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ETIOPIA: SFIDE DI UN'ECONOMIA EMERGENTE

di Elena Vallino, Università di Torino e OEET

L'Etiopia è la seconda nazione più popolata dell'Africa. A causa delle specificità della sua storia – è la più antica nazione indipendente africana ed è stata colonizzata solo per un periodo relativamente breve – è diventata uno dei simboli dell'indipendenza africana durante il periodo coloniale. L'Etiopia è stata una delle prime nazioni a firmare la Carta delle Nazioni Unite, e ha giocato un ruolo attivo nella crescita della cooperazione pan-africana. Tali processi sono confluiti nell'insediamento ad Addis Ababa dei quartier generali dell'Unione Africana e della Commissione Economica per l'Africa delle Nazioni Unite. Durante gli anni '70 e '80 l'Etiopia ha vissuto diversi scontri civili che hanno ostacolato lo sviluppo sociale ed economico del paese; nel 1993 si è separata dall'Eritrea in seguito ad un lungo conflitto. Al giorno d'oggi il paese ha superato le fasi più difficoltose, diventando la più estesa economia dell'Africa orientale e centrale.

L'Etiopia è uno dei casi che meglio rappresentano una tendenza evidenziata da studiosi e macroeconomisti riguardo al continente africano: crescita economica senza industrializzazione. Normalmente i paesi in via di sviluppo che producono tassi di crescita economica elevati senza fare affidamento su uno sfruttamento massiccio delle risorse naturali perseguono una strategia di industrializzazione orientata all'esportazione. Tuttavia questa particolare tipologia di cambiamento strutturale è difficile da identificare in diversi paesi dell'Africa sub-sahariana con buona performance economica, i quali, come sostiene Dani Rodrik in un articolo su Project Syndicate (10 Ottobre 2017), sembrano addirittura attraversare una fase di "deindustrializzazione prematura". Tali paesi infatti non riescono a mettersi al passo con le opportunità di sviluppo dell' industria manufatturiera *skill-intensive* come è accaduto a molte economie asiatiche. Osservando alcuni paradossi, Rodrik si domanda se alcune economie africane non stiano sviluppando un nuovo modello di crescita. In diverse economie africane a basso reddito, fra cui l'Etiopia, la forza lavoro si è spostata da attività agricole a bassa produttività ad attività a maggiore produttività. Tuttavia queste ultime sono principalmente allocate nel settore dei servizi e non in quello manufatturiero. Inoltre, mentre la produttività del lavoro sembra essere cresciuta fortemente nelle attività agricole grazie a consistenti investimenti pubblici, è diminuita per le attività non agricole, a causa di un'insufficiente sviluppo nel settore moderno. Senza un cambiamento strutturale dell'economia e un innalzamento duraturo della produttività nel settore

manufatturiero, l'elevata crescita economica potrebbe non persistere nel tempo, con conseguenze negative sul processo generale di sviluppo di tali paesi africani.

L'Etiopia ha registrato un'impressionante crescita economica durante l'ultimo decennio e ha migliorato fortemente la sua posizione nel ranking delle economie africane nello stesso periodo. Nel 2008 è stata l'economia che è cresciuta più velocemente fra i paesi africani non dipendenti dal petrolio. Tuttavia, nonostante la forte crescita del PIL, il suo reddito pro capite rimane fra i più bassi del mondo. Secondo la letteratura scientifica, la combinazione di tali condizioni qualifica l'Etiopia come economia emergente, e mentre è interessante osservare le sue contraddizioni sociali ed economiche, è arduo interpretare e fornire una spiegazione di tali tendenze. Gli indicatori di sviluppo dimostrano una buona performance per quanto riguarda la riduzione della povertà e dell'analfabetismo e il miglioramento delle condizioni di salute della popolazione. Il governo ha investito in grandi infrastrutture e programmi di sviluppo, focalizzati sulla modernizzazione del settore agricolo, sulla creazione di parchi industriali, sulla produzione di energia idroelettrica e sullo sviluppo delle piccole e medie imprese. Tali misure apparentemente hanno condotto ad un aumento significativo della produttività e dei redditi agricoli, con ricadute positive su altri settori. Tuttavia, i dati mostrano che un reale sviluppo del settore manufatturiero non ha ancora avuto luogo, che la produttività del lavoro in settori non agricoli è ancora bassa e la maggior parte della popolazione vive ancora in aree rurali. Anche il mercato del lavoro presenta caratteristiche contradditorie: i tassi di disoccupazione sono diminuiti durante il periodo di crescita economica, rimanendo però alti. La forza lavoro ha migliorato il livello di educazione, riflettendo in questo modo trend positivi in termini di alfabetizzazione e sviluppo di qualifiche, ma non ha modificato la sua composizione settoriale e le sue caratteristiche, né i salari reali si sono modificati in base all'aumento di qualificazione.

Questo numero della nostra newsletter offre uno sguardo ampio sull'Etiopia, sia da un punto di vista macroeconomico che microeconomico, che permette di approfondire elementi differenti e contrastanti della sua economia e società.

Jan Priewe presenta un'ampia panoramica sui trend macroeconomici dell'Etiopia, sottolineando le sue contraddizioni, e presenta una narrazione per interpretare e spiegare da un lato il miracolo economico e dall'altro lato gli obiettivi che non sono stati ancora raggiunti. Così facendo, evidenzia quali dimensioni del percorso di sviluppo etiope possono essere spiegate dalle teorie keynesiane e dai concetti strutturalisti di sviluppo, e in quali ambiti tali teorie non sono applicabili.

Cecilia Navarra affronta il tema del mercato del lavoro in Etiopia e l'interazione fra le attività imprenditoriali formali e informali. Prende in considerazione le conclusioni contradditorie in merito all'impatto dei programmi governativi per lo sviluppo delle piccole e medie imprese, i quali idealmente sono focalizzati al supporto della crescita economica e sociale attraverso un processo di formalizzazione dell'imprenditoria economica.

Alexander Jordan scrive riguardo alla povertà nelle zone rurali dell'Etiopia, che è ancora persistente a causa della vulnerabilità agli shock climatici, del potenziale depauperamento delle risorse naturali utilizzate come fonte di energia primaria, e della scarsità di infrastrutture. In particolare, presenta la potenzialità che risiede nello sviluppo di energie rinnovabili per affrontare diverse tipologie di problematiche della popolazione rurale etiope.

Pierluigi Conzo offre uno sguardo sulla questione del legame fra fertilità e soddisfazione, sempre fra la popolazione dell'Etiopia rurale. Utilizzando dati delle statistiche nazionali, scrive riguardo all'interazione fra le condizioni di povertà oggettive e soggettive, le dinamiche di fertilità e la percezione della felicità, con considerazioni riguardo alle dimensioni di genere e alle diverse fasi di vita. Sottolinea come le conclusioni di tale studio possono informare le decisioni di policy orientandole verso interventi che supportino lo sviluppo delle aree rurali.

ETHIOPIA: CHALLENGES OF AN EMERGING COUNTRY

Elena Vallino, University of Turin and OEET

Ethiopia is the second most populated country in Africa. Due to the specificities of its history – it is the oldest independent African country and experienced only an exceptionally short period of colonization - it became one of the symbols of African independence during the colonial time. Ethiopia was one of the first countries to sign the Charter of the United Nations, and it played an active role to the growth of Pan-African cooperation. These processes culminated in the establishment of the headquarters of the African Union and of the United Nations Economic Commission for Africa in Addis Ababa. During the '70s and the '80s Ethiopia experienced civil conflicts which hindered its economy and social development. In 1993 separated from Eritrea after a long conflict. The country has since then recovered and at the present moment experiences the largest Gross Domestic Product in East and Central Africa.

Ethiopia is one of the most evident cases of a tendency highlighted by scholars and macroeconomists about the African continent: growth without industrialization. Usually developing countries that produce sustained growth without relying on massive exploitation of natural resources pursued a strategy of export-oriented industrialization. However this particular kind of structural change is difficult to detect in many well-performing Sub-Saharan African countries, which, according to Dani Rodrik in an article on Project Syndicate (October 10, 2017), seem to experience even a kind of "premature deindustrialization", since they do not catch up with skill-intensive manufacturing opportunities as many Asian economies did. He wonders whether some African countries are developing a new growth model, by observing some paradoxes. In many African low-income economies, among which Ethiopia, labour has been shifting from low-productivity agricultural activities to activities with higher productivity. However these are mostly in the service sector rather than in the manufacturing. Moreover, while labor productivity seemed to increase strongly in agricultural activities thanks to massive public investments in this sector, it dropped in non-agricultural activities, due to an insufficient development of the modern sector. Without a structural change of the economy and a long-lasting productivity growth in the manufacturing sector, high economic growth may not last, with negative consequences on the general development process of these African countries.

Ethiopia experienced a very high economic growth in the last decade and it improved dramatically its position in the ranking of African economies in the same period. In 2008 it was the fastest-growing economy among the non-oil-dependent African countries. However, despite the high GDP growth, its income per capita remains one of the lowest in the world. According to the scientific literature, the combination of these conditions qualifies Ethiopia as emerging economy and while it is interesting to observe its contradictory social and economic trends, it is definitely challenging to interpret and explain them. Development indicators performed well in terms of reduction of poverty and illiteracy and of improvement of health conditions. The government invested in large infrastructures and development programmes, focused on the modernization of the agricultural sector, in the creation of industrial parks, in the hydroelectricity production and in the development of Micro and Small Enterprises. These measures seem to have increased significantly agricultural productivity and incomes, with positive demand spill overs to other sectors. However, data still show that an actual development of the manufacturing sector did not occur, labor productivity in non-agricultural sectors is still low and the majority of the population still live in rural areas. The labour market presents also contradictory features: unemployment rates fell along with economic growth, but remained high. The labour force improved its education level, thus reflecting positive outcomes in terms of literacy and skill development trends, but did not change its features and composition, and real wages did not reflect the educational improvement.

This issue of our newsletter offers a broad insight into the Ethiopian country, both from a macroeconomic and microeconomic point of view, that allows to deepen different and challenging elements of its economy and society.

Jan Priewe presents a broad overview of the Ethiopian macroeconomic trends, highlighting its contradictions, and he presents a narrative for interpreting and explaining on the one hand Ethiopia's growth miracle, and on the other hand the objectives that are still not reached. By doing so, he underlines along which dimensions Keynesian and structuralist concepts of development are able to explain the country's development path and in which fields these theories can not apply.

Cecilia Navarra addresses the issue of the Ethiopian labor market and the interplay between the formal and informal entrepreneurial activities. She considers the contradictory findings about the impact of the governmental programs for the development Small and Medium enterprises, which ideally aimed at fostering economic growth and social development by supporting a formalization process of the economy.

Alexander Jordan deals with rural poverty in Ethiopia, which is still persistent due to the vulnerability to climatic shocks, potential depletion of natural resources used for primary energy source, and lack of infrastructures. He presents the potentiality of renewable energies development to address different challenges faced by Ethiopian rural population.

Pierluigi Conzo offers an insight on the issue of fertility and life satisfaction in rural Ethiopia. By using national data, he writes about the interplay among objective and subjective poverty conditions, fertility dynamics and perception of happiness, with considerations on gender and life stages biases. He highlights how the findings may inform policy making with interventions for fostering development in rural areas.

EXPLAINING ETHIOPIA'S GROWTH MIRACLE – AND THE RISE OF DISCONTENT*

Jan Priewe, University of Applied Sciences, Berlin

Sintesi

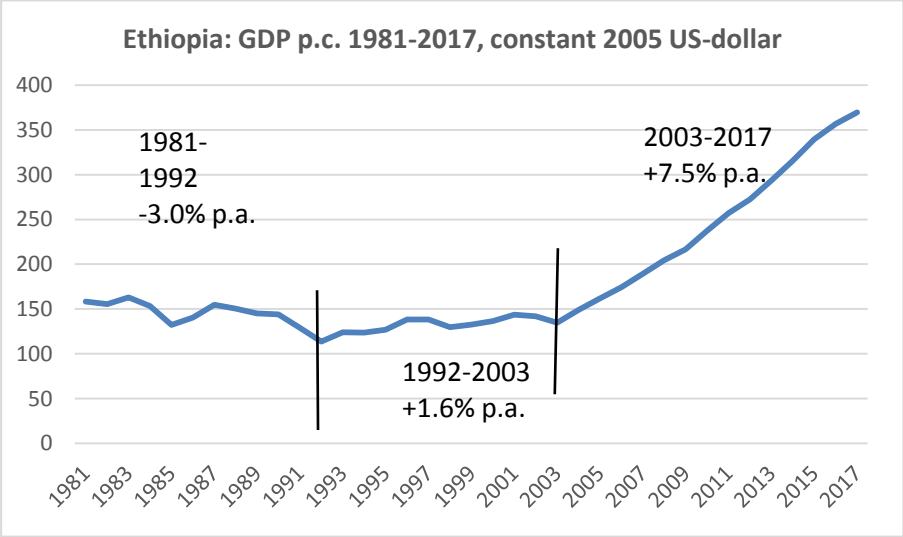
Nell'ultimo decennio l'Etiopia ha registrato tassi di crescita economica molto elevati, nonché miglioramenti degli indicatori di sviluppo, collocandosi rapidamente in cima alle classifiche dei paesi dell'Africa sub-sahariana e catturando così l'attenzione degli economisti. Il presente articolo fornisce un'interpretazione del miracolo economico etiope alla luce delle teorie keynesiane e strutturaliste sullo sviluppo. I governi che si sono succeduti hanno chiaramente intrapreso una strategia di "state-led development", basata su consistenti investimenti in infrastrutture e modernizzazione del settore agricolo, sulla presenza di vaste imprese statali all'interno dell'economia di mercato, su politiche monetarie e fiscali molto espansive e sullo sfruttamento dei termini di scambio positivi per prodotti legati all'esportazione. La conseguente crescita della domanda aggregata ha generato un aumento dell'offerta aggregata ed una spinta al progresso tecnico nel settore agricolo, con spill-over nel terziario. Se da un lato tali trend sono compatibili con affermate teorie riguardanti il big-push e gli obiettivi di crescita inclusiva, la mancata industrializzazione e una mancata politica di gestione del tasso di cambio , nonostante la crescita, rappresentano un peculiare elemento di discontinuità con tali teorie. L'articolo conclude con riflessioni sulla sostenibilità della crescita etiope e sulle conseguenze del boom edilizio e del land-grabbing in termini di conflitti sociali sulla distribuzione delle risorse.

Ethiopia's GDP grew in the period 2003-2016 by 10.6% annually, per capita by 7.8% - the highest growth rate in Sub-Sahara Africa (SSA) in this period. This growth lifted the country at rank 12 (2014) from the bottom in SSA, in terms of GDP per capita, while it was the poorest country in 2000 (besides countries with no data available). With now 105 million population, it is the 2nd biggest country in Africa, after Nigeria. 75% of the labour force is still involved in subsistence agriculture as smallholder peasants, 61% of population are still illiterate (2012). What is more, on a broad number of development indicators, the country improved a lot. Absolute poverty (1.90 PPP US-dollar per day) fell, so did child mortality and child under-weight as well as under-nourishment in general; life expectancy at birth increased by 12 years (2000-2014), births per woman dropped from 6.5 to 4.4 (2000 to 2014), while the Gini coefficient rose from 29.8 to 33% 2014. All data may be somewhat dubious, but probably not much more dubious than in other African countries. In 2016 growth plummeted somewhat. In 2016 GDP growth dropped to 7.6% and only 6.1% was expected for 2017 (data from World Development Indicators and for 2015ff. estimates from Economist Intelligence Unit).

In autumn 2016, the authoritarian government declared the state of emergency after demonstrations with violent conflicts all over the country had occurred. The emergency was lifted in September 2017, but widespread political discontent seems to continue.

* This essay is based on the author's paper presented to the Annual Conference of the Ethiopian Economics Association in 2016, to be published in the conference proceedings.

After the battle against the Communist Derg regime (1974-1991), the "People's Democratic Revolutionary Front" (PDRF), led by the liberation front of the north-western province of Tigray, came into power. Their charismatic leader Meles Zenawi became Prime Minister in 1995; after his death 2012 he was succeeded by Hailemariam Desalegn. The government receives support from China, but benefits also from official development assistance (ODA) from Europe and the US, to some extent for its geopolitical position at the horn of Africa. Following the "Democratisation Index" of the "Economist Intelligence", Ethiopia ranks close to the average of SSA, but better than China or Russia. During the first decade of the PDRF regime, the growth performance was only slightly better than under Derg, but after 2003 the growth miracle started (see graph). The government is committed to a "state-led development" strategy, based on massive infrastructure investment, support for agriculture and targeting agriculture-based industrialisation, perhaps a reincarnation of "Developmental States" in a low income country.



Source: World Development Indicators, Estimates from Economist Intelligence Unit 2017 for 2015-2017

Even though the economy is in principle a capitalist market economy, apart from subsistence agriculture, the strategy involves a number of large state-owned enterprises such as the predominant commercial bank, furthermore a development bank, Ethiopian Airways, larger corporations in charge of public utilities as well as construction firms. Land ownership is by constitution public. While international trade is comparatively free, cross-border capital flows are under strict control, outbound financial investments prohibited. Large development projects, incorporated in the "Growth and Transformation Plan 2010-2015" (GTP I) and its successor for 2015/16-2019/20 (GTP II), comprise the construction of the "Grand Ethiopian Renaissance Dam" at the Nile River, a railway connecting the land-locked country to the port of Djibouti, massive road construction in rural areas, extension service for peasants, usage of fertilisers, promoting urbanization, strong emphasis on basic education and training, building of a large number of colleges and universities, electrification of the country etc.. The industrialization strategy, probably the weakest part of the overall strategy, promotes industrial parks targeting at certain industries, among others leather and shoes, garments, construction material, horticulture such as cut flowers and hydro-electricity exports.

As one could expect, a construction boom was the result of this "big push". However, although the construction sector grew 18% p.a. 2000-2014, its initial size was small. One third of the overall GDP increase in this period was contributed by agriculture. The share of manufacturing in value added remained small and dropped even slightly to 4.8% in 2014. So far, ambitions for industrialization were unsuccessful. Gross capital formation climbed up to 36% of GDP, whereas gross domestic saving reached only 20% (2014), leaving a huge trade deficit of 17.5% of GDP (2014). This is financed by ODA and commercial long-term loans, to an unknown amount by China. However, ODA per capita is less than in other African low-income countries (China not included). External debt rose again after debt relief in the early 2000s and stands around 30% of GDP (2015).

Our narrative for explaining Ethiopia's growth miracle is summarized as follows. Positive initial conditions had most likely generated a considerable unexploited output potential. A favourable external environment, first and foremost high growth in the world economy until 2008 and increasing commodity prices (for coffee, gold and other commodities) with a terms of trade improvement for Ethiopia, induced strong tailwind for growth. Yet, the main determinants for the growth boon were continuous super-expansionary monetary and fiscal policies which fired aggregate demand, together with the income growth from terms of trade. The mobilization of domestic finance pushed public-investment-led growth which evolved into general investment-led growth with a high investment-to-GDP ratio. Foreign finance from various sources, targeted at importing investment and intermediate goods, complemented domestic finance.

The engine of growth is – structurally targeted – fiscal and monetary policy. The latter is a variant of "repressed finance" that facilitated low real lending rates, even negative for longer spells, at the expense of negative real deposit and saving rates; domestic finance and hence aggregate demand was channeled into comprehensive infrastructure projects, with pro-poor and pro-agriculture priorities. The well-known nexus of public banks and public enterprises were the initial engine of growth, inducing multiplier and accelerator effects, also forward and backward linkages. These affected investments of private and public enterprises too. As long as the overall growth rate is higher than the lending rates for public or private borrowers, the burden of domestic debt shrinks for the debtors.

Fueling aggregate demand spurred aggregate supply growth, pushing technical progress in agriculture which in turn accelerated the over-due transition from subsistence agriculture to a market economy. Progress in agriculture spilled over to the service sector and those parts of industry which produce non-tradables, in particular infrastructure, housing and utilities. Bulging investment fueled employment and wages, and subsequently household consumption. A virtuous domestic-demand-led circle emerged, unimpeded by tight monetary or fiscal policy. The authorities accepted a high dose of inflation in two short episodes, in face of food inflation, partly imported from world markets, and also in face of bottleneck-inflation, to some extent unavoidable in a nascent market economy. Reducing absolute poverty, malnutrition and illiteracy and improving health and life expectancy unleash strong productive effects; the costs of poverty and poor health are big, reducing them improves human capital and total factor productivity. Poverty reduction is not only a humanitarian objective, but also an economic imperative for development.

However the growth boom is overshadowed by neglect of inflation-offsetting depreciation of the currency, thus leading to strong real appreciation of the currency which impeded exports and industrialization with a focus on manufacturing. The over-valued exchange rate even cheapened the cost of imported investment goods.

For many of its parts, the Ethiopian growth scenario is fully in line with Keynesian and structuralist concepts of development, such as the big-push strategy of early development economists, Kaldor's notion of demand-induced technical progress, Prebisch's and Singer's understanding of the key role of the terms of trade and the quest for pro-poor growth with tripling aid by Jeffrey Sachs and MDG proponents like Kofi Annan. It incorporates a positive view on financial repression adopted in China and other Asian success performers, including using public banks and public enterprises, contrasting the late "Washington Consensus".

What is not at all in line with these authors or country experiences is the failure of industrialization and related promotion of industrial policy with an appropriate exchange rate policy that avoids appreciation or calls for mild under-valuation. Instead of real exchange rate undervaluation, normally seen as an integral part of "financial repression" and key of heterodox approaches to development, the opposite is implemented. This should be the task assigned to GTP II, although the key elements are missing – an up-to-date concept for industrial and monetary policy with real exchange rate management that support international competitiveness. The past decade was in this respect closer to very conventional neoclassical wisdom of a "natural" saving gap and a concomitant net resource transfer from rich to poor countries, which includes overvalued exchange rates. Ethiopia's growth concept is – despite its successes – not yet coherent, it needs fundamental changes.

The successes achieved so far generated also distributional conflicts and political opposition to authoritarian modes of decision making. The construction boom made some groups wealthy, led to rising real estate prices, rising rentals, real estate speculation and massive rent seeking. One cannot exclude that these activities have partly captured the government which then would be at risk of losing control over its developmental strategy. Fears of extensive land-grabbing with missing transparency aggravate tensions. There is no comprehensive minimum wage regulation. Conflicts over land-use under public ownership of land without clear rules for allocating property rights are the perfect fabric for social conflicts. These are fired by suppressing opposition groups, civil rights, disregard of the rule of law and the freedom of the media.

ETHIOPIA'S URBAN LABOUR MARKET AND THE ROLE OF MICRO AND SMALL ENTERPRISES.

Cecilia Navarra, The Nordic Africa Institute, Uppsala

Sintesi

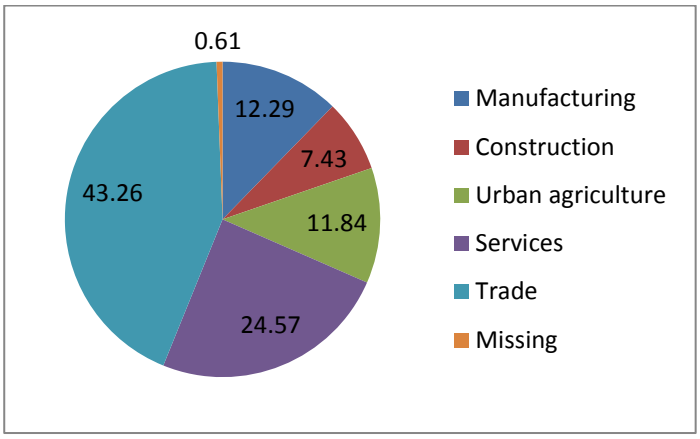
La disoccupazione urbana in Etiopia rimane a livelli elevati, nonostante la riduzione dell'ultimo decennio. Una delle principali politiche pubbliche per farvi fronte è la promozione di micro e piccole imprese (MSEs), sostenute da programmi di credito e formazione. L'evidenza empirica sulla piccola impresa, però, produce risultati diversi e in parte contrastanti. Alcuni di questi risultati sono riportati nel presente articolo, attingendo in particolar modo da una ricerca quali-quantitativa condotta da C. Navarra (Nordic Africa Institute) e D. Chinigò (Department of Sociology and Social Anthropology, Stellenbosch University, South Africa) che confronta settore informale e MSEs sostenute da progetti di promozione pubblica: l'analisi mostra che queste MSEs non producono redditi significativamente maggiori o più stabili rispetto al settore informale, ma inseriscono i beneficiari in circuiti di credito formale. In conclusione, si ipotizza un legame tra difficoltose condizioni di lavoro nel mercato del lavoro salariato e sviluppo della piccola impresa autonoma come alternativa.

Ethiopia, in its unprecedented phase of economic growth, is also experiencing a fall in unemployment rates. Still, these remain quite high, especially in urban contexts: the average urban unemployment rate in 2014 was 16%, with a peak in Addis Ababa (24%). These rates were respectively 22% and 33% in 2003. According to the World Bank 5th Ethiopia Economic Update (WB, 2016), an important characteristic of the Ethiopian urban labour markets in the last decade has been the presence of an increasingly educated work force, but with little change in the structure of employment, both with respect to the ratio between wage employment and self-employment, and with respect to sectorial composition. Moreover, real wages have not reflected the increased level of education of the labour force: although improvements are observed after 2012, these do not compensate for previous decreases.

One of the major policy tools adopted to fight against urban unemployment is a set of programs for the development of Micro and Small Enterprises (MSEs). The national MSE Strategy dates back to 1997 and to the establishment of the Federal MSE Development Agency, but it is more recently that these instruments received much attention. This strategy aims both at fighting unemployment and at formalizing the peri-urban economy. The targets are especially women and youths and the promoted MSEs are in a defined number of prioritized sectors (manufacturing, construction materials, urban agriculture, trade,..). This policy is centred around the idea of work regularization of a fast increasing urban population, of collective participation of citizens organized in groups, and of "saving first", i.e. a number of actions among which trainings aiming at transformation of individuals' attitudes towards saving (Chinigò and Navarra, 2017). The public administration provides initial credit, training and working premises for the first 5 years, that is considered to be the "graduation period", after which the enterprises are supposed to become sustainable. Credit is provided by microfinance institutions through different channels and with different forms of collateral, where the most relevant for unemployed poor people is group collateral, based on joint liability mechanisms. Two main forms of MSEs are promoted:

individual MSEs, where people gather for obtaining credit, but actually work as self-employed, and cooperatives, where enterprises join at least 10 members. The 2016 Statistical Bulletin of the MSE Development sector indicates the numbers of MSEs by sector, as presented in Fig. 1:

Fig. 1. Distribution of MSEs by sector. Source: Annual Statistical Bulletin 2010-2014, MSE Development Sector FeMSEDA.



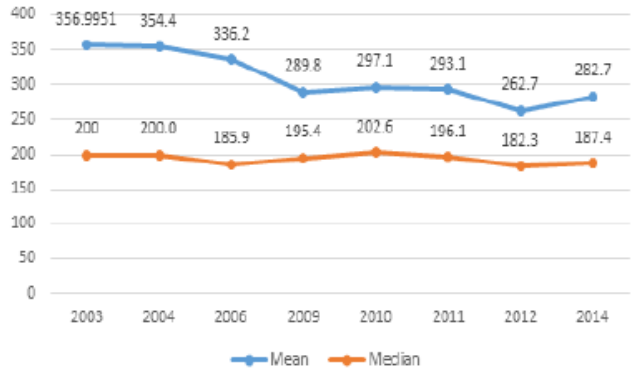
The relevance of MSEs for employment generation seems to be corroborated by the results of a recent experimental study of Christopher Blattman and Stefan Dercon (2017). The experiment randomly assigns jobseekers to industrial jobs, to an entrepreneurship development program (a 300 USD grant plus training), and to a control group. After one year, the income of who entered in the entrepreneurship program had increased by 1/3, while the income increase of wage employees was negligible. Moreover, only 32% of the latter group was employed after one year (compared to 20% of the control group), indicating a high turnover. Finally, employees in industrial firms reported moreover a substantial worsening of their health conditions.

At the same time, other works point at some limitations of MSEs or attempt to put MSEs into perspective. According to Söderbom (2012), indeed new firms are entering every year the Ethiopian market, but they are mostly quite small. These display higher death rates than bigger firms: after 8 years from their birth, 2/3 of small firms are not operating anymore, meaning that the employment generated has disappeared. In a recent study I carried on with my co-author Davide Chinigò (2017) we compare and analyse three groups of small enterprises: informal self-employed, government-sponsored individual MSEs and government-sponsored cooperatives, in three Ethiopian peri-urban settings (Addis Ababa, Jimma and Hawassa). We use a mixed method approach, thus analysing a small survey database (300 observations), stratified by type of firm, and a number of semi-structured interviews with women who are entrepreneurs in the three categories. We find out that sponsored MSEs do not seem to produce higher earnings than informal businesses and follow more or less the same patterns (e.g. low risk, low value added activities). Individual formal MSEs, moreover, do not display higher income stability nor higher access to credit, if we consider both formal and informal channels. Cooperatives represent a partial exception, since they display higher income stability than both informal and formal individual businesses, and a positive correlation with access to credit. On the contrary, it appears that participation into a sponsored MSE is significantly correlated with the use of formal credit channels. These services, managed by Microfinance Institutions, are in fact more accessible to women involved in

sponsored projects, including the individual businesses. In our analysis, it emerges that these credits are not correlated with business profitability, while they are more often used for extra lump-sum expenses in times of hardships or to support individual home-based small scale businesses. This is of course not without exceptions, as the mentioned cases of cooperatives, but other cases can be found also among individual businesses, especially where the observed business is not the only income source of the household. Still, in most observed cases, MSEs enter into poorer households' strategies driven by the need to seek additional incomes to sustain a minimum level of consumption (or seeking to diversify), thus being used as a sort of substitutes for safety nets.

Interestingly, both papers (Blattman and Dercon, 2017, Chinigò and Navarra, 2017) point out the need for income stabilizers, that may explain, in the first case, people queuing for wage employment despite the poor working conditions, and, in the second case, people enrolling in MSE programs, despite the lack of substantial difference in income generated with respect to informal works. Although the different studies cannot be strictly speaking compared with each other, we may wonder how to reconcile the contrasting evidence on entrepreneurship development. An interesting way forward would thus be to analyse the relationship between industrial wage employment and self-employment. Since there is evidence of people moving between self-employment and wage employment and between formal and informal works (WB, 2016, Chinigò and Navarra, 2017), it is reasonable to think that the conditions available on the formal waged-labour market affect the flow of people towards self-employment and the comparative attractiveness of the latter. There is indeed evidence of stagnation of real wages (WB, 2016. See Fig.2), with signs of increase since 2012 that are unable to catch up the decline in previous years.

Fig. 2. Monthly real urban wage. Source WB (2016) calculations on Urban Employment Unemployment Survey 2003-2014.



Inequalities among wage earners are also substantial. Women have wages 28% lower than men, accounting both for lower hourly wages and fewer hours worked. Real wages of categories with some education suffered the biggest decrease comparing 2006 and 2014. At the same time, it is low skilled wages that are clustered around very low levels: the real wage of the 25th percentile of people with no education is below the nominal national poverty line (WB, 2016). Moreover, Blattman and Dercon (2017) highlight the worsening effect of industry employment on workers' health. Although this would require greater empirical explorations, we can argue that poor working conditions in the formal labour market play a role in the attractiveness of entrepreneurial alternatives.

References

Blattman, C. and Dercon, S., (2017). The impacts of industrial and entrepreneurial work on income and health: Experimental evidence from Ethiopia. *American Economic Journal: Applied Economics*, forthcoming.

Chinigò D., Navarra C., (2017). Small enterprises in urban areas between formalization policies and social protection needs. A discussion on the Ethiopian case, paper presented at the EADI Nordic Conference, Bergen, Norway, August 2017.

Söderbom, M. (2012). Firm size and structural change: A case study of Ethiopia. *Journal of African Economies, 21*(suppl_2), ii126-ii151.

The World Bank, (2016). *5th Ethiopia Economic Update. Why so idle? Wages and Employment in a Crowded Labour Market*, December. This report uses the Urban Employment Unemployment Survey of the Ethiopian Central Statistical Agency.

THE ELECTRIFICATION OF ETHIOPIA: A REMEDY TO TACKLE RURAL POVERTY

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Sintesi

Nonostante l'eccellente performance dell'Etiopia in termini di crescita economica, il paese presenta difficoltà significative nella gestione di siccità e carestie che ostacolano un pieno processo di sviluppo. Le strategie governative per affrontare la vulnerabilità in ambito rurale si focalizzano sulla modernizzazione delle tecniche agricole. Il presente articolo spiega che tali metodi risultano insufficienti a causa della persistenza di fattori legati alla vulnerabilità come la forte crescita demografica e la mancanza di infrastrutture in aree rurali remote. Inoltre la maggior parte della popolazione rurale etiope utilizza biomassa, come il legno, come fonte primaria di energia, con impatto negativo sulla produttività dell'agricoltura e sulla disponibilità di risorse naturali e sui conseguenti conflitti sociali. L'autore presenta come consistenti investimenti in energia rinnovabile rappresentino un interessante potenziale per lo sviluppo delle aree rurali del paese, che permetterebbe di affrontare diverse dimensioni delle sue fonti di vulnerabilità.

The Ethiopian economy has developed impressively with double digit growth over the last decade (Deloitte, 2014). In contradiction to other fast growing economies like Nigeria or Angola, Ethiopia achieved its remarkable growth without exploiting fossil resources .Yet, the strongly agricultural based economy suffers as 85% of the Ethiopian soil is at least to some extent degraded and this threatens agricultural productivity and food security (Gebreselassie et al., 2016). The problem will potentially deteriorate in the future due to the ongoing rapid population growth. According to estimations Ethiopia is projected to have 140 million inhabitants by 2030 and 190 million inhabitants by 2050 from which more than 65% of the population are likely to live in non-urban areas (Wordometers, 2017).

In order to become more resilient against the negative consequences of climate change and to continuously follow the development path given its resource constraints, Ethiopia would require to shift stepwise from a natural resource-based towards a skill- and technology-based economy. Therefore, access to electricity is crucial for the Ethiopian population, which still has an outstanding small average annual electricity consumption as can be seen in Table 1.

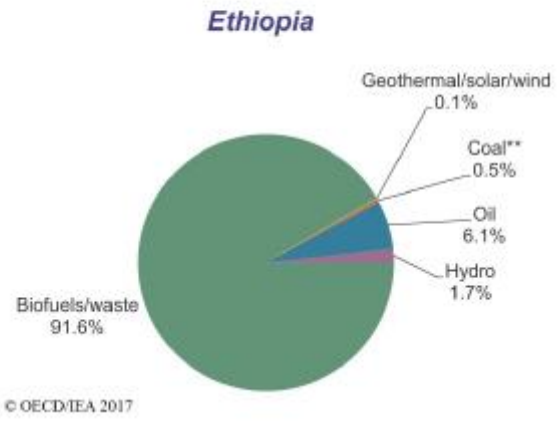
Table 1: *Electricity consumption by population*

Region	MWh/captia
Ethiopia	0.09
Africa	0.57
European Union	5.97
World	3.05

Source: Data from 2015 by IEA (2017)

Only 27.2% of the Ethiopian population has access to electricity which hinders improvements in health, education and businesses development (Energypedia, 2017). Without electricity Ethiopians heavily depend on biofuels, i.e. firewood, manure, and crop residues, that represents by far the largest share of the total primary energy supply (TPES, see figure 1). The dominance of biomass is not surprising given the fact that 80% of the Ethiopian population live in rural areas where only 10% have access to electricity (Barnes et al., 2016; Energypedia, 2017). Biomass is mainly used for cooking and lightening purposes but the dependency on biomass has various negative implications. Firstly, open-fire food preparation causes increased susceptibility to diseases related to air pollution (Africa Progress Panel, 2015). Secondly, the high consumption of firewood increasingly depletes the forests, reduces the fertility of the soil and makes them prone to erosion (Mulugetta, 1999; Bekele and Palm, 2009).

Figure 1: *Shares of total primary energy supply (TPES)*



In addition, the use of crop residues and manure as energy source spurs the depletion of farm land and reduces agricultural productivity (Bekele and Palm, 2010). Finally, the availability of biomass for rural households is declining in the face of an ongoing population growth and lacking access to alternative energy sources (Wolde-Ghiorgis, 2002).

Therefore, a shift towards on- and off-grid electricity would create several social and economic advantages. Among the most obvious advantages of electricity is the much higher quality of emitted light that facilitates housework and homework tasks of women and children (Ellegård et al., 2004; Balint, 2006; GTZ, 2010). Ethiopian women, that are responsible for any off-farm task, would save time, effort and money that presently are invested in the procurement of biofuels which become increasingly scarce due to population growth (GTZ, 2010; Komatsu et al., 2011). Access to electricity also reduces health threats from open fire pollution and risks of blazes are minimised (Martinot et al., 2001; Balint, 2006; Obeng et al., 2008; GTZ, 2010). Moreover, information would become accessible via mass media and overcrowded schools would have the possibility to provide education during evening hours (Al-Soud and Hrayshat, 2004; Ellegård et al., 2004; Balint, 2006; Gustavsson, 2007; Komatsu et al., 2011). Besides the mentioned reductions in discomfort and widening possibilities in education and social life, electricity access can unleash the evolution of new businesses, services and employment opportunities that contribute to the development of remote areas. This point is crucial as

an improvement in rural living conditions reduces the tendency of migration to increasingly overcrowded urban areas or the risk of brain drain to foreign countries.

Fortunately, the Ethiopian government is aware of these potentials and has launched the second phase of the Growth and Transformation Plan (GTP-II) in 2015, which aims to provide electricity connection for eight million units (predominantly households) by 2020. To achieve this goal the Government of Ethiopia is willing to progressively exploit the immense potential for renewable energies and aims to become climate resilient with zero carbon growth by 2025 (Derbew, 2013). Hereby, hydro and wind power are the main targets of financial investments and produced already 10,433 TWh in 2015 with hydro power bearing the lion share (9,674 TWh). The annually produced electricity will increase over the next years as large dam construction projects such as the Grand Ethiopian Renaissance Dam (estimated annual electricity generation: 16 TWh) and the Gibe III Dam (estimated annual electricity generation: 6,5 TWh) are already or close to being finalized (Africa Progress Panel, 2015; The Economist, 2016, 2017). With the completion of the Grand Ethiopian Renaissance Dam, Ethiopia will have the largest hydro power plant and fourth largest wind farm (Adama II: 1,342 TWh / year) in Africa (Face2FaceAfrica, 2017).

On the one hand these efforts of the Ethiopian government to spur development by exploiting its hydroelectric and wind potential bears promising prospects for different reasons. Firstly, it allows to generate emission free renewable energy that feeds the rising electricity demand of the country. Secondly, it would create exports of energy to the neighbouring countries such as Kenya, with positive consequences on the facilitation of foreign currency inflow (SWR2, 2015). Finally, it would foster regional integration and cooperation.

The combination of wind and hydro power suggests to be a perfect combination as wind power can smooth electricity supply during the dry season and does not overload the grid during rain season when winds occur sparsely.

On the other hand this strategy bears several drawbacks. By controlling the water flow the construction of large hydro power dams influences the natural system and leads to soil erosion in the downstream area. In addition, these projects create tensions with neighbouring countries concerning the access to water, e.g. disputes with Egypt regarding the Grand Ethiopian Renaissance Dam on the Blue Nile (The Economist, 2017), as well as conflicts with its own population, e.g. resettlement of the Oromo people due to the Gibe III Dam on the Omo river (The Economist, 2016). Moreover, it is disputable how far hydro power can be a sustainable solution in an already drought affected country. Even though performance fluctuations might be smoothed by wind energy, intensified climate conditions can create (inter)national public pressure on the Ethiopian government to unleash the water flow.

Besides performance and political issues, a closer look at the spatial distribution of the Ethiopian population hints at the occurrence of major challenges to supply electricity to its inhabitants. The lion share of Ethiopians (80%) live in rural and remote areas without proper access to infrastructure. In addition, large parts of the Ethiopian landscape are mountainous and difficult to reach. Hence, the provision of grid-based electricity is currently an utopia for the majority of rural peasants as it is costly and potentially impossible for the Ethiopian government to expand the grid to the whole country.

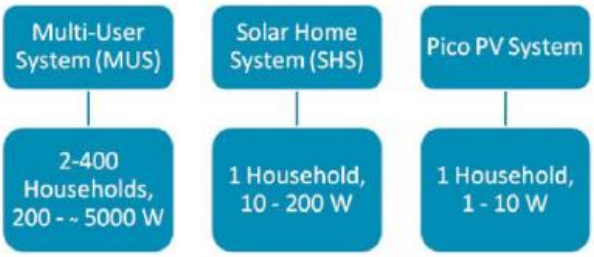
Reflecting that the already installed grid connections suffer from frequent power cuts and limited efficiency due to long transport distance, it is worth to consider additional promising solutions.

Table 2: *Renewable Energy Potential*

Energy	TWh / year	Mtoe / year
Geothermal	8,75	0,75
Hydropower	260	22,36
Wind	488,46	42
Solar	2407,41	207

Source: Own calculations based on Mulugetta (1999); Bartle (2002); Mulugetta (2008).

Figure 2: *Off-grid Photovoltaic Systems*



Source: GTZ (2010).

Regarding this issue, Table 2 clearly shows that Ethiopia has not only an enormous potential for hydro and wind power but also for solar energy. Exploiting solar irradiation with off-grid technologies would allow to provide electricity without the necessity to expand the existing grid-network over long distances to even the remotest areas. Instead, each household or village would become its own energy producer and could set up small local grid networks. Since 50Wp are sufficient to satisfy basic energy demands of small rural households (GTZ, 2010), the diffusion of Pico Photovaltaic Systems (Pico PV) and Solar Home Systems (SHS) would be adequate to serve the current demand of 10.27W per capita (= 0.09 MWh / capita in 2015, see table 1).

This solution might not be as prestigious as the hydro and wind power flagship projects but the promotion of decentralized off-grid electricity generation would spur the electrification in remote areas and would set a cornerstone for rural development.

References

Africa Progress Panel, 2015: Power people planet: seizing Africa's energy and climate opportunities: Africa Progress Report 2015.

Al-Soud, M. S., and E. S. Hrayshat, 2004: Rural photovoltaic electrification program in Jordan. *Renewable and Sustainable Energy Reviews*, 8 (6), 593–598.

Balint, P. J., 2006: Bringing Solar Home Systems to rural El Salvador: Lessons for small NGOs. *Energy Policy*, 34 (6), 721–729.

Barnes, D. F., R. Golumbeanu, and I. Diaw, 2016: Beyond Electricity Access: Output-Based Aid and Rural Electrification in Ethiopia. URL

http://documents.worldbank.org/curated/en/781791487789244953/pdf/112967-WP-P105651-PUBLIC-Beyond-Electricity-Access-Ethiopia-FINAL.pdf.

Bartle, A., 2002: Hydropower potential and development activities. *Energy Policy*, 30 (14), 1231–1239.

Bekele, G., and B. Palm, 2009: Wind energy potential assessment at four typical locations in Ethiopia. *Applied Energy*, 86 (3), 388–396.

Bekele, G., and B. Palm, 2010: Feasibility study for a standalone solar–wind-based hybrid energy system for application in Ethiopia. *Applied Energy*, 87 (2), 487–495.

Deloitte, 2014: Ethiopia: A growth miracle. URL https://www2.deloitte.com/content/dam/Deloitte/za/Documents/strategy/za_ethiopia_growth_miracle_july2014.pdf , accessed 18.11.2017.

Derbew, D., 2013: Ethiopia's Renewable Energy Power Potential and Development Opportunities. Ministry of Water and Energy: Abu Dhabi, UAE.

Ellegård, A., A. Arvidson, M. Nordström, O. S. Kalumiana, and C. Mwanza, 2004: Rural people pay for solar: Experiences from the Zambia PV-ESCO Project. *Renewable Energy*, 29 (8), 1251–1263.

Energypedia, 2017: URL https://energypedia.info/wiki/Ethiopia_Energy_Situation , accessed 31.10.2017.

Face2FaceAfrica, 2017: URL https://face2faceafrica.com/article/african-wind-farms/5 , accessed 30.10.2017.

Gebreselassie, S., O. K. Kirui, and A. Mirzabaev, 2016: Economics of land degradation and improvement in Ethiopia. Economics of land degradation and improvement–a global assessment for sustainable development, Springer, 401–430.

GTZ, 2010: What difference can a PicoPV system make? Early findings on small Photovoltaic systems - an emerging low-cost energy technology for developing countries. Published by Deutsche Gesellschaft für Technische Zusammenarbeit. Eschborn.

Gustavsson, M., 2007: Educational benefits from solar technology - Access to solar electric services and changes in children's study routines, experiences from Eastern Province Zambia. *Energy Policy*, 35 (2), 1292–1299.

IEA, 2017: Ethiopia: Indicators for 2015. URL http://www.iea.org/statistics/statisticssearch/report/?country=ETHIOPIA&product=indicators&year=2015 , accessed 25.10.2017.

Komatsu, S., S. Kaneko, and P. P. Ghosh, 2011: Are micro-benefits negligible? The implications of the rapid expansion of Solar Home Systems (SHS) in rural Bangladesh for sustainable development. *Energy Policy*, 39 (7), 4022–4031.

Martinot, E., A. Cabraal, and S. Mathur, 2001: World Bank/GEF solar home system projects: experiences and lessons learned 1993–2000. *Renewable and Sustainable Energy Reviews*, 5 (1), 39–57.

Mulugetta, Y., 1999: Energy in Rural Ethiopia: Consumption Patterns, Associated Problems, and Prospects for a Sustainable Energy Strategy. *Energy Sources*, 21 (6), 527–539.

Mulugetta, Y., 2008: Human capacity and institutional development towards a sustainable energy future in Ethiopia. *Renewable and Sustainable Energy Reviews*, 12 (5), 1435–1450.

Obeng, G. Y., F. Akuffo, I. Braimah, H.-D. Evers, and E. Mensah, 2008: Impact of solar photovoltaic lighting on indoor air smoke in off-grid rural Ghana. *Energy for Sustainable Development*, 12 (1), 55–61.

SWR2, 2015: Strom für Ostafrika: Äthiopiens Megastau-Damm am blauen Nil. URL https://www.swr.de/swr2/programm/sendungen/wissen/strom-fuer-ostafrika/-/id=660374/did=16405392/nid=660374/1mwvbie/index.html, accessed 28.10.2017.

The Economist, 2016: Ethiopia opens Africa's tallest and most controversial dam. URL https://www.economist.com/news/21712281-gibe-iii-dam-has-capacity-double-countrys-electricity-output .

The Economist, 2017: How climate change might affect the Nile. URL https://www.economist.com/news/middle-east-and-africa/21725802-egypt-ethiopia-and-sudan-will-have-learn-share-water-or-their-people-will

Wolde-Ghiorgis, W., 2002: Renewable energy for rural development in Ethiopia: the case for new energy policies and institutional reform. *Energy Policy*, 30 (11), 1095–1105.

Wordometers, 2017: URL http://www.worldometers.info/world-population/ethiopia-population/ , accessed 02.11.2017.

FERTILITY AND LIFE SATISFACTION IN RURAL ETHIOPIA

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Sintesi

Questo articolo sintetizza i risultati principali di uno studio sulla fecondità e la felicità nell' Etiopia rurale condotto da P. Conzo (Università di Torino), G. Fuochi (Università di Padova) e L. Mencarini (Università Bocconi) e pubblicato sulla rivista scientifica "Demography". I risultati suggeriscono che, al netto delle condizioni di povertà soggettive ed oggettive, in Etiopia rurale avere molti figli genera una condizione di felicità percepita. Tuttavia questo risultato è confermato solo per gli uomini in età avanzata, mentre per le donne - cui spetta il fardello della gravidanza, del parto e della cura dei figli – l'effetto va in direzione opposta. Per le donne la nascita di un nuovo figlio comporta una riduzione del benessere soggettivo, un "costo" cioè per una scelta di investimento di cui beneficerà in futuro solo il marito. Questo studio offre quindi una spiegazione al perché i tassi di fecondità sono ancora elevati in Etiopia rurale (e in generale in Africa Subsahariana), un tema centrale per attivare processi di sviluppo basati sull'espansione di programmi di welfare, miglioramenti delle strutture sanitarie e promozione del ruolo decisionale della donna, segnando un graduale passaggio da quantità a "qualità" (istruzione e salute) dei figli.

Despite a general decline across the world, fertility remains very high in Sub-Saharan African countries, where it is above the replacement level and correlates to high poverty. There are several explanations to why parents still have so many children. One recurrent argument focuses on adults' perceived benefits from having children. The traditional economic theory of fertility, the Value of Children approach and the Intergenerational Wealth Flows go in this direction. They explain high fertility by recognizing that children are perceived as a value because they are a source of labor and support especially in old age.

In addition to their tangible values, children also bring about intangible values to parents, such as emotional rewards, psychological appreciation, adherence to local cultural norms prescribing a large family size. This feature has spurred a series of studies where the potential gain from childbearing is measured through reported life satisfaction, besides evaluating the costs and benefits of children in terms of economic outcomes. This line of studying fertility behavior, however, concerns predominantly developed countries and to a much lesser extent developing countries, in part because high quality panel surveys are not available as they are for developed countries. The picture is further complicated by the uneven bargaining power between partners when it comes to fertility behavior. Fathers may be the ones perceiving – and reaping – the benefits of grown-up children as suggested by different theories.

Drawing on this background, the study I conducted with G. Fuochi (University of Padua) and L. Mencarini (Bocconi University), titled "Fertility and Life Satisfaction in Rural Ethiopia" and published in Demography (54[4]: 1331–1351), aims at establishing how much parents benefit from children in terms of life satisfaction in rural Ethiopia. First, we ask whether fertility affects how satisfied residents of a poor, rural environment are in general with their life. Second, we assess the extent this relationship varies by gender and across different life stages.

The context plays an important role in this study. According to the World Bank data, the rural population over the period 2011-2015 corresponded to 80-82% of the total population in Ethiopia, overall the second-most populous African country (almost 100 million in 2015) and with the highest

population growth in the world (with a yearly rate of 2.5 percent in 2014, World Bank data). With a Total Fertility Rate (TFR) of 5.5 children per woman in 2011 and 6.0 in 2005, rural Ethiopia is a perfect case study for our analysis. In 2011 the difference between the total fertility rate in rural and urban Ethiopia was substantial (5.5 children per woman on average vs. 2.6) and the same difference held for contraceptive use among married women (23.4% in rural Ethiopia vs. 52.5% in urban Ethiopia). Rural Ethiopia is characterized by extremely weak social security schemes, cultural norms dictating a large family size, patrilineal formal and informal institutions, poor knowledge about contraception and low uptake, and very limited household bargaining power of women, who also report a mismatch between desired and observed fertility.

On the basis of the aforementioned theories and facts, we have hypothesized that in rural Ethiopia fertility plays a major role in the parents' subjective well-being, although with differences by gender and across life stages. Specifically, we expected a large family size to be related to greater well-being of older parents, while childbirth events would not generate an immediate positive effect. We expected gender effects, with the total number of children affecting positively men's, but not women's, subjective well-being. By exploiting the two most recent waves of the Ethiopian Rural Household Survey (ERHS) we tested these hypotheses separately for men and women, for different age groups, and analyzing how the number of children ever born and new births events relate to life satisfaction of the parents.

Our results show a positive relationship between the number of children ever born and life satisfaction of men aged between 50 and 60 years. Moreover, having had at least a new child in the five years before the interview negatively impacts life satisfaction of women in reproductive age. These effects persist even if we control for objective and subjective poverty indicators and other socio-economic controls. In other words, having a child worsens subjective well-being of younger parents, while the effect is reversed for older parents.

Importantly, despite a large number of children associates with high poverty, the life satisfaction of the fathers increases in the number of children. Subjective well-being in this sense portrays the multidimensional value of children, besides their objective influence on the economic sphere. Our findings suggest that Ethiopian parents perceive the cost of having a child as compensated by long-run benefits of different types, for instance labor assistance in agriculture, uncertainty reduction, old-age support and social status. Our gender-specific results, however, highlight that only men consider children as a valuable investment in a life-cycle perspective, while women mainly bear the costs of childbirths, including the physical risk associated with pregnancy and delivery. The latter is particularly relevant in Ethiopia, which is still striving to improve maternal health, the most problematic among the eight Millennium Development Goals for this country. In fact, Ethiopia has the lowest proportion of births attended by skilled healthcare personnel among all the African countries. These different implications of childbearing for men and women are consistent with women's preference for less children compared to men, which in turn is reflected by Ethiopian women's unmet need for contraception (27.5% women in rural Ethiopia 2011 and 34% in total Ethiopia in 2005, according to Ethiopian DHS data).

Given the adverse effect of childbirth on women's well-being, it is not surprising that women tend to prefer fewer children than men. Yet birth rates per woman are still high in rural Ethiopia! Societal characteristics may explain this puzzle. In a context where men enjoy high household bargaining power, due to cultural traditions, gendered societal institutions, larger relative wealth and customary rules on divorce settlement, having a(nother) child is likely to be driven by men's preferences. Moreover,

conformity to social norms on ideal family size contributes to explain individual fertility decisions, as male Ethiopian household heads give value to a large number of children, culturally recognized as a source of high social status.

Concluding, as long as local traditions endorse large family size and men attribute high instrumental and immaterial value to their grown-up children, combined with the fact that the use of contraception is typically decided by husbands, fertility rates are not likely to decrease very soon in rural Ethiopia. This poses serious obstacles to the development process since having many children (quantity) adversely affect parental investment in human capital (quality), which in turn locks the household in the education-poverty trap.

Our findings suggest that addressing the issue of high fertility means a massive change in fathers' attitudes toward childbearing and an improvement in women's conditions in terms of schooling, job participation and partnership quality, as these three characteristics are associated with a preference for less children. At the same time, female empowerment might help to balance the bargaining power on fertility decision within the family, since – in the current situation – women's preferences for a lower number of children are obscured by those of their husbands.

Finally, in contexts where old-age support is better provided by children than by institutions, high fertility may appear an optimal strategy for parents' well-being in a life-cycle perspective. Therefore, at the government level, strengthening and expanding the social security system could mitigate the fathers' need for children as old-age insurance providers, and hence easy the quality vs. quantity of children tradeoff. Providing easier access to formal health care services would also improve the woman's subjective well-being after the birth of a child.