	2002	2013	
Poverty line :		94,636	147,936	
	Estimate	St. error	Lower bound	Upper bound
Distribution_1	0.1689	0.0105	0.1482	0.1896
Distribution_2	0.1586	0.0104	0.1383	0.1790
Difference: (d2-d1)	-0.0103	0.0210	-0.0517	0.0311
	Datt & Ravallion approach: reference period t1			
Growth	-0.0434	0.0240	-0.0907	0.0038
Distribution	0.0326	0.0150	0.0031	0.0620
Residual	0.0006	---	---	---
	Datt & Ravallion approach: reference period t2			
Growth	-0.0428	0.0143	-0.0709	-0.0148
Distribution	0.0331	0.0206	-0.0073	0.0736
Residual	-0.0006	---	---	---
	Shapley approach			
Growth	-0.0431	0.0419	-0.1255	0.0392
Distribution	0.0329	0.0173	-0.0011	0.0668

c. Extreme Poverty Headcount

Parameter alpha : 0	Threshold:	2002	2013	
Poverty line :		63,145	98,709	
	Estimate	St. error	Lower bound	Upper bound
Distribution_1	0.2411	0.0172	0.2073	0.2750
Distribution_2	0.2304	0.0179	0.1951	0.2657
Difference: (d2-d1)	-0.0107	0.0363	-0.0821	0.0606
	Datt & Ravallion approach: reference period t1			
Growth	-0.0635	0.0360	-0.1344	0.0073
Distribution	0.0506	0.0443	-0.0365	0.1378
Residual	0.0021	---	---	---
	Datt & Ravallion approach: reference period t2			
Growth	-0.0614	0.0285	-0.1174	-0.0053
Distribution	0.0528	0.0317	-0.0096	0.1152
Residual	-0.0021	---	---	---
	Shapley approach			
Growth	-0.0625	0.0344	-0.1301	0.0051
Distribution	0.0517	0.0217	0.0089	0.0945

d. Extreme Poverty Gap

Parameter alpha : 1	Threshold:	2002	2013	
Poverty line :		63,145	98,709	
	Estimate	St. error	Lower bound	Upper bound
Distribution_1	0.0741	0.0061	0.0621	0.0860
Distribution_2	0.0785	0.0065	0.0658	0.0913
Difference: (d2-d1)	0.0045	0.0128	-0.0208	0.0297
	Datt & Ravallion approach: reference period t1			
Growth	-0.0234	0.0123	-0.0477	0.0009
Distribution	0.0311	0.0107	0.0101	0.0522
Residual	-0.0033	---	---	---
	Datt & Ravallion approach: reference period t2			
Growth	-0.0267	0.0091	-0.0446	-0.0088
Distribution	0.0279	0.0116	0.0051	0.0506
Residual	0.0033	---	---	---
	Shapley approach			
Growth	-0.0250	0.0414	-0.1066	0.0565
Distribution	0.0295	0.0110	0.0079	0.0511

Source: DISED (2016) EDAM and EBC databases.

28. All measures and approaches, other than the extreme poverty gap index, suggest that poverty declined. The extreme poverty gap shows an increase of about 0.4 percent, as the distribution effect that increases poverty dominates over the growth effect that reduces poverty. All other cases show a reduction of poverty, although extremely marginal, at about 5.9 ppt for the overall poverty headcount, 1 ppt for the overall poverty gap, and 1.1 ppt for the extreme poverty headcount. Absent the distribution effect, which in all cases affected negatively poverty measures, poverty reduction would have been substantially higher. Finally, the confidence intervals suggest that statistical significance of these findings is relatively low.

29. Therefore, the distribution effect has worked in the opposite direction from the growth effect in terms of its impact on poverty. In other words, poverty reduction could have been substantially higher if the distribution effect had been at least neutral or positive.

Although the evidences of both effects are characterized by low statistical significance, they attest to the need to decompose any change in the poverty measure into these two effects and select policies that would ensure that both effects work in the direction of poverty reduction and do not conflict with each other.

C. Growth Incidence Curves

30. A dynamic measure of growth inclusiveness can be derived from growth incidence curves. Growth incidence curves (GIC) help identify the extent to which each decile of households benefits from growth (Ravallion and Chen, 2003). In plotting GICs, the vertical axis reports the growth rate of consumption expenditure, and the horizontal axis reports consumption expenditure percentiles (Foster and others, 2013). Inclusive growth should simultaneously reduce poverty and inequality. Growth reduces poverty if the mean income of the poor rises. Growth reduces inequality if it helps straighten the Lorenz curve, which plots the percentage of total income earned by various portions of the population when the population is ordered by the size of their incomes. More formally, starting from Ravallion and Chen (2003), the growth incidence curve, which traces out variability of consumption or expenditure growth by the percentile of the population, can be defined as:

$$g_t(p) = \frac{L'_t(p)}{L'_{t-1}(p)}(\gamma_t + 1) - 1 \quad (1.6)$$

where $L'_t(p)$ is the rate of change (slope) of the Lorenz curve,[5] p is the deciles of the population, and γ_t is the growth rate of its mean.

31. The GIC assesses how consumption at each percentile changes over time. The part of the curve above the X-axes at the deciles that benefit from growth, and the part below the X-axis at the deciles that lost because of growth. If the GIC is above the X-axes, growth clearly leads to the reduction of poverty. However, if the GIC crosses the X-axes, the impact of growth on poverty is ambiguous. The part of the curve that is above its own mean points at the deciles of the population that benefit from growth relatively more than an average household. The part of the GIC below the mean, but still above zero, points at the deciles that also benefit from growth, but less than an average household.

32. The slope of the GIC points at the distributional characteristics of growth. A completely horizontal GIC suggests that growth has been neutral from the distributive perspective. A negatively sloping GIC points at inclusive growth. It suggests that income or spending of the poorer deciles of the population grows faster than income or spending of the richer deciles. The slope of the incidence curve is negative if:

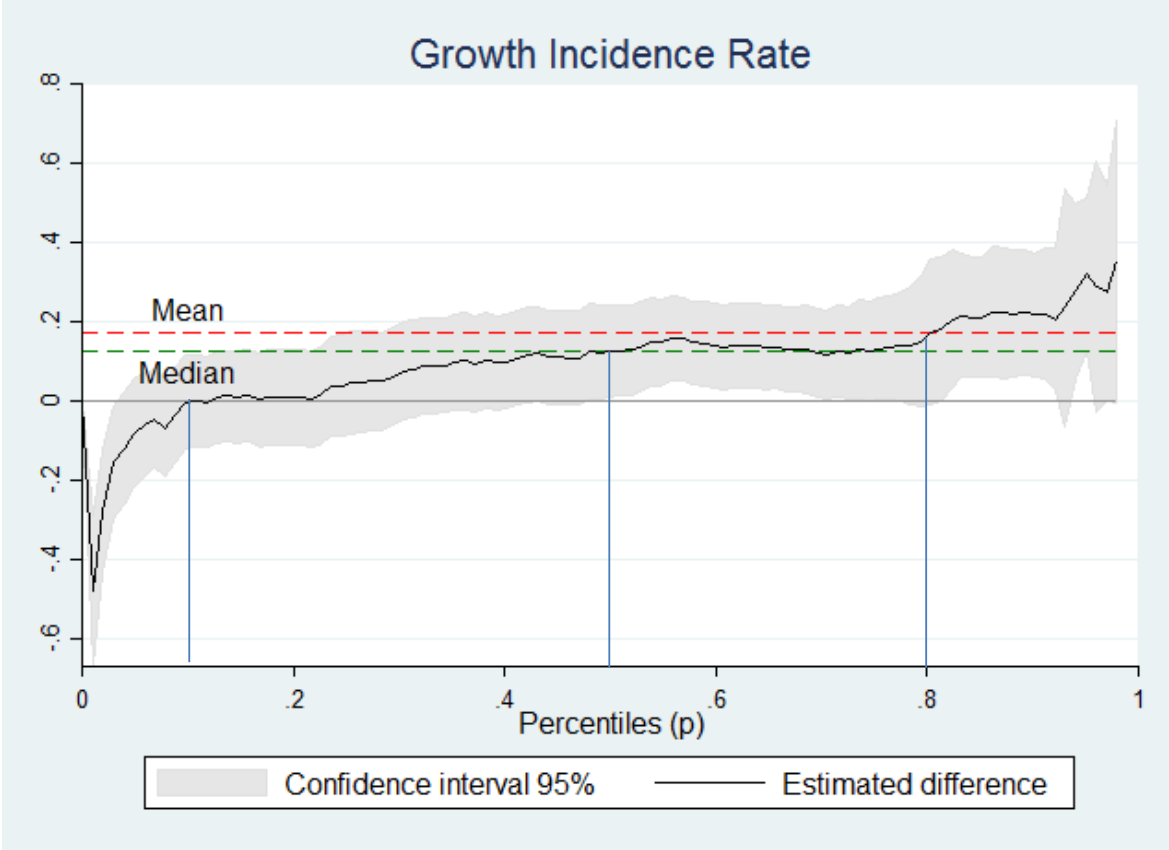
[5] $L_t(p)$ is the fraction at time *t* of total income that the holders of the lowest *p*th fraction of incomes possess. This varies from zero to one, $0 \leq p \leq 1$, and is presented as the inverse of the cumulative distribution function.

$$g_t'(p) = \frac{L_t'' L_{t-1}' - L_t' L_{t-1}''}{(L_{t-1}')^2} < 1 \qquad (1.7)$$

because, in this case, the poorer groups are catching up with the richer, a negatively sloping GIC can be viewed as one of the indications of growth inclusiveness. A positively sloped GIC clearly indicated that growth has not been inclusive. Improvements in the degree of inclusiveness of growth would be signaled by the GIC changing the slope from positive to negative, and progress in poverty reduction would lead to the mean of the GIC and the curve itself moving up (for further theoretical considerations of GICs, see A. Kireyev, 2013).

33. In Djibouti, growth has benefitted most people in the middle and high end of the income distribution. In 2002-13, household consumption increased on average as the mean of the GIC is above zero, driven by the middle of the distribution (from the 2nd to the 10th deciles) (Figure 8). The GIC is clearly positively sloped, suggesting an increase in inequality during this period. This trend is visible, but may not be statistically significant, indicating no substantial distributional changes during this period other than the improvement in the relative position of the middle class. These overall results, however, may mask significant differences in growth inclusiveness between urban and rural areas, and men and women. deciles clearly experienced lower growth of consumption even relative to an average Djiboutian, as the 95 percent confidence interval is squarely below the horizontal axis. Finally, for the middle of the distribution, roughly from the 2nd to the 8th decile, the trend still points at a worsening of growth inclusiveness, although it may not be statistically significant as the confidence interval crosses the X-axes multiple times.

Figure 8. Growth Inclusiveness, 2002–13

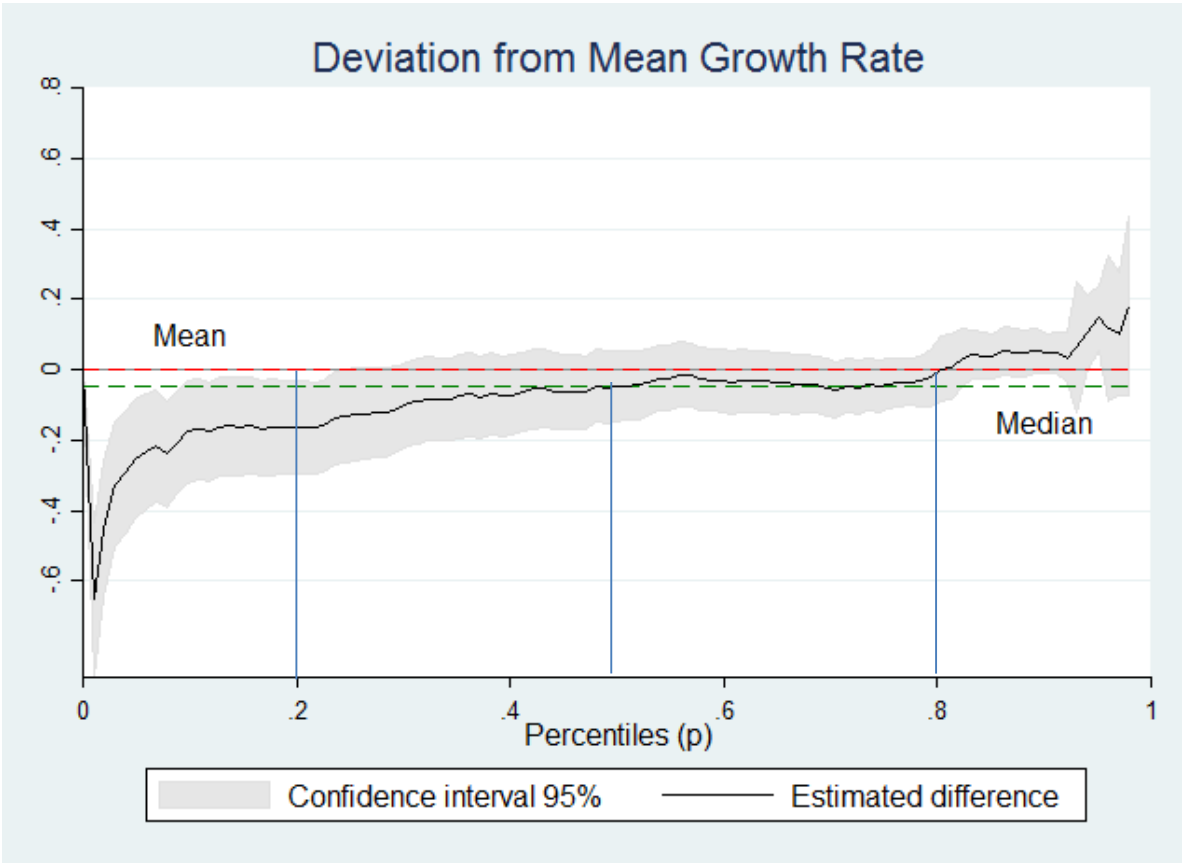


Source: DISED database, 2016.

34. The GIC suggests that consumption of the poorest parts of the population declined. In 2002-13, for the low percentiles the GIC is located below the horizontal axis, indicating that at least 10 percent of the poorest groups of the population experienced a negative growth rate of their living standards. As a result, poverty among the poorest of the Djiboutian population increased further. Also, the 95 percent confidence interval around the GIC touches the X-axis several times, in particular the 5th to the 8th percentiles, suggesting a substantial margin of error as the results are marginally statistically significant. As a result, the change of consumption even of middle-income groups could have been also negative. This error may explain why most indicators do not point at any reduction of poverty in Djibouti. Consumption of the high-income deciles at above the 8th decile clearly increased. They became richer.

35. Shifting the GIC down by aligning its mean with the X-axis helps better understand the distributional impact of growth in Djibouti. Up to the 8th decile percent of the population, the curve is below the X-axis (Figure 9). For them, the growth rate of their consumption was lower than the growth rate calculated at the middle percentile. In other words, for 80 percent of the poorest, consumption grew slower relative to the wealthiest 20 percent. This is an indication that the distribution effect has had an opposite trend from the growth effect and has led to more inequality. The GIC also suggests that the 2 poorest

Figure 9. Growth Incidence Curve Displaced, 2002–13



Source: DISED database, 2016.

36. The above analysis of growth inclusiveness in Djibouti should be treated with caution. First, there are concerns regarding the possible incomparability of consumption aggregates used to measure welfare between the two household surveys used in the calculations (Lara Ibarra and Contreras, 2016). Both food and nonfood components of consumption were estimated based on more detailed questionnaires in the 2013 survey compared to the 2002 survey. Also, completely different methods were used to estimate housing expenditure, whose importance grows with the level of development. Second, some coefficients estimated by econometric models are not statistically significant and are outside the conventional confidence intervals.

37. The analysis of the distributional characteristics of growth in Djibouti leads to the following conclusions: (i) the overall poverty in Djibouti has declined in 2002-13, although there has been no significant changes in extreme poverty; (ii) inequality in Djibouti remains high, in particular between different income groups, urban and rural areas, and men and women, and there are indications that inequality may have worsened; (iii) in 2002-13, growth has not been inclusive, as it benefitted mainly people in the upper side of the income

distribution, while the poorest groups became even poorer in relative terms; (iv) based on experience of other comparator countries (Senegal and Mauritania), growth in rural areas most likely was less inclusive than in urban areas, and gender disparity may have increased, although the existing statistics for Djibouti does not allow assessing directly these two effects; and (v) the underlying data is marginally sufficient for the growth inclusiveness analysis and is not entirely comparable between surveys, and the statistical significance of most estimates is low and the margins of error are high, therefore the results should be treated only as indicative pending better data availability.

IV. POLICY OPTIONS TO INCREASE GROWTH INCLUSIVENESS

38. Sustained overall economic growth is a precondition for further poverty reduction. A number of studies confirm that sustained growth is a key factor in enhancing inclusiveness. Kraay (2004) showed that in developing countries growth of average income explains 70 percent of the variation in poverty reduction across countries in the short run. Berg and Ostry (2011) argue that longer growth spells are robustly associated with more equality in the income distribution. Lopez and Servén (2006) suggest that for a given inequality level, the poorer the country, the more important is the growth component in explaining poverty reduction. Affandi and Peiris (2012) showed that growth is in general pro-poor, with growth leading to significant declines in poverty across economies and time periods. Specifically, a 1 percent increase in real per capita income leads to about a 2 percent decline in the poverty headcount ratio. Therefore, any successful pro-poor growth strategy should have at its core measures to achieve sustained and rapid economic growth. For Djibouti, it also means supplementing its debt-financed capital-intensive growth with job creating growth.

39. Special attention could be given to the distributional dimensions of growth. An increase in inequality may offset and even exceed the beneficial impact on poverty reduction of the same increase in income (Affandi and Peiris, 2012). According to recent estimates, about two-thirds of poverty reduction within a country comes from growth, and greater equality contributes the other third. A 1 percent increase in incomes in the most unequal countries produces a mere 0.6 percent reduction in poverty, while in the most equal countries, it yields a 4.3 percent cut (Ravallion, 2013). Because inclusiveness of growth is associated with a number of macroeconomic outcomes and policies, it is important to analyze growth and inclusiveness simultaneously. Increased inequality may dampen growth, but at the same time, poorly designed measures to increase inclusiveness could undermine growth. Increasing farm productivity and broadening rural job opportunities is important in addressing rural poverty. In the long run, attention to inclusiveness can bring significant benefits for growth.

40. Economic diversification can help improve inclusiveness. Diversification is essential for Djibouti to develop opportunities in sectors with high growth and employment potential, such as tourism and fishing, and reduce the risks associated with relying on a single

sector (services) catering mainly to one client (Ethiopia). To this end, improving the business climate is indispensable. The measures to cut costs of doing business include reducing red tape, stepping up anti-corruption efforts, and promoting transparency, good public financial management and central bank governance would be important steps in this direction.

41. Well-designed public policies are also important for promoting inclusiveness.[6]

- First, social policies could be used to protect the poor and vulnerable populations from high costs of living. Reform the investment incentive system could broaden the tax base. Additional revenue measure may include a poverty tax or a surcharge on large investors and FTZ, although the distributional impact of such taxes should be studied before their introduction. With current policies, the fiscal benefits of the investment boom are likely to be modest, with the share of tax revenues in GDP projected to decline over the medium term (IMF, 2014).
- Second, fiscal reforms will need to generate the level of revenue needed to ensure the affordability of a social safety net should be built for the poorest population. Although there have been some efforts to build a social safety net for a share of the population, the government should expand the coverage to the poorest population, extend the compulsory health insurance available to government employees to the poorest population, and introduce health insurance and social housing.
- Third, poor households could be protected in the short term by redirecting resources from generalized subsidies to better-targeted measures. Poor groups can be targeted through measures such as school lunches, public works programs, and better-targeted tariffs for the use of small quantities of electricity. In the medium term, a well-targeted and conditional cash transfer system is the best option for assistance for the poorest.
- Fourth, the government could ensure low-cost provisions of basic utilities and their improvement. Better electricity and water supply are the main priorities as these are major constraints for the poor population and important obstacles to investing in Djibouti.
- Finally, reforms of educational curricula and training programs are needed. The emphasis could be on ensuring that the labor force is trained for the needs of the job market, and that Djibouti nationals - rather than expatriates - take the jobs created during the investment boom.

42. Gender inclusion is an important element of inclusive growth. A growing body of empirical evidence suggests that gender inequality can impede economic growth. For example, Hakura et al. (2016) found that gender inequalities, including from legal gender-based restrictions, is negatively associated with per capita GDP growth. This effect prevails mainly in low-income countries. In particular, per capita income growth in sub-Saharan Africa could be higher by as much as 0.9 percentage points on average if inequality was reduced to the levels observed in the fast growing emerging Asian countries. Policies that

[6] Additional recommendations are included in IMF Staff Discussion Note 17/01, Ostry J., A. Berg, and C. Tsangarides, 2014 and Loungani P. (2017).

influence the opportunities of women to participate in economic activities matter, and, therefore, if well designed and targeted, could play a role in alleviating inequalities.

43. Inclusive institutions have also been found important for growth inclusiveness. Acemoglu and Robinson (2012) show that economic and political institutions that ensure the rule of law, provide adequate access to public services, and protect property and freedom to contract for the whole population without discrimination have been found to accelerate growth. The role of the state would be to impose law and order, enforce contracts, and prevent theft and fraud. When the state fails to provide such a set of institutions, growth becomes extractive.

44. Coherent labor market policies are also needed for increasing inclusiveness. The challenges of growth, job creation, and inclusion are closely linked, because creating productive employment opportunities throughout the economy is an important way to generate inclusive growth (IMF, 2013). In Djibouti, creation of employment opportunities and increasing productivity in rural areas, in particular in agriculture, would prompt higher consumption growth among poorer households. For example, the stronger per capita consumption growth observed in Cameroon and Uganda at the poorest levels seems to relate to high agricultural employment growth (IMF, 2011). By contrast, rural agricultural employment fell in Mozambique and Zambia where the poorest experienced weaker or negative per capita consumption growth.

45. Deepening the financial sector through policies that give better access to the poor for financial services could increase inclusiveness. A number of studies found that financial development generally increases incomes of the poorest households (Claessens, 2005), whereas unequal access to financial markets can reduce incomes by impeding investments in human and physical capital. These barriers are widespread in Djibouti, where most people lack access to the formal financial system. At the same time, microfinance and other rural finance and expanding credit information sharing could significantly expand credit availability. Specifically, for Djibouti, the authorities could operationalize the Partial Credit Guarantee Fund; accelerate the implementation of the national strategy for modernization of payments and credit reporting systems; set up a framework for mobile payments to make financial services accessible to low-income groups; simplify the taxation system to encourage small enterprises to migrate to the formal sector; and simplify access to land and improve mortgage procedures

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