

Economic Benefits of Gender Inclusive Policies: Evidence from Chad

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Disclaimer: The views in this paper are solely of the authors.

SUSTAINABLE DEVELOPMENT GOAL 5

Achieve gender equality and empower all women and girls



When resources are limited, it is not always easy to convince, and justify making investments in addressing issues which are often wrongfully viewed as problems of one set of the population.

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Gender equality contributes to economic growth by increasing the stock of human capital, physical capital, and labor force participation. (Costa et al., 2009; Braunstein, 2012; Kabeer et al., 2013; Kabeer and Natali, 2013).

On the other hand, economic development is not enough to shrink all gender disparities (Kabeer and Natali, 2013) —corrective policies that focus on persisting gender gaps are essential.

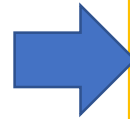
When the emphasis takes the direction of gender equality for growth, there is a strong rationale in reducing inequalities. (Duflo, 2012; Kabeer and Natali, 2013).

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From gender
mainstreaming
(systematically integrating
gender perspectives into
legislation, public policies,
programs, and projects)

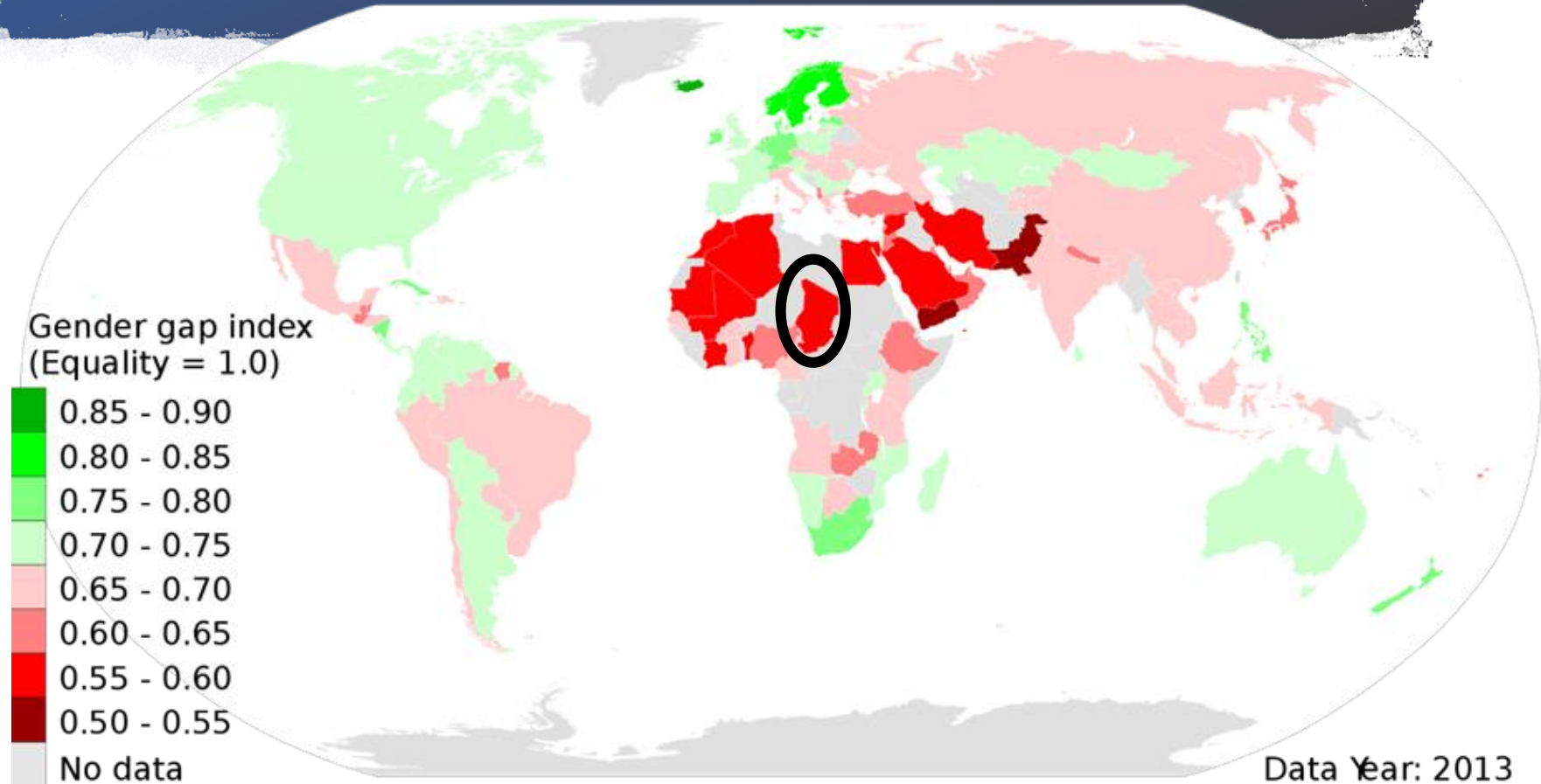


To quantifying outcomes
and monitoring results

In This Paper...

We identify

- i) The main gender gaps in Chad, and
- ii) Quantify the economic benefits of policies to close these gender gaps.



Source: Map created by M. Tracey Hunter based on gender gap index in Global Gender Gap Report 2013

CGE-Gender Literature

- Earlier studies focused more on impact of economic policies (for example, trade policies) on female labor.
- Laderchi et al. (2010) : One of first studies looking at costs and financing methods of gender-gap-reducing policies, such as closing education gaps, increasing productivity in domestic work, and reducing wage discrimination.
- Increasing recognition of unpaid domestic work in these model-based studies (*Fontana and Wood 2000, Fontala et al. 2001*),
- Cicowiez and Lofgren follow an approach to segregate male and female labor categories, formal and informal labor, unpaid domestic work, unpaid labor in activities not related to the care economy such as family workers in agricultural activities, and labor-leisure choice or labor supply decision for men and women. (*Cicowiez et al. 2018; Severini et al. 2018; and the draft work of Lofgren et al. 2018*).
- Extend CGE frameworks to better capture the dynamics of skill building and labor force participation by endogenizing LFP of individuals and explicitly modelling the transformation of unskilled labor to skilled labor through education and training.

Methodology and data

- Modified version of Mitigation, Adaptation, and New Technologies Applied General Equilibrium (MANAGE) model, which is a recursive dynamic single-country computable general equilibrium (CGE) model.
- Base year 2017
- Chad Harmonized LSMS 2017/2018 used to identify main gender gaps
- 2016 Social Accounting Matrix updated to 2017 using HH survey 2018, TCED and engendered using HH survey information.
- BAU scenario: No-COVID macro outlook until 2022 (World Bank MPO), afterwards steady growth a steady growth path where GDP per capita growth steadily increases as population growth slows down

Methodology: Oaxaca-Blinder Decomposition

- Breaks down gender gap into two main components:
 - the endowment effect and
 - the structural effect
- *The endowment effect*: result of differences between males and females in terms of factors of production such as age, family characteristics, rural or urban and so on.
 - E.g. differences in resources received
- *The structural effect*: captures the returns to resources.
 - E.g. even when same amount of resources are provided, results maybe different because of discriminatory treatment within formal and informal societal institutions.

Methodology: Modifications to MANAGE

- **Labor supply decision** :The functional form follows a simple rule of motion where increase in health and education spending and reductions in restrictions on women due to **social norms** increases Female LFP (ls) according to estimated elasticities.

$$ls_{f,t} = ls_{f,t-1} \left(\frac{edu_t}{edu_{t-1}} \right)^{\mu_e} \left(\frac{hea_t}{hea_{t-1}} \right)^{\mu_e} \left(\frac{soc_t}{soc_{t-1}} \right)^{\mu_s}$$

- **Savings rates are a function of old and young dependency ratio** : In Chad the ration is close to 1 but an overwhelming 95% of dependents are below 14 years old.

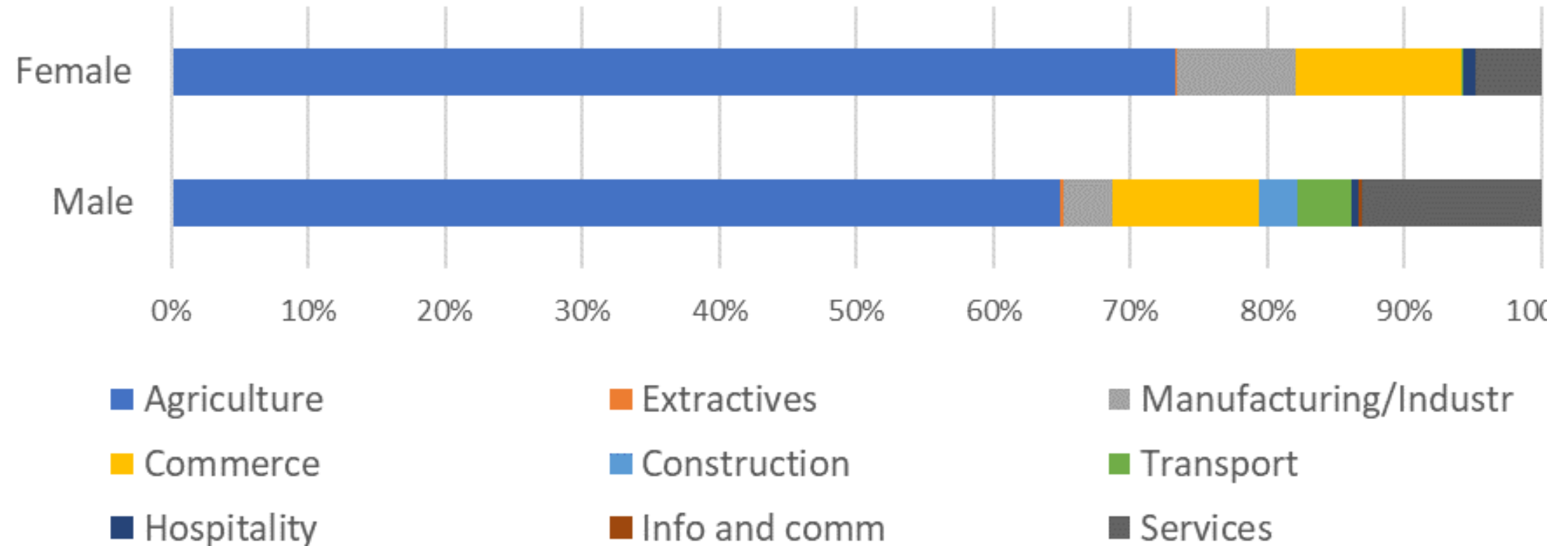
$$\frac{s_t}{s_0} = 1 + sign(s_{t-1}) \left(\frac{v_t}{v_{t-1}} \right)^{\epsilon_v} \left(\frac{\omega_t}{\omega_{t-1}} \right)^{\epsilon_\omega}$$

Where s_t is saving rate in time t , s_0 is saving rate in the first period, v is young dependency ratio and ω is old dependency ratio, ϵ_v is elasticity of saving rates to young dependency ratio and ϵ_ω is elasticity of saving rates to old dependency ratio.

Methodology: Engendering SAM

- Gender gaps exist in most accounts (household, government, activities, and so on) of a SAM.
- But the easiest to model in a CGE model is probably the gap in factor markets
- In Chad SAM we engendered labor accounts:
 - Male and female
 - Farm family workers, other farm workers, salaried non-farm workers, non-salaried non-farm

Chad Context: Sectoral Employment



Chad Context: Employment Type

Most women are employed as family farm workers

	Agriculture	Manufacturing	Services
Female	32.7	5.2	8.6
Salaried Non-farm	0.0	0.1	1.2
Non-Salaried Non-farm	0.0	5.1	7.4
Family Farm	21.5	0.0	0.0
Other Farm	11.2	0.0	0.0
Male	35.0	3.6	15.0
Salaried Non-farm	0.0	1.1	5.9
Non-Salaried Non-farm	0.0	2.4	9.0
Family Farm	12.7	0.0	0.0
Other Farm	22.3	0.0	0.0

Results:

The Main Economic Gender Gaps



Chad has a notable gender gap in learning.

Quantity vs Quality



Female LFP is 62% vs 79% (male LFP)

Endowment effect (access to resources): 6.5 percentage points, access

Structural effect (strict social norms): 17.9 percentage points



Gaps in agricultural productivity (female managed plots 59% less profitable)

Mostly due to endowment effects (resources): inability to spend as much time as men on their plots, lack of adequate tools and machinery.



Gaps in enterprise performance (46% less profit)

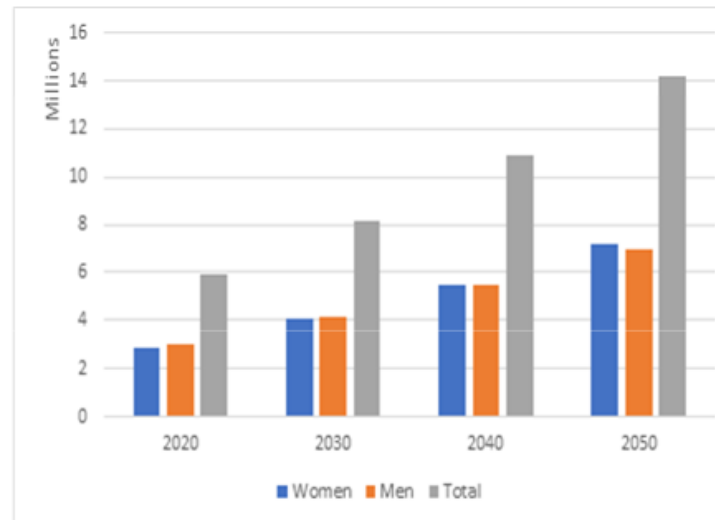
Less likely to have access to electricity, running water, or machinery.

Structural reasons stronger in this gap.

Simulation Results: In Absence of Intervention

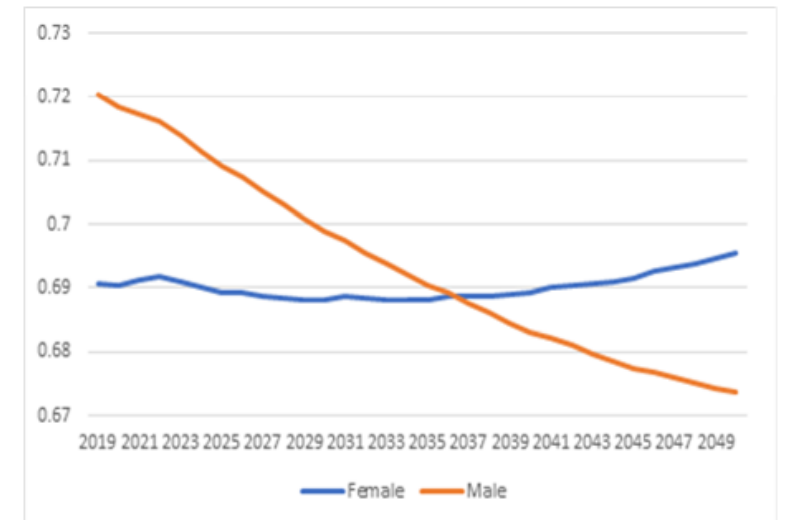
- Employment increases at a steady pace but LFP rate declines slightly for women and 4.5 percentage points for men by 2050.
- Underlying reason: The substitution of capital with labor as TFP increases. Since TFP growth is higher in manufacturing sector which employs more male labor than women, LFP decline in male labor is higher.
- Most women are employed in agriculture. Thus their LFP is not affected significantly and even improves slightly after 2035 as labor force growth slows down.

Labor Supply by gender



Source: CGE model results

Labor force participation rates for male and female labor



Scenario 1: Agricultural productivity

15% TFP increase in female owned farms

- Implies around 30% increase in output value per hectare = 50% of the gap

Government investment increases by 10% > better extension services, roads, irrigation channels etc.

Main results

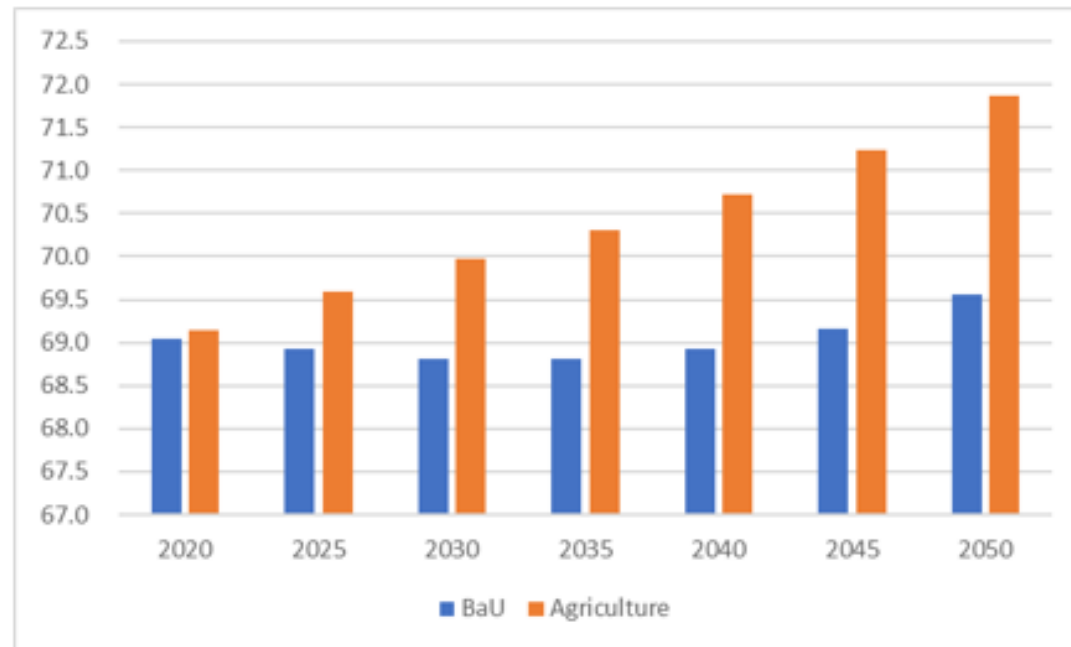


- Closing the agricultural productivity gap would increase GDP by 1.3% in 2030
- Closing the productivity gap between female and male owned farms through government investments boosts agricultural production, reduce food prices and improve household welfare throughout the country.
- Female labor supply increases more than 3% ; wage gap closes

Scenario 1: Agricultural productivity

- Female LFP increase by 3 percentage point.
- But increase is mostly lead by unpaid family farm workers rather than paid farm workers.
- This implies most female owned farms rely on family labor rather than hiring and thus the real impact on employment is questionable.

**Figure: Female labor force participation,
Agriculture Scenarios vs BaU**





Scenario 1: Agricultural productivity

	2020	2035	2050
Production			
Agriculture	0.5	8.2	16.4
Food Crops	0.4	7.5	16.4
Cash Crops	0.2	3.8	3.7
Livestock	0.7	9.2	17.4
Male Owned	-0.8	-15.4	-28.3
Female Owned	3.1	54.0	103.0
Manufacturing	-0.2	-2.4	-3.8
Oil	-0.9	-8.8	-12.3
Services	0.0	1.2	4.4
Exports			
Agriculture	2.0	32.2	109.1
Manufacturing	-1.0	-9.5	-12.8
Oil	-1.0	-9.6	-13.0
Services	-0.3	-0.5	3.7
Imports			
Agriculture	-0.7	-9.6	-26.4
Manufacturing	0.1	1.0	-0.1
Services	-0.3	-3.6	-5.5
Total Supply (Production + import)			
Agriculture	0.2	2.8	5.7
Manufacturing	0.1	1.4	1.9
Services	0.0	0.3	2.1
Wage			
Female	0.4	5.6	9.9
Male	-0.3	-1.7	1.8

Scenario 2: Demographic Transition

More spending on education health > women stay longer in school/join labor force > lower birth rates > lower dependency rate > higher saving rates > demographic dividend

Headlines



- Fertility rate declines as 10% of family farm labor women become other farm labor & non salaried women become salaried.
- Demographic dividend window for Chad lasts until 2045 with GDP growth rates reaching up to 1.1% by 2035
- Increase in female labor force participation especially before 2035, and the increasing wage rates closes the gender gap in income and pay significantly.
- Significantly higher gains in education



Scenario 2: Demographic Transition

- Service sectors' output and export increase as service activities can take advantage of increasing female labor supply.
- On the other hand, the increase in agricultural outputs is insignificant and exports suffers for most of the simulation periods.
- This is due to shift of female labor from unpaid farm labor to paid labor type.

	2020	2035	2050
Production			
Agriculture	-0.2	0.7	0.2
Food Crops	-0.2	0.1	-0.1
Cash Crops	-1.0	2.9	-0.4
Livestock	-0.2	1.2	0.7
Male Owned	-0.3	0.7	0.3
Female Owned	-0.2	0.5	0.1
Manufacturing	-2.0	-1.0	-3.3
Oil	-6.1	-5.7	-7.7
Services	0.7	2.9	1.1
Exports			
Agriculture	-1.2	-6.0	1.2
Manufacturing	-7.3	-6.3	-8.1
Oil	-7.3	-6.3	-8.1
Services	-7.0	3.4	2.3
Imports			
Agriculture	-1.3	7.5	0.4
Manufacturing	2.5	0.7	0.1
Services	-1.5	-1.8	-4.1
Agriculture	-0.1	2.0	0.2
Manufacturing	1.1	1.4	0.3
Services	0.5	2.0	-0.1
Wage			
Female	4.9	5.6	10.1
Male	3.4	5.0	9.6

Investments
in human
capital is far
reaching

Agricultural policies would contribute more to GDP growth while performing worse in terms of increasing GDP per capita.

Investing in education and health to increase women's enrolment in labor markets and to keep them longer in schools would start a demographic transition what would increase GDP per capita significantly.

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Cash Crops	-1.0	2.9	-0.4
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Male Owned	-0.3	0.7	0.3
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