

Nutritional Status of Women in Andhra Pradesh and Telangana

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Abstract

6.1 Introduction

Not eating enough over long periods of time makes a person too thin and the body mass Index turns low. Inadequate and low-quality diets also lead to people being short. They are undernourished. Sustainable development goal 2 on hunger aims to achieve zero hunger by 2030. Reaching the goal for India requires improving the Body mass Index as well as heights of women men and adolescents including realization of intergenerational potential. Quality of life is the main contributor to nutritional status.

Opportunities that people have, to improve the quality of their lives is of concern. Social opportunity refers to the individual's options in course of their interactions with others in the society. Both the level of average opportunity and the inequality in opportunity depend upon the limitation imposed on individual's chance of improving their capabilities (Jean Dreze and AK Sen 1995). Policies should be aimed at increasing societal welfare, not just GDP. What matters is not just inequality in income and consumption but inequalities in the opportunities, capacities, and life chances of those born under different circumstances. Political voice and civic participation are likewise important (Stiglitz-Sen-Fitoussi Report 2009). Recognizing this, Sustainable development Goals consider social economic and political inclusion in the goals. Goals 8, 10, 11 and 16, to be achieved by 2030, refer to the concept of inclusion. Goal 10 specifically seeks to "empower and promote the social, economic and political inclusion of all. Differentials, in terms of class, caste, gender age, race, religion, income wealth, disability, location and so on deny

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individuals opportunity to improve their quality of life. Circumstance which are beyond the control of individuals are the main concern.

Public policy and its implementation shape wellbeing of regions, social groups and individuals. Public policy in India contributed to decline in poverty but inequality is on the rise in recent years. (Chancel Lucas et.al., 2017). Though income poverty declined to some extent, other deprivations exist (Radhakrishna R, 2015). Instances of public policy declarations and legislations to systematically equalize opportunities assume importance. The composite state of Andhra Pradesh adopted such a unique legislation. This chapter investigates the significance of social group in explaining nutritional outcomes of adult women, men in the age groups 20 years and above after controlling for other variables, in two successor states to erstwhile Andhra Pradesh on the eve of bifurcation.

Andhra Pradesh is a southern state in India, and, it has been bifurcated into two states in July 2014, as Andhra Pradesh and Telangana. The new Andhra Pradesh is the residual part of 13 districts after the separation of 10 districts as the state of Telangana out of the 23 districts of the composite state of Andhra Pradesh. The social composition and economic dynamics changed substantially after bifurcation. However, both the states reiterated their support to the legislation enacted in the composite Andhra Pradesh to reduce social inequality. Both the states declared the intension to implement a unique and bold affirmative action of budget allocations in proportion to the population of vulnerable groups, viz., scheduled caste (SC) and scheduled tribes (ST). The legislation was enacted in the composite state of Andhra Pradesh in 2013, albeit not implemented so far in practice. After bifurcation, though new legislation was enacted in Telangana state to replace the Andhra Pradesh legislation, nothing much has happened on the ground, except reiteration of their intention. The original legislation was retained by the residual state of Andhra Pradesh. Both the successor states of Andhra and Telangana prepare SC and ST sub-plans and accordingly make budget allocations in proportion to the respective population every year. The aim of the legislation was to close the gap in wellbeing across the groups.

This chapter looks at the existing gaps in nutritional wellbeing across social groups in both the states. It analyses the contribution of social group, age, household amenities, land ownership status and other household characteristics, to the nutritional outcomes in terms of BMI and heights of adults above the age of 20 years. Nutritional outcomes are very much related to the overall

prosperity or deprivation, social stratification and efficiency of public services delivery. Hence this chapter first briefly looks at some of the bifurcation blues and socio-economic background of the two states in this introductory section. This chapter assumes importance, in view of the fact, that it will serve as a benchmark on the eve of bifurcation and would reflect the multiple vulnerabilities experienced by the entire state and their vulnerable sections in the subsequent decades. Both political, social and economic scenario underwent a sea change in both the states, more prominently than any other state in India, except for Jammu and Kashmir, that lost the status of a state. The bifurcation trauma has left a long-lasting mark on the psyche as well as the lives of people in both the states. In a way it destabilized the economies of both the states, displaced a large percentage of population in the name of mega projects. It is because, some of economies of scale are lost, duplication of administrative machinery and infrastructure was expensive. Both the states competed, with each other to create the lost infrastructure. Telangana became a land locked state, while Andhra Pradesh has a long coastline. Bifurcation resulted in unresolved long-standing disputes. In this introductory section, we wish to give some insights into the economic and social background of the states and the social groups.

Bifurcation substantially changed socio-economic dynamics. The composite state assembly virtually had no say in the matter of bifurcation, as national parliament had overriding constitutional powers to bifurcate or change the status of a state. Bifurcation took place to satisfy the long-standing demand of the people of Telangana and against the wishes of the people of residual Andhra Pradesh. It is the perception of upper caste hegemony and domination of Andhra over Telangana that lead to bifurcation (Kalpana et.al.,2010). Caste was a dominant factor in the politics of the composite Andhra Pradesh and in both the bifurcated states at present. Political and economic power is concentrated in the hands of upper castes in both the states, irrespective of the party in power.

Economic dynamics

Composite Andhra Pradesh received 50% of its revenue from the city of Hyderabad and the surrounding urban agglomerations. Loss of this region and a larger share of the total population in 13 districts of Andhra resulted in revenue deficit for residual Andhra Pradesh State. Telangana, with 10 districts (including urban Hyderabad and its industrial satellite towns) after bifurcation, on the other hand was left with very little irrigated fertile agricultural land, but a thriving industrial

urban center and a revenue surplus. There are also unresolved disputes of assets sharing, revenue sharing, water sharing and power (electricity) sharing. Bifurcation wrangling, display of perceived dominance through implementation of expensive mega irrigation projects in both states, resulted in huge expenditures, which was beyond the revenue streams of both the states. Division of 10 districts into 31 districts and providing them with administrative staff and infrastructure in Telangana, building of capital city, roads, water lines, administrative buildings in Andhra Pradesh involved heavy borrowing by both the States. Out of once peaceful economically viable state are born two states, economically bankrupt and highly politicized and polarized on caste and religious lines. Fear of political destabilization keeps the governments in power on tenterhooks and diverts their attention from economic stabilization. There was no help from the central government and promises of financial help from the center included in the reorganization Act were mostly ignored. Fund distribution through cash transfers to win over selected electorate, in both the states have further resulted in huge revenue deficits. The Scheduled caste subplan and the tribal subplan had taken a back seat in both the states. The budgetary deficits and state borrowings imposed severe constraints on public spending and public service delivery. The scheduled caste subplan and Tribal sub plan seem to have virtually remained on paper, though the committees formed for the purpose did discuss the plan every three month in both the states.

It is well known that after bifurcation, Telangana has higher level of urbanization (39%) compared to Andhra Pradesh (29.6%) as per 2011 census. In Andhra Pradesh, the sector wise contribution of the economic activity of the state to the gross value added in 2015-16 shows that service sector contributes 46.97%, industry contributes 23.61% and agriculture contributes 29.42%. Contribution of agriculture was higher than the contribution of industry in Andhra Pradesh (Govt. of Andhra Pradesh 2016). Sector wise distribution of workforce as per the national sample survey 2011-12 shows that the share of the work force engaged in service sector was only 12.4% compared to 31.3% engaged in industry and 56.3% engaged in agriculture. In Telangana, the contribution to gross value added by agriculture was 12.8% compared to 26.7% from Industry and 60.5% from services (Govt. of Telangana 2016). The distribution of labour force as per the labour bureau statistics show that as large as 55.8% of the workforce depends upon agriculture (Table 6.1).

As per the National Sample survey in 2011-12, in Andhra, the poverty rate was high at 31% for scheduled tribes, 14% for scheduled castes compared to 10.42% for other backward castes and

6.2% for other castes. In Telangana the National Sample survey 2011-12 shows that poverty rate was 13.84% for Scheduled tribes, 17.02 % scheduled castes, 9.0% for Other Back ward classes and 5.6 % for other castes. Thus, poverty levels are much lower for Telangana compared to Andhra Pradesh in 201-12 (CESS 2017) (Table 6.2 and 6.3).

The disadvantaged social groups mostly live in rural areas of backward districts in both the states. All rural districts are poorer in Telangana. In Andhra 7 rural district are poor but 5 rural districts are quite rich with low poverty. Commensurate with lower urbanization, overall poverty levels were higher in Andhra (11%) compared to Telangana (8.8%), as per the poverty estimate using Tendulkar committee norms that are officially accepted. The poverty gaps across social groups were higher in Andhra than Telangana.

For scheduled caste and scheduled tribes, government sector jobs are reserved. Weakening of the government sector, progressive privatization of public works, weakened the job opportunities of scheduled castes and scheduled tribes in the state. Most of the scheduled castes and scheduled tribes are adversely incorporated into the government jobs related unclean work, that create health problems. With mechanization of cleaning work and reduction in government employment and increase in contract work, the backward classes are successfully entering the space so far left to the scheduled caste workers. Certain scheduled tribes in forested areas, displaced by irrigation projects, illegal mining in forest area, became permanent environmental refuges in both the states. The infrastructure projects also resulted in land acquisitions and displaced many agricultural workers and small and marginal farmers belonging to the scheduled castes and scheduled tribes in both the states. Scheduled tribes were the most affected by irrigation projects in both the states.

Social dynamics

A list of the scheduled castes and Scheduled tribes were mentioned in the article 341 of the Indian constitution and affirmative action is mandated for them. The British, prior to the independence of India in 1947, first prepared the list of castes and tribes in 1931 and called them scheduled castes and scheduled tribes. Since then, number of changes have been made to the list. The affirmative action has also been extended to the scheduled castes and tribes who have converted to Islam or Christianity. Affirmative action includes, job reservations in government and public sector and seat reservations in the institutions of higher education. This is mandated by the constitution of India. These disadvantaged groups are also expected to receive other benefit from state

government schemes, such as land allocation, scholarships, free residential schools for school going children of scheduled castes and scheduled tribes in Andhra Pradesh.

Scheduled tribes are about 5.3% of the total population in Andhra and most of them live in remote and in-accessible terrain compared to the Scheduled tribes of Telangana who live in more hospitable environs and constituting about 9.08 % of the state population. Scheduled castes constitute 17.1% of population in Andhra and 15.45% in Telangana. The overall social composition has changed in both the bifurcated states. As per Srikrishna committee of 2010, constituted to report on bifurcation, the upper castes constituted 32% of the population in coastal Andhra and 24% in Rayalaseema. The upper caste population in Telangana was much less at about 10.7% of the total population. The calculations of upper castes by Srikrishna Commission were based on 2001 census data and National sample survey estimate of backward castes.² If we apply the same methodology to 2011 census and use National Sample survey (NSS) 2011-12 proportion of Backward Classes, we get about 21.7% as the upper caste population in residual Andhra, almost double that of Telangana. Andhra has 46.8% Backward class population and Telangana has 65% backward class population at the time of bifurcation.

This chapter investigates the significance of social group in explaining some basic wellbeing aspects in terms of nutritional outcomes of adult men and women above the age of 20 years in both the states. Further, the variations in the observed nutritional outcomes (BMI and heights) of individuals above the age of 20 have been explained at various levels of nutritional outcomes with quantile regressions. District health Survey- 4 for 2012-13 provides the data base for analysis.

The last section of this chapter analyses the influence social group on the body mass index and heights of men and women in the age group of 15-49 based on more recent NFHS-4 (2015-16) data. The main control variables are wealth Index, living standard score, educational level, available in the NFHS-data.

The rest of the chapter is organized into six sections. The second section reviews the literature on the discrimination by social groups and nutritional outcomes of women and men in India. The third

²Population of upper caste plus backward castes was the residual population after deducting the Muslim and other religious groups including those without religion and the SC and ST population from the total population. The BC proportion of NSS was applied to census population to derive BC population. The estimated BC population was deducted from Upper caste plus backward castes population to get the upper caste population in the state.

section gives the details of data and methodology. Ten independent variables explain body mass Index and heights of women and men. They include Caste, household amenities index, land location category to which the household of the individual belongs, treatment of water by the household, land area owned, and irrigated land area owned, household size, ratio of females to males in the household, age of the individual, and the education of the individual in completed years of schooling. Section four gives the results of factors influencing Body mass Index and heights of women and men in Andhra and Telangana. It presents the Ordinary Least Squares and quantile regression results that examine the influence of caste and other variables on Body mass Index. DLHS-4 (2012-13) provides the data for both the states. Section five gives the main findings of the analysis of DLHS-4 data and presents the policy implications. Section six presents the analysis of NFHS-4 data. It shows the influence of social group on body mass index and heights of women and men in the age group of 15-49, after controlling for wealth index, living condition score and educational levels etc.

6.2. Discrimination, Wellbeing and Nutritional Outcomes

Several studies including those of Sundaram and Tendulkar 2003, Amit Thorat 2010, bring out the deprivation aspect of scheduled castes and scheduled tribes clearly. Incidence of landlessness is more among scheduled castes and scheduled tribes compared to other groups. Other backward classes owned most of the land and leased out more land, while scheduled castes owned less and leased in more land (Sharma H.R 2007). These two groups are mostly disadvantaged in aspects such as basic education, profitable entrepreneurship, remunerative employment etc. (Desai, Sonalde, and Amaresh Dubey 2012, Deshpande, Satish 2006, Deshpande, Ashwani 2011, Deshpande Ashwini and Smriti Sharma, 2013).

In the central part of India, including parts of Andhra Pradesh adjacent to central and eastern India, scheduled tribes are the most marginalized groups, below the levels of scheduled castes, despite all the legislations that seek to protect their land and forest rights. It is mostly due to unjust laws, lacunae in the laws and their non-implementation. Scheduled tribes face severe discrimination and exploitation and land alienation and identity crisis (Xaxa, Virginius 2005 and 2016, Guha R, 2007, Rahul Banerjee 2007). Others have shown that Human development Index, human poverty Index and gender development Index were 30% lower for scheduled tribes compared to others in India (Sandip Sarkar, et.al, 2006). Further it is argued that the resources allotted to safeguard the interests

of the scheduled castes and scheduled tribes are inadequate, for the Commissioners of social welfare and Tribal welfare departments. Hence, they tend to be ineffective (James P.A and G. Srinivasa Reddy 1979). Basic public provisioning of safe drinking water, sanitation, literacy etc., were inadequate in Andhra Pradesh leaving a large percent of population without basic amenities. Within in the disadvantaged social groups, there is considerable inequity based on the geographical advantage, educational advantage, and land and asset ownership advantage (K. Balagopal 2005, Ramaswamy 1986, Sambaiah B 2009). These circumstances impact the nutritional outcomes of scheduled castes and scheduled tribes.

Wellbeing in Nutrition outcomes

Adequate nutrition and achieving the expected growth trajectory of an individual is the very basic minimum aspect for carrying out normal physical and intellectual activities. These outcomes depend upon the access to relevant resources over a period time (sometimes, over a generation) and not just their access at present. These outcomes depend upon the access to food, safe drinking water, sanitation, and health, which in turn depends upon affordability of the household as well as the public provisioning of these by the government. Education is an important factor as it enables the person to earn enough, gain nutrition knowledge, and utilize the public services, effectively.

Nutritional outcomes such as Body Mass Index and heights of adults across social groups were examined earlier. Previous work on BMI, found double burden (chronic energy deficiency on one hand and obesity on the other) of malnourishment in developing countries (Subramanian, S. V, et.al, .2009). Age, ethnic differences, and socioeconomic status, education of the parents and so on influence Body Mass Index. Those born in the past two decades show higher BMI trajectories (Clarke, Philippa, et.al, 2009). In India, and in other low and middle-income countries, the association between socio economic status and obesity is positive while in developed countries the association is negative. The transition of lower socioeconomic groups from low BMI to high BMI is related to the stage of development (S.V. Subramanian et. al 2013). It is not clear whether the country has undergone transition, but in urban areas among non-poor obesity is apparent.

In a study based on NFHS-3 (2005-06) data, the author argued that the gender gap in chronic energy deficiency has been quite low in India and almost non-existent in higher income groups. Across social groups it was very low in other castes and in backward classes (Sunny Jose 2008). Navaneetham and Jose (2008), based on the same data pertaining to 2005-06, in another paper

show that around 40 percent women in rural India are chronic energy deficient (CED). This is 15 percentage points higher than the incidence among urban women. There is reduction in CED rates with age for women from about half to one fourth as they move from 20 to 40 to 49 years of age. Older women in urban areas show a higher rate of overweight.

In respects of heights, ethnicity, nutrition, and sanitation play an important role but the relationship between adult heights and income appears to be inconsistent and unreliable as heights can improve over time for low income population (Angus Deaton, 2007). In a detailed study across Indian states between 1983 and 2004-5, Angus Deaton concludes that the heights have increased both for men and women but higher for men than for women. Further the influence of rate of growth in per capita expenditure on the rate of growth in heights was similar for both men and women. The growth differential in heights is not related to growth in per capita expenditure. Deaton concluded that income height relationship is an unreliable one. (Angus Deaton 2008).

Past literature on BMI and Heights of adults show that outcomes depend upon age, but the trajectories may differ across ethnic groups and across generations, in the sense, those born latter may gain weight and height earlier in life. Age adjusted heights and unadjusted heights did not show much difference in earlier studies (Deaton Angus 2008). In this chapter, age is used as one of the determinants rather than making any arbitrary adjustments to the dependent variable, viz., BMI and Heights. Further the BMI quantiles and height quantiles also take care of age, since age is positively related to BMI and negatively related to heights.

In cross country analysis using modified Poisson analyses with a country fixed effect to obtain pooled estimate and country specific estimate, Neuman Melissa and other (2011) have shown that BMI was 2.32 units higher among women in the wealthiest quintile compared to the women in the poorest quintile in the earlier surveys and it is 3.00 units higher in the latter surveys and it shows that there was no improvement in BMI over a period, among poor. This essentially shows that poor remain thin and undernourished. They concluded that, there was no catching up in BMI over years with respect to women in poor deciles.

The literature on variations in basic amenities across social groups using national sample survey data on housing conditions over time, points to the fact that even if the economic position is the same, some social groups such as scheduled caste and scheduled tribes have access to fewer basic

amenities than others (Arjun Kumar 2014) pointing to discrimination not related to income and poverty. These differences may result in differences in BMI and heights.

6.3 Data and Methodology

The data for the analysis comes essentially from the District Level Health Survey– 4 (DLHS-4) of 2012-13 for Andhra Pradesh and Telangana. DLHS-4 has a bigger sample for the districts compared to National Family Health Survey. Bifurcation took place along the district borders. Only a small part of Khammam district of Telangana was transferred to Andhra Pradesh. This district involves bifurcation within the district.³ Subsequently, Telangana bifurcated the 10 districts into 31 smaller districts through bifurcation, trifurcations, mergers and divisions. Future analysis in Telangana at the district level will not be comparable to the previous years, due to extensive divisions and mergers. Normally the data are not representative at block (Mandal) level in sample surveys. Only census can provide block level information.

Dependent Variables

1. **Body Mass Index** (Weight in kg / (Height in meter)²), and Heights in meters represent nutrition status of the adults above is the age of 20 years. Normally Health surveys, both NFHS-4 and DLHS-4 reports give BMI for females in the age group of 15-49, the reproductive age. Our aim is to include all adults who can make decisions about the food and calorie intake. The rationale for not having the upper limit is to catch nutrition deprivation among the older women and men. BMI tend to be low at lower age groups and hence the profile of our female group will differ from those of women in the reproductive ages. We have excluded the adolescents from the analysis as adolescents to have low body mass Index for a few years while they grow tall but catch up after the height potential is reached.

³ Only in case of Khammam district of Telangana, which was part of East Godavari district of Andhra Pradesh till 1959, bifurcation in 2014, facilitated transfer of some blocks (Mandals) back to East Godavari district of Andhra Pradesh, as they will be submerged during the construction of mega irrigation project on the river Godavari in Andhra Pradesh. We have essentially ignored since these blocks are very small in size, though the impact of displacement of tribal population will be very large. The extent of displacement is not known, though lands are officially acquired, but not yet submerged as the project is delayed.

Further, we are aware that high body mass Index above 25 does not represent better nutritional status. All the same it is an important indicator of nutritional transition of the socioeconomic groups. It shows if such a transition is under way in India.

2. **Height in meters** among males and females above the age of 20 years represents their nutritional status. The reason for choosing 20 years is that the maximum height is generally reached by Indians by the age of 20 years (Deaton, Angus 2008). That means the potential has already reached. Height of a person is another important indicator of nutritional improvement of long period, even a generation. Stunted children may not gain weight in their adulthood to become fat adults with higher BMI. Height unlike BMI has no negative aspect. Taller the person, better his nutrition status. It catches the impact of intergenerational caste discrimination. If caste is insignificant, then it means that discrimination is unrelated to one's socioeconomic status.

Independent variables

1. Caste or major social group (the term used interchangeably) has been coded as a categorical variable in the DLHS-4 data, and it has been used without change in this chapter. Numbers 1, 2 and 3, stand for scheduled caste, scheduled tribe, and other backward castes respectively. 'Others' category, which forms the base group in our analysis, that includes all upper castes was coded as 6. This is also referred to as Other castes (OC). Caste is a truly exogenous variable. A negative relationship of the dependent variable with caste is expected to be negative, given the OC as the base category.
2. **Household amenities index:** This is a variable created from unit level data for each household. It uses available data on four household amenities. Five categories of toilets, five categories of drinking water sources, five categories of cooking fuels and four categories of houses have been given scores in the ascending order of quality of the amenity. These scores are added for each household and divided by four to get the average index of quality of life for each household. For example, treated drinking water supply through taps within the dwelling gets a score of five, treated tap water near the dwelling gets a score of four, the dependence on natural ponds and rivers gets a score of one, the other sources such as wells and bore wells and hand pumps get in-between scores. The

average score varies for the amenities Index varies between 4.75 and 1.25 and it is a continuous variable (Appendix 6)

Household amenities are especially, drinking water and sanitation are crucial for a healthy living without disease and it affects both the short run and long run nutritional status of females and males. Hence in a separate analysis we looked at the influence of caste/ social group on the access to amenities. Access to household amenities could be an endogenous variable influenced by caste. All the same, despite possible multicollinearity, with caste, inclusion of this variable gives us valuable insights. If caste turn out to be insignificant after controlling for this variable, it means unequal access to amenities are the main cause of poor nutritional status. On the other hand, if caste turns significant even after controlling for household amenities, it means caste related aspects are deeper as it happens in the case of heights of adults. We expect a positive sign for this variable as we expect higher amenities Index to be associated with higher BMI and taller persons.

3. **Land class by Location:** This is a categorical variable created for land-class by location for rural and urban areas. The rural landless were coded as 1. Codes of 2, 3, and 4 represent, rural land-owning class, urban land less and urban land-owning class respectively. Rural land less is the base category. We expect a positive association with BMI and height, showing that land less category show lower BMI and Heights. This is a proxy for wealth Index. We expect urban land less to earn more than rural landed households as agricultural worker productivity is lower than non-farm worker productivity.
4. **Any type of treatment of drinking water (1= treatment 2= no treatment):** Any usual member in the household covered by health insurance or health scheme (1=Y & 2= N) is binary variable. A negative association shows that non- treatment of water code is associated with lower BMI and height.
5. **Land area owned by the household in acres:** This is expected to have positive relationship with nutritional status as land holding classes are expected to have more income to eat well and gain better nutritional stats. However, the land size may lose its significance if it is an arid zone.
6. **Area of irrigated land owned by the household:** Higher the irrigated area owned by the households, larger the income per acre and better the food intake of the household

members. We expect a positive relationship between BMI, Heights and irrigated land owned.

7. **Education:** Number of years of schooling is expected to give better nutrition knowledge and improve the nutritional status of both men and women. A Positive relationship is expected especially with heights.
8. **Age of the individual:** Age is expected to have negative relationship with BMI, and a positive relationship with heights. We expect older people to be fatter and younger people to be taller.
9. **Ratio of females to males in the households:** A larger ratio means more members in the households. Normally, female members will be more in the female headed households which are generally, poor and expected to have lower BMI for females. A negative sign is expected with BMI and heights.
10. **Household size:** This is a key indicator which is expected to reflect higher level of poverty and lower level of per capita expenditure as the household size increases in developing countries such as India. Lower per capita food expenditure has been noticed in the larger households compared to smaller households by Angus Deaton (2010). This is more pronounced in the poorer households than richer households. Following this we expect a negative relationship with BMI and heights and the family size.

Methodology

We have used both Ordinary Least Squares (OLS) regressions for BMI and Height as well as quantile regressions for Body Mass Index and Heights. BMI quantiles and height quantiles arrange all the individuals, males, and females separately in the increasing order of or Body mass index or Heights, keeping those with lowest BMI or height in the 20th quantile and those with higher BMI and Height in the top 80th quantile (Koenkar R. 2005). This differentiation tells us at what level of BMI or height does caste and other variable matters most for men and women.

Data on genetic factors, food intake, quality of food, level of physical activity and so on are required to predict body mass index in addition to the socio-economic background of the individual and the environmental cleanliness, which is partly reflected in the household amenities. In the absence of such detailed the explanatory power of the regression is very small. We may use binary variables such as existence of chronic energy deficiency or otherwise or a polynomial logit about

BMI variations around chronic energy deficiency of 18.5. All the same since the main aim is to investigate the relationship and its significant between BMI and other variable at various levels, we have decided to use simple Ordinary least squares followed by Quantile regressions for both heights and body mass index.

6.4 Body Mass Index, Heights and Social group above the age of 20 years (DLHS-4)

The distribution of population with chronic energy deficiency across social groups in Andhra and Telangana shows that scheduled tribe women in the age group of 15-49 have higher incidence of Chronic energy deficiency followed by scheduled castes. The incidence is lowest among other social groups. Compared to Andhra, chronic energy deficiency of body mass index of less than 18.5 is higher among all groups in Telangana. Overweight with a BMI of more than 25.0 is more prevalent among women of 15-49 across all social groups in Andhra Pradesh (Table 6.4).

If we include all adults above age of 20 years, chronic energy deficiency is much less in both the states. It is lower for men compared to women in both the states. In Andhra only 7.37% of males and 10.16% of females have a body mass Index below 18.5. (Table 6.5). While the overall poverty is higher in Andhra Pradesh, compared to Telangana, chronic energy deficiency is higher in Telangana. It is because, rural Telangana in general is poorer, than parts of rural Andhra. Poverty is concentrated in the tribal areas and north coastal rural parts of Andhra Pradesh. Scheduled tribes mostly live in these districts. Rural poverty is less in all the other districts of Andhra. District wise poverty rates are given in the Appendix 6B. Further if we consider access to the facility of drinking water and toilets within the dwelling, Telangana is slightly better in drinking water but worse off in toilet facilities compared to Andhra (Table 6.6)

Ideally, if the other variables used as a proxy for level of living are similar, the nutrition outcome should be similar. In other words, for the same level of individual and household characteristics, if the BMI is the same, then caste will not make a difference to the wellbeing. If caste makes a difference in a significant manner particularly in an adverse manner even after controlling for other factors, then caste discrimination is severe.

Body mass Index and social groups in Andhra

The F-values are significant for all Ordinary Least Square (OLS) regressions indicating goodness of fit. The results of Ordinary Least square Regression with BMI as a dependent variable for Men and women show interesting results for Andhra (Table 6.7). For men above the age of 20 years, three variables out of ten variables influence the body mass Index as expected. They are household amenities Index, years of schooling, and age in months. Social group has no influence on body mass Index of adult men after controlling for variables that proxy for standard of living. Similarly, land ownership etc. that proxy for wealth also do not influence body mass index of men. Household amenities Index influences Body mass Index and it has a high value of the co-efficient and significant. It has an expected positive sign and positive impact on men's BMI. Age and years of schooling show significant positive relationship with Body Mass Index of men as expected. This clearly shows that most men are not discriminated by caste as far as body mass Index is concerned but by other factors.⁴

If we look at the results for women, we find that signs of nutritional transition, women belonging to scheduled castes and other back ward castes appear to be having significantly higher body mass index compared to women of other castes, the base category. Such results are not surprising in a state where you find rural prosperity and low level of poverty among scheduled castes, and other backward castes in some districts. Even in the age group of 15-49, the data shows that more than 22% of Scheduled caste women and about 18% of scheduled tribe women are overweight. More investigation is required to detect and to confirm the beginning of nutritional transition, where the lower socio-economic groups become obese, while higher socio-economic groups realize the value of exercise quality diet and maintain lower BMI. What is interesting is that it is apparent with respect to women and not men.

As in the case of men, women's BMI is influenced by household amenities index. Years of schooling and age of the individual are positively related BMI. In land location category, compared to land less women, other have a higher body mass Index (Table 6.7). Quantile regressions show higher BMI for other castes in all the quantiles except the 80th in which women's

⁴ The insignificance of caste does not change even if the household and individual characteristics considered are changed.

BMI is not influenced by social group after controlling for other factors. At the outset, it is important to recognize that the results of OLS and quantiles differ for BMI and Heights. OLS reflects the average influence; in contrast quantiles show the influence at every segment of BMI and Heights.

Quantile regressions of Body Mass Index for Andhra

As BMI quantiles arrange individual in the ascending order of BMI, the men and women with chronic energy deficiency are in the lowest quantile the 20th. Less than 10% among men and about 10% among women, in the lowest quantile fall in the category of chronic energy deficiency. They are undernourished. Normal weight will be in the next two quantiles, i.e, 40th, and 60th. Women and men in the 80th quantiles are likely to be overweight irrespective of which socio-economic group they belong. Despite this, in all the quantiles the household amenities show significant larger influence on body mass Index both for men and women (Tables 6.7 and table 6.8).

In the first quantile, social group has no influence on the BMI of men, but it influences females - other caste females having higher BMI and those in the scheduled and scheduled tribes showing lower BMI. BMI is influenced by caste as expected only for females. For men in all the quantiles there was no influence of caste. In the quantiles unlike the OLS, there is no base category. Code 6 is for upper caste and other castes have lower codes. It shows positive association with higher BMI. For men, caste has no influence in all the quantiles.

What is interesting is, within each BMI quantile, most of the other variables chosen except land area owned land area irrigated, are significant, the expected way giving higher pseudo R square, both for males and females. Years of schooling and age show positive significant influence on body mass Index of males and females in Andhra. Age has a positive influence on BMI of both men and women, in the sense, older persons show significantly higher BMI than younger persons both in OLS and all quantiles.

Any treatment to make water safe appears to have significant influence on the BMI of both men and women in all the BMI quantiles while they are insignificant in the OLS both for men and women. Similarly, participation in a health scheme or insurance for anyone in the household has an insignificant influence at the average level, but positive influence on BMI in all quantiles for men and women except in the lower quantiles (20th and 40th) for women. The variable on health

scheme or insurance only indicates the awareness of health issues rather than the actual use of the scheme or health insurance as it need not pertain to the individual whose BMI is measured.

An interesting observation is the female to male ratio in the household, which uniformly has a positive relationship with male BMI and a negative relationship female BMI, implying that in a household with more females than males, males have higher BMI and females have lower BMI, indicating gender bias.

Gender bias is also clear in the fact that caste has no influence on males but effects females. The vulnerability at the intersection of caste, class and gender is obvious. Intra household discrimination in food distribution in the households in quantity as well as quality assume importance. It is of concern in lower BMI quantiles for some social groups. The study brings out the importance of household amenities such as sanitation, drinking water, cooking fuel etc., will have to be of better standards. Caste becomes insignificant after controlling for household amenities. Hence the discrimination in access to household amenities is the key factor.

Body Mass Index and social group in Telangana (Ordinary Least squares)

The Ordinary Least Square results show that caste is not significant in explaining the body mass Index of men and women after controlling for other characteristics with one exception. In respect of schedule caste males, BMI was significantly lower compared to other castes but not for females. Table 6.10 presents the results. The reason is not clear. Poverty levels of urban scheduled caste population is highest in Telangana (Table 6.3). Probably, men may have issues of heavy physical work, and older men may be experiencing discrimination in food intake in the face of poverty. This does not point to chronic energy deficiency among scheduled tribe men. Compared to other men from upper castes in Telangana, scheduled tribe men have lower BMI, while compared women from other upper castes, scheduled tribe women do not show lower BMI.

The simple regression results also show that land ownership has significant negative relationship on women's BMI but not on men's BMI. Area of irrigated land owned has no influence on the BMI of both men and women, which is understandable in Telangana which is predominantly arid, and irrigation essentially depends upon rainfall. Land location category is also did not show any influence on body mass Index of men and women – viz., those owning land in rural areas, those

working in urban areas and those owning urban land do not show higher BMI than the rural land less as in the case of Andhra. It is because, wages for manual work in agriculture tend to be very high and cultivation of dry tracts of land is not necessarily more profitable. Further, seasonal migration of members of the household for work in urban Telangana makes the land categories less meaningful.

Treatment of drinking water turns out to be significant point to the fact that those who do not treat water show lower BMI. Health insurance schemes do not show any influence on BMI, as most schemes at the average level, do not provide adequate health cover.

Education turns out to be an insignificant factor for BMI in Telangana, while it was significant in Andhra. Age is significant for women's BMI but not for men, meaning older men are not fatter than younger men, while older women are fatter than younger women in Telangana. More number of females in the households indicates higher BMI for males showing positive discrimination, but it does not show negative discrimination of low BMI for women as in Andhra.

Body mass Index and Social groups in Telangana (Results of Quantile regressions)

The quantile regressions show that caste is not significant in all the quantiles both for men and women except in the top two (60th and 80th) quantiles for females. Once we control for other aspects, BMI depends upon those factors and not on the social group to which one may belong. In the top quantiles women of other category belonging to upper caste have higher BMI. We may consider the results of 60th and 80th quantiles for females reflecting upper caste urban older women being obese compared to other caste categories. The top percentile of 75% has women of age above 50 and the average BMI of 26.04, indicating inclusion of more overweight women. Women in the higher quantiles are not chronic energy deficient. Chronic energy deficiency, below the BMI level of 18.5 occurs only in the lowest quantile— viz., the 20th quantile and caste is not significant.

Overall, the implication is that BMI differential and chronic energy deficiency can be eliminated through measures that improve other aspects of life. Caste differentials disappear with improvement in other factors. There is no specific caste discrimination with respect to Body Mass Index.

The age as expected, has a positive significant influence on the BMI of both for men and women in the quantile results. Male BMI shows insignificant influence of age, in OLS, though male

quantile regressions show positive influence. The reason for the insignificance of age for male in OLS and not in quantiles could be due to an improvement of BMI at younger ages for males, having both younger and older men of similar BMI. When we consider various segment and control for other variable the relationship comes out as expected in quantiles. Untreated water shows significant negative influence on BMI in all quantiles for men and women. Holding health insurance has no influence on BMI.

Further a household with more females than males has a positive significant influence on Male BMI in OLS and in all quantile regressions. In OLS, the influence of households with more females is insignificant but all quantile regressions show a negative significant influence on female BMI. What it means is that if the household has more females than males, they feed the male members well at the cost of female members and hence males in these households have better BMI and the women of such households have lower BMI. This is a clear indication of gender discrimination in BMI in the households with more females than males. Some of them could be female headed households. Normally female headed households have more females as able bodied males migrate, leaving other males and children behind.

In Telangana, household amenities have positive and significant influence on female BMI and not for male, BMI in OLS. All the same, household amenities indicate significant influence on BMI, across all quantiles both for men and women. We may conclude that household amenities influence Body Mass Index and a key factor in improving BMI and eliminating chronic energy deficiency. It is this variable that renders the caste insignificant. What it means is if there is no discrimination in access to household amenities, social group is inconsequential. But if there is a difference in access based on caste, then the differences exist.

Land ownership in number of acres seems to have an adverse negative influence on women's BMI not men's BMI in the OLS but quantile regression analysis shows negative significant influence of land ownership on BMI of men and women. Except in few instances, irrigated land ownership has insignificant influence on the BMI of men and women. This adverse impact is reflecting ownership of arid land and unreliable irrigation source, that yields very little and make people dependent on such lands vulnerable, compared to urban land less who are better off. Land based urban rural categories are not significant for BMI of males and females in the OLS. All the same, compared to rural landless, rural landed, urban landless and urban landed households have a

significantly higher BMI in all the quantiles for males and females without exception. This clearly reflects the vulnerability of the rural land less dependent on agriculture in Telangana. This has a policy implication for Telangana that it should reduce CED through shift of both men and women to non-agricultural occupations.

Overall, the implication is that BMI differential and chronic energy deficiency can be eliminated through measures that improve other aspects of life. Caste differentials disappear with improvement in other factors most notable among them are household amenities, land location category. Our results show that equalizing social opportunity will equalize caste bias. Another important issue is that though both the states had similar policy atmosphere, the BMI outcomes are different in the two states. For example, nutritional transition of lower social groups having higher BMI than other castes is not apparent in Telangana. Age and education have no influence on the BMI of Telangana for men and education has no influence on women's BMI, but age influenced BMI of women, older women being fatter than younger women in Telangana. In contrast, Andhra shows clear influence of both age and education on BMI. Lower educational levels in Telangana are probably the reason for insignificance.

Heights and social group Andhra and Telangana

Heights of men and women depend up on better nutrition in terms of both quality and adequacy, health care and environmental hygiene in the childhood as well as adolescence. Height of a person also has an intergenerational nutrition improvement effect, meaning, the younger generation is taller than the older generation, within the same household. Catching up in height as adults (above the age of 20) is difficult though not impossible (Deaton angus 2008). We have only considered adults above the age of 20 years in the DLHS-4 analysis, so that most of the potential is already reached.

Social group is a significant factor determining the height of a person for both males and females, in both the states, showing that past discrimination in nutritional intake and access to amenities matter. Past conditions of morbidity also matter. Compared to those belonging to the other castes, males and females of scheduled tribes, scheduled castes and other backward classes, in both the states, are shorter, even after controlling for all the factors that could influence the nutritional outcome. The reason for social group becoming insignificant for BMI and becoming significant for heights is due to the past conditions of living.

Significance of caste did not render the household amenities insignificant in explaining heights of men and women in both the states. Household amenities always turned out significant in all the regressions. It is because the Index is constructed in such a way that it adequately represents the quality of the living conditions, which are important for nutrition. Possibly, present conditions are also correlated to past conditions. Genetics also play a part in the height reached by an individual. But the potential to become tall exists for all, with nutrition improvement in the childhood and adolescence, irrespective of social group and genetic background. Tables 6.13 to 6.15 present the results of ordinary least squares and quantile regressions for Andhra and tables 6.16 to 6.18 present the results for the state of Telangana.

Heights and Social group in Andhra Pradesh

Age has significant negative influence on the heights of both males and females in Andhra. Younger males and females were taller than the older males and females in Andhra. In OLS and in all the quantiles both for men and women, age is significant and negative, as expected. It indicates intergenerational improvement. Education has a positive impact on the heights both males and females in OLS. This variable is not considered in the quantiles.

None of the regressions including quantiles for men and women indicate any influence of landowner ship on their heights. This is probably due to low return on less fertile lands in many parts of the state, which neither reflect wealth nor consistent food intake in calories or protein over generations. Interestingly, ownership of irrigated agricultural land had positive influence on men's heights in OLS, and all quantiles except the top one but not on female heights. This is probably because parts of Andhra, has irrigation for over a century, and the land-owning upper castes are very tall. This variation is probably showing up. Now the point is why is it not showing up among the females? Probably, discrimination of yester years may have kept the women shorter. As pointed out by Deaton, women are not gaining height as men did. This aspect needs more research, especially in Andhra.

Land location variable with landless rural household as the base category has significant influence on the heights of men and women in OLS as well as quantiles, except in the lowest quantile for women. It means compared to the male and female members of the household belonging to land less rural category, men and women of other categories are taller. More than the land area owned, and irrigated area possessed, probably, land location category distinguishes the agrarian structure

of Andhra better. Ratio of females to males in the household shows significant positive influence on men's heights, but there was no influence on female heights. The quantile regressions indicate insignificance of this variable in explaining heights.

Heights and Social group in Telangana

Age has significant negative influence on the heights of females but not on male heights in Telangana in ordinary least squares regression. However, the quantile regressions for Telangana shows that age has significant negative influence on height in all quantiles both for men and women implying intergenerational improvement in nutrition outcomes within each height quantile. Younger men and women are taller than older men and women, indicating inter-generational improvement.

Land ownership did not show any influence on heights of males and females both in OLS as well as quantile regressions, pointing to the arid nature of agriculture as a poor livelihood option for rural people. However, irrigated land ownership had positive influence on heights of men in the OLS. Further, in the quantile regressions, 20th quantile for men and 40th quantile for women show positive impact of irrigated land on heights. To explain this result, one must look more closely at the geographical variations by ethnic groups. Overall, the land ownership and even irrigated land ownership appear ineffective in achieving better long-term nutritional outcomes such as heights. Years of education has positive influence on heights of both men and women. Not treating water to make it safe had negative significant influence on women's heights but not on men's heights both in OLS as well as quantile regressions.

Land location variable brings out the importance of urbanization and urban land ownership. Compared to the base category of rural landless the heights improve significantly for the rural landed persons, landless urban persons and urban landed persons. Not treating water to make it safe had negative significant influence on women's heights but not on men's heights both in OLS, as well as quantile regressions. Female male ratio has a negative impact on female heights as per the OLS, which means female heights are lower in the households in which there are more females than males. It is not significant in any of the quantile regressions except the 40th quantile.

6.5 Conclusions and policy implications

The wellbeing in terms of BMI and heights of men and women above the age of 20 years using DLHS-4 data for Andhra Pradesh and Telangana brings out some interesting issues. It is interesting to find that social group has no significant influence on body mass index for men and women but has a significant influence on the heights after controlling for other individual and household characteristics. Compared to the base category of other castes, scheduled castes, scheduled tribes and other backward castes show significantly lower heights in both the states. Irrigated land influencing heights of men and not the heights of women again show some sort of gender bias over generations. Household with more females than males influencing men's BMI positively and women's BMI negatively is another case of gender bias. Such household could be female headed and likely to be poorer. This calls for special program of nutrition awareness and gender sensitivity and equity in food intake for women in SC ST and OBCs, and especially in female headed and households with more females than males.

Age turns out to be a significant factor in explaining the height, younger men and women being taller than older men and women. It indicates intergenerational catch up in both the states in all the quantiles. Compared to OC men and women, SC, ST and OBC, men and women are shorter. However, inter-generational nutrition improvement is apparent for both men and women in the states, younger persons being taller than the older persons.

Household amenities improve the BMI and heights of both men and women in both the states. Household amenities Index turns out to be significant in all the regression, both quantile and OLS, for both men and women. It is because, the index not only takes into consideration the presence and absence of an amenity but also considers the type of facility available, the Index gradation indirectly includes the quality of the amenity being used. Scheduled caste and scheduled tribe and other backward classes will reach the BMI levels of other castes if only they enjoy the same quality of household amenities, education and ownership of irrigated land. However, household amenities of today cannot equalize the differences of heights, though they substantially contribute to the heights of men and women in future. Hence the policy implication is that all social groups and especially the scheduled and tribes and scheduled caste should have household amenities such as uninterrupted clean piped water supply, flush toilets, drainage connections, electricity, permanent

housing and clean cooking fuel. The discrimination in access to these amenities result differences in BMI and heights.

It is easier to equalize body mass index across social groups, but it is harder to equalize heights across the social groups, in the short run. Continuous and dedicated efforts in improving household amenities alone can make a difference to the heights in the next generation.

Quality of food intake rich in proteins in childhood and adolescence, improves the height of an individual. Food intake in excess, after the age of 20, leads to overweight, which seem to be the issue with men and women especially in urban areas. While chronic energy deficiency is falling obesity is on the increase among the adult population above the age of 20 years. At present there is no policy guidance or clarity on addressing the issue. Improvement in educational levels and awareness creation would help.

6.6 Body mass index, Heights and Social group in the age cohort of 15-49 (NFHS-4)

Generally, the age group of 15-49, rather than the age group of 20 years and above assumes importance. It is because this group has adolescents, women prior to conception, expectant and lactating mothers. The nutrition improvements achieved by this age group are transmitted to the next generation. Based on the recent NHHS-4 data, this sub section analyses the influence of social group on BMI and heights of this age group after controlling for household and individual characteristics. At the average level, the body mass Index of scheduled tribe women and men in the age group of 15-49 are the lowest compared to the other social groups in both the states. As far as the heights are concerned the scheduled castes men of Telangana have lower average heights compared to scheduled tribe men. In Andhra scheduled caste men are the shortest. Overall, it appears that scheduled caste men and women have better average nutrition out comes in Andhra, compared to the scheduled caste men of Telangana. However, the body mass Index and heights of scheduled castes men and women are lower than the average for all social groups. The men and women of the other castes are the tallest and fatter than the others on the average, in both the states. The problem with NFHS-4 appears to be large percentage of population not reporting caste of any category and they are kept separate. In Andhra Pradesh and Telangana, scheduled caste, scheduled tribe and other backward class categorization is given across the religious groups. Hence the group of other castes consists non-SC non-ST and Non-OBC category (Figures 6.1 to 6.6).

Body mass Index and social group in the age cohort of 15-49 - NFHS-4

According to NFHS-4, chronic energy deficiency prevalence is high in rural Telangana (29%) compared to Andhra Pradesh (20.3%). For rural men it stands at 24.6% for Telangana and 16.5% for Andhra. Basically, it reflects the better nutritional status for rural Andhra compared to rural Telangana, which is having rain fed agriculture in more areas than Andhra. Obese women and men in urban Andhra are as high as, 45.6 and 44.4% respectively. Telangana has 40% obese women and 31.7% obese men in urban Telangana. Tables 6.19 to 6.21 gives the results of factors influencing body mass index and heights of women and men in Andhra Pradesh and Telangana.

In Andhra Pradesh, in the age group of 15-49, BMI of scheduled caste women is not significantly different from other caste women after controlling for wealth index, living standard index and education, but both the men and women of all the other social groups have significantly lower BMI than the other castes. It is in contrast, to the findings of the women and men in the age group of 20 and above as per the DLHS-4 data, where social group has no influence on the BMI of men and women, after controlling for other factors.

The impact of caste/ social group on BMI in the age group of 14-49, after controlling for other factors (living standard index, wealth index and education) is significantly lower for scheduled tribe women, scheduled caste women and the other backward caste women, compared to other castes women, in Telangana. However, for men in Telangana, caste has no influence on the BMI, after controlling for other factors.

Wealth Index and living standard Index show positive influence on BMI of men and women, both in Andhra Pradesh and Telangana. Wealth index has influence on body mass Index of men only in the rich and richest categories in Andhra, compared to the poor for men's BMI.

In Andhra, education has negative influence on the BMI of women after secondary education and insignificant for men's BMI. In Telangana, education has negative influence on women's BMI, and insignificant for men except for a negative influence at the secondary level. This is an unexpected response. Education is proxying for the age, in this age cohort of 15-49. Younger women have higher education achievements compared to older women, who are not educated and tend to be obese. The regressions do not include age.

Health insurance or coverage by any health scheme is again negative for women and insignificant for men both in Andhra and Telangana. This variable is capturing the poverty aspect. Health insurance or health scheme cover is given to the poorer sections of the society by the government. Non-poor in these states go to private hospitals, which mostly deal with cash. Many households do not take an insurance as reimbursement process in India is prolonged process, involving documentation. It has negative influence on women's BMI and insignificant for men's BMI in both the states (Table 6.21 and Table 6.19)

Height and Social group in the age cohort of 15-49 (NFHS-4)

In Andhra Pradesh social group influences the heights of women and men in the age group of 15-49. Only women's height but not men's heights are influenced by social group in Telangana after controlling for wealth Index and living standard index and education level. The reasons are not clear. In the age group 20 years above in the analysis of DLHS-4 data the heights of both men and women are influenced by social group in Telangana. Social group has no influence on both body mass index and heights of men and women in Telangana, in contrast to Andhra Pradesh in the NFHS-4 data for the age group of 15-49 (Tables 6.20 and 6.22).

In the case of women of Telangana, the differences across social groups are significant. The conclusions one could draw is that there is gender discrimination in food intake over time in the social groups which are poorer. Boys and men get enough nutrition and gain weight and height, but girls and women of the poorer social groups remain shorter. Another reason for the insignificance of social group for men's height in NFHS-4 data could be the non-reporting of caste by a large percentage of the sample. While more research is required into this aspect. there are reasons to believe that the upper caste (that constitute less than 10% of the population but rich) may have been missed by the sample. In Andhra they constitute more than 22% of the population and may have been well represented in the sample.

Living standard score and wealth Index had no influence on men's heights in Andhra but influence women's heights, poorer women and women in households with low standard of living index are shorter. In Telangana, wealth Index influences the heights of both women and men. Lower the wealth Index shorter the men and women. Living standard score has no influence on the heights of men and women in Telangana, unlike the amenities Index. This is probably due to the inability of the living Index score to capture the quality of life.

Education above secondary level has positive influence on the heights of women and men in Telangana and heights of women in Andhra. Men's heights in Andhra are influenced only at the level of higher education.

Conclusion

NFHS-4 data for the age group of 15-49, indicates mixed influence of caste on body mass index and heights. Caste did not influence male height and body mass index but made a difference to women's heights and body mass index, pointing to gender discrimination in Telangana. In Andhra, caste has significant influence on heights of men and women and body mass index of women. Men's body mass index is not influenced by social group in Andhra. Education influenced heights positively both in Andhra and Telangana.

Two aspects are striking. Despite similar policy atmosphere for decades in both the states, the contrast in nutritional outcomes and the differential influence of caste on heights and body mass index is obvious. The regional factors appear to have strong influence on heights and body mass index of men and women. Second government policies and general prosperity over decades did not benefit women as much as it did to men.

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Tables

Table 6.1 Sector-wise shares of Gross value added and work force

GVA share and workforce shares in Andhra and Telangana					
	Andhra			Telangana	
Sector	GVA share	Worker share		GVA share	Worker share
Primary	29	55		13	56
Secondary	24	18		27	18
Tertiary	47	27		60	26
total	100	100		100	100
Source: Govt. of AP 2016; Govt. of Telangana 2016					
Govt. of India, Labour bureau 2013-14					

Table 6.2: Poverty in Andhra by Social Groups						
Social Groups	Rural 2004-05	Rural 2011-12	Urban 2004-05	Urban 2011-12	R+U 2004-05	R+U 2011-12
SC	38.54	13.61	38.3	15.97	38.49	14.02
ST	62.49	31.27	48.2	26.09	61.00	30.73
OBC	34.02	10.32	28.6	10.69	32.61	10.42
OC	16.17	5.84	19.54	6.94	17.25	6.23
Source: NSS 61st round (2004-05) and NSS 68th round (2011-12)						
CESS MDG Report for Andhra						

Table 6.3 Poverty in Telangana by Social Groups						
Social Groups	Rural 2004-05	Rural 2011-12	Urban 2004-05	Urban 2011-12	R+U 2004-05	R+U 2011-12
SC	39.97	19.64	22.7	10.53	37.02	17.02
ST	42.57	13.59	36.82	16.08	42.14	13.84
OBC	31.58	9.00	18.23	3.10	28.62	7.04
OC	21.78	7.05	15.07	3.91	18.38	5.06
Source: NSS 61st round (2004-05) and NSS 68th round (2011-12)						
CESS MDG Report for Telangana						

Table 6.4 Percentage of women (15-49) BMI levels				
Caste/Tribes	Andhra		Telangana	
	BMI < 18.5	BMI > 25.0	BMI < 18.5	BMI > 25.0
Scheduled Caste	23.3	22.1	27.8	18.4
Scheduled Tribes	22.7	17.9	26.9	15.7
Other Backward Classes	21.2	25.8	28.4	18.9
Others	16.0	33.4	22.1	26.8
All	20.9	25.6	27.5	19.2
Source DLHS-4 (2012-13) Report				

Table 6.5				
Chronic energy deficiency among adults above 20 years				
State	Telangana		Andhra Pradesh	
Social group	Male	Female	Male	Female
SC	12.01	16.05	8.1	11.54
ST	10.18	16.49	7.78	11.68
OBC	11.44	15.41	7.32	10.05
OC	9.33	11.03	6.31	7.76
Total	11.3	15.35	7.37	10.16
Source: DLHS-4 (2012-13) (Unit records)				

Table 6.6				
Social Group	Percentage of Population with access to			
	Drinking Water within the Dwelling		Toilet facility Within the Dwelling	
	Andhra	Telangana	Andhra	Telangana
Scheduled tribes	6.5	6	28	23
Scheduled Castes	8.1	11	40	31
Other Backward Castes	10.6	13	52	34
Other Castes	10.9	15	70	45
Source: DLHS-4				

Table 6.7: BMI and Caste (OLS)		Andhra Pradesh (residual)		
	No. of Obs:18990	No. of Obs:22381		
	Adj R2 =.00130025	Adj R2 =.01104163		
BMI	Male AP	P>t	Female AP	P>t
House hold amenities Index	0.7039463	0.044	1.426987	0.000
Social Group				
Scheduled Castes 1	0.4442419	0.324	0.183194	0.570
Scheduled Tribes 2	1.0685	0.374	2.377346	0.027
Other Backward Castes 3	0.3250336	0.367	0.634291	0.035
Years of schooling	0.1149112	0.026	0.053145	0.071
Health scheme/insurance	0.6749694	0.112	0.517865	0.104
land owned by the H.Hold	-0.0037409	0.721	-0.01515	0.078
Irrigated land owned by H.Hold	0.0488755	0.641	0.2056611	0.295
Any treatment of Drinking water	-0.2448459	0.572	0.0911266	0.769
Female/male ratio of the H.hold	-0.0180134	0.991	-0.560394	0.615
Age in months	0.0024179	0.013	0.0051077	0.000
land-location Category	-0.1689497	0.446	0.3520991	0.052
state				
_cons	20.65786	0	16.02033	0.000

Table 6.8 BMI and caste (quantile regressions)			Andhra Pradesh (residual)		
Male AP		Number of obs = 18990	Female AP		Number of obs = 22381
bmi	Coefficient	P>t	bmi	Coefficient.	P>t
q20	.20 Pseudo R2 = 0.0205		q20	.20 Pseudo R2 = 0.0290	
hh_amenities***	0.7519994	0.000	hh_amenities***	0.8597581	0.000
caste	-0.017208	0.604	caste***	0.0745608	0.003
Health Insurance **	0.1909041	0.023	Health Insurance	0.0715601	0.316
Land owned	-0.0002359	0.961	Land owned	-0.0101578	0.143
Irrigated land *	0.0355571	0.061	Irrigated land	-0.0270386	0.386
Treated water***	-0.2970105	0.004	Treated water***	-0.3122687	0.000
femalehh_ratio***	1.300504	0.000	femalehh_ratio***	-1.436498	0.000
age_inmonths***	0.0008858	0.000	age_inmonths***	0.001772	0.000
land_location**	0.1103424	0.026	land_location***	0.2244989	0.000
_cons***	17.25212	0.000	_cons***	17.23762	0.000
q40	.40 Pseudo R2 = 0.0286		q40	.40 Pseudo R2 = 0.0397	
hh_amenities***	0.9217713	0.000	hh_amenities***	1.131861	0.000
caste	-0.0206362	0.370	caste***	0.0784684	0.002
Health Insurance***	0.2703166	0.001	Health Insurance	0.1244637	0.169
Land owned	0.002594	0.579	Land owned	-0.0055067	0.624
Irrigated land *	0.0235092	0.114	Irrigated land	-0.0075932	0.688
Treated water***	-0.3241357	0.002	Treated Water**	-0.2263936	0.012
femalehh_ratio***	1.571572	0.000	femalehh_ratio***	-1.358099	0.000
age_inmonths***	0.001521	0.000	age_inmonths***	0.0028966	0.000
land_location***	0.1339795	0.003	land_location***	0.2508681	0.000
_cons***	18.27517	0.000	_cons***	17.79114	0.000

Table 6.9 BMI and Caste (quantile regressions)			Andhra Pradesh (Residual)		
Male AP		Number of obs = 18990	Female AP		Number of obs = 22381
bmi	Coefficient	P>t	bmi	Coefficient.	P>t
q60	.60 Pseudo R2 = 0.0336		q60	.60 Pseudo R2 = 0.0491	
hh_amenities***	1.109446	0.000	hh_amenities***	1.40578	0.000
caste	0.0001522	0.996	caste***	0.074532	0.009
Health insurance***	0.3720273	0.000	health insurance**	0.2123494	0.022
Land owned	-0.0019093	0.699	Land owned	-0.0092049	0.388
Irrigated land	0.004413	0.811	Irrigated land	-0.0287709	0.133
Treated water***	-0.5703687	0.000	Treated water***	-0.3770716	0.001
femalehh_ratio***	1.783224	0.000	femalehh_ratio***	-1.63533	0.000
age_inmonths***	0.0018612	0.000	age_inmonths***	0.0037202	0.000
land_location***	0.2244608	0.000	land_location***	0.3439476	0.000
_cons***	19.51964	0.000	_cons***	18.96185	0.000
q80	.80 Pseudo R2 = 0.0300		q80	.80 Pseudo R2 = 0.0489	
hh_amenities***	1.356307	0.000	hh_amenities***	1.773593	0.000
caste	0.0257692	0.408	caste	0.0493349	0.160
Health insurance***	0.5095275	0.000	Health insurance***	0.5029544	0.000
Land owned	-0.006902	0.296	Land owned	-0.0074912	0.621
Irrigated Land	-0.013433	0.575	Irrigated land	-0.0371746	0.228
Treated water***	-0.425115	0.002	Treated water**	-0.3343358	0.019
femalehh_ratio***	2.140097	0.000	femalehh_ratio***	-1.648974	0.000
age_inmonths***	0.0022201	0.000	age_inmonths***	0.0045649	0.000
land_location***	0.197924	0.003	land_location***	0.4551728	0.000
_cons***	20.59385	0.000	_cons***	19.79514	0.000

Table 6.10: BMI and Caste (OLS)	Telangana			
BMI	No. of Obs 14617	No. of Obs: 15831		
	Adj R2 =.000736	Adj R2 =.00236		
	Male TE	P>t	Female TE	P>t
House hold amenities Index	0.390457	0.285	0.8713894	0.003
Social Group				
Scheduled Castes 1	0.248716	0.692	-0.1992244	0.756
Scheduled Tribes 2	-0.94525	0.083	-0.7584887	0.211
Other Backward Castes 3	-0.354703	0.471	-0.2558848	0.64
Years of schooling	0.028354	0.372	0.0304041	0.633
Health scheme/insurance	-0.06087	0.884	-0.6274389	0.151
land owned by the H.Hold	0.008502	0.929	-0.1301395	0.012
Irrigated land owned by H.Hold	0.077044	0.686	0.0971646	0.186
Any treatment of Drinking water	-1.663172	0.02	-1.674541	0.054
Female/male ratio of the H.hold	1.658042	0.09	1.751989	0.285
Age in months	0.001242	0.386	0.0044016	0.000
land-location Category	0.023846	0.938	0.1971062	0.572
state				
_cons	25.22828	0.000	22.09623	0.000

Table No. 6.11: BMI and Caste (Quantile Regressions) Telangana

Male TE		Number of obs = 14617	Female TE		Number of obs = 15831
bmi	Coef.	P>t	bmi	Coef.	P>t
q20	.20 Pseudo R2 = 0.0176		q20	.20 Pseudo R2 = 0.0236	
hh_amenities***	0.43838	0	hh_amenities***	0.51501	0
caste	-0.0045	0.924	caste	0.044749	0.195
Health Insurance***	0.444145	0	Health Insurance	0.130804	0.121
Land Owned**	-0.03886	0.073	Land owned*	-0.05967	0.07
Irrigated Land**	0.049211	0.036	Irrigated land	0.045433	0.323
Treated water***	-0.48302	0	Treated water***	-0.50564	0
femalehh_ratio***	0.892561	0.001	femalehh_ratio***	-0.68392	0.007
age_inmonths***	0.001343	0	age_inmonths***	0.002553	0
land_location***	0.350558	0	land_location***	0.412339	0
_cons***	16.99368	0	_cons***	16.54683	0
q40	.40 Pseudo R2 = 0.0184		q40	.40 Pseudo R2 = 0.0305	
hh_amenities***	0.515675	0.000	hh_amenities***	0.649167	0
caste	0.014477	0.699	caste	0.053726	0.108
Health insurance***	0.453112	0.000	health insurance***	0.303157	0
Land Owned	-0.02032	0.154	Land owned	-0.0112	0.561
Irrigated Land	0.00936	0.671	Irrigated land	-0.01921	0.471
Treated water***	-0.39661	0.000	Treated water***	-0.51939	0
femalehh_ratio***	1.062409	0.000	femalehh_ratio***	-0.66919	0.001
age_inmonths***	0.001844	0.000	age_inmonths***	0.003755	0
land_location***	0.321419	0.000	land_location***	0.421014	0
_cons***	18.39135	0.000	_cons***	17.41334	0
q60	.60 Pseudo R2 = 0.0210		q60	.60 Pseudo R2 = 0.0327	
hh_amenities***	0.644833	0.000	hh_amenities***	0.837511	0.000
caste	0.006066	0.862	caste**	0.080109	0.020
Health Insurance***	0.439772	0.000	Health insurance**	0.206827	0.025
Land owned**	-0.04212	0.044	Land owned*	-0.03892	0.072
Irrigated Land	0.024497	0.406	Irrigated land	-0.00562	0.889
Treated Water**	-0.25694	0.036	Treated water***	-0.62698	0.000
femalehh_ratio***	1.345151	0.000	femalehh_ratio***	-0.81408	0.000
age_inmonths***	0.002186	0.000	age_inmonths***	0.004337	0.000
land_location***	0.399445	0.000	land_location***	0.399187	0.000
_cons***	19.25952	0.000	_cons***	19.01014	0.000

Table 6.12 BMI and Caste (Quantile 4regressions (Telangana)					
Telangana BMI			Telangana BMI		
Males			Females		
q80	.80 Pseudo R2 = 0.02		q80	.80 Pseudo R2 = 0.0333	
hh_amenities***	1.005614	0.000	hh_amenities***	1.188062	0.000
caste	0.045244	0.351	caste***	0.182178	0.004
Health insurance***	0.377262	0.004	Health insurance	0.1352939	0.267
Land owned**	-0.06932	0.030	Land owned**	-0.0774832	0.038
Irrigated land	0.021207	0.514	Irrigated land	0.0346567	0.545
Treated water**	-0.32932	0.033	Treated water***	-0.6766838	0.000
femalehh_ratio***	2.256172	0.000	femalehh_ratio***	-1.48071	0.000
age_inmonths***	0.00211	0.000	age_inmonths***	0.0051665	0.000
land_location***	0.390145	0.000	land_location***	0.4970042	0.000
_cons***	20.56502	0.000	_cons***	20.47606	0.000

Table 6.13: Height and Caste (OLS)	Andhra Pradesh (Residual)			
	no. of Obs.=19051 No. obs. = 22445			
Height_meters	adjusted R2 =.019188		adjusted R2 =.01445	
	Male AP	P>t	Female AP	P>t
House-hold amenities	0.003685	0.001	0.0056681	0.000
Social group (B= Others)				
Scheduled Caste 1	-0.01628	0.000	-0.0137021	0.000
Scheduled Tribe 2	-0.01936	0.000	-0.0171736	0.000
Other Backward Castes 3	-0.00873	0.000	-0.0098545	0.000
Years of Schooling	0.001245	0.000	0.0008016	0.000
Health insurance/scheme	0.001221	0.505	-0.0044725	0.007
Land owned by HH (in acres)	0.000144	0.082	0.0001062	0.120
Irrigated land owned by HH (acres)	0.001059	0.004	-0.0004548	0.384
Any treatment of Drinking water	-0.00764	0.000	-0.0004236	0.807
female/male ratio in the HH	0.01238	0.034	-0.0057917	0.239
age_inmonths	-1.3E-05	0.005	-0.0000221	0.000
land_location category	0.003637	0.000	0.0011301	0.217
_cons	1.598169	0.000	1.523428	0.000

6.14: Height and Caste (quantile regressions)			Andhra Praqdes (residual)		
Male	Number of obs = 19051		Female	Number of obs = 22445	
height_meters	Coef.	P>t	height_meters	Coef.	P>t
q20	.20 Pseudo R2 = 0.0131		q20	.20 Pseudo R2 = 0.0225	
hh_amenities***	0.0050307	0.000	hh_amenities***	0.008966	0.000
caste***	0.0036896	0.000	caste***	0.0026721	0.000
health Insurance*	0.0036848	0.058	health Insurance	-0.000908	0.560
Land owned	0.0001234	0.542	Land owned	0.0000265	0.816
Irrigated Land **	0.0007534	0.047	Irrigated Land	-0.000165	0.695
Treated water***	-0.010301	0.000	Treated Water	-0.000867	0.579
femalehh_ratio**	0.0117204	0.032	femalehh_ratio	-0.001391	0.655
age_inmonths***	-2.97E-05	0.000	age_inmonths***	-6.71E-05	0.000
land_location***	0.0057385	0.000	land_location	0.0013152	0.151
_cons***	1.531677	0.000	_cons***	1.460805	0.000
q40	.40 Pseudo R2 = 0.0145		q40	.40 Pseudo R2 = 0.0181	
hh_amenities***	0.0052406	0.000	hh_amenities***	0.0073799	0.000
caste***	0.002595	0.000	caste***	0.0020171	0.000
Health Insurance***	0.0057715	0.000	Health Insurance	-3.62E-05	0.974
land owned	0.0000559	0.856	Land owned	0.000017	0.856
Irrigated land**	0.0010853	0.026	Irrigated Land	0.0000627	0.802
treated Water***	-0.006039	0.000	Treated water	-0.000453	0.691
femalehh_ratio	0.0027307	0.462	femalehh_ratio	-0.003161	0.242
age_inmonths***	-2.86E-05	0.000	age_inmonths***	-5.01E-05	0.000
land_location***	0.0038927	0.000	land_location***	0.0021329	0.001
_cons***	1.574312	0.000	_cons***	1.495744	0.000
q60	.60 Pseudo R2 = 0.0244		q60	.60 Pseudo R2 = 0.0208	
hh_amenities***	0.0070722	0.000	hh_amenities***	0.009561	0.000
caste***	0.0042142	0.000	caste***	0.0030073	0.000
Health Insurance***	0.0065245	0.000	Health Insurance	0.0004423	0.720
Land owned	0.0002059	0.626	Land owned	-4.33E-05	0.708
Irrigated land**	0.001057	0.049	Irrigated land	0.0000497	0.874
Treated Water***	-0.007558	0.000	Treated Water	-0.001258	0.307
femalehh_ratio	-0.000141	0.977	femalehh_ratio	-0.001065	0.746
age_inmonths***	-3.94E-05	0.000	age_inmonths***	-0.000046	0.000
land_location***	0.0060752	0.000	land_location***	0.0014286	0.049
_cons***	1.601884	0.000	_cons***	1.518132	0.000

Table 6.15: Heights and caste (Quantile regressions)					
Heights Andhra	Males		Height Andhre	Females	
q80	.80 Pseudo R2 = 0.0250		q80	.80 Pseudo R2 = 0.0158	
hh_amenities***	0.0070613	0.000	hh_amenities***	0.0089651	0.000
caste***	0.0040649	0.000	caste***	0.0029293	0.000
Health Insurance ***	0.0068012	0.000	Health Insurance	0.0010937	0.444
Land owned	0.0003952	0.424	Lad owned	-8.72E-06	0.971
Irrigated land	0.0005746	0.365	Land irrigated	0.000031	0.938
Water treated ***	-0.0075167	0.000	Water treated	0.0001096	0.939
femalehh_ratio	0.0067109	0.103	femalehh_ratio	0.0015352	0.681
age_inmonths***	-0.0000453	0.000	age_inmonths***	-0.0000298	0.000
land_location***	0.0060001	0.000	land_location*	0.0014014	0.076
_cons***	1.645389	0.000	_cons***	1.546989	0.000

Table 6.16: Heights and caste (OLS)	Telangana			
	No. of Obs.=14625		No. obs. =15834	
Height_meters	Adjusted R2 =.024298		Adjusted R2 =.0188723	
	Male TE	P>t	Female TE	P>t
House-hold amenities	0.0081259	0.000	0.0051184	0.000
Social group (B= Others)				
Scheduled Caste 1	-0.0271889	0.000	-0.0204477	0.000
Scheduled Tribe 2	-0.0308733	0.000	-0.0201578	0.000
Other Backward Castes 3	-0.0118477	0.001	-0.0109339	0.001
Years of Schooling	0.0010494	0.000	0.0008398	0.000
Health insurance/scheme	0.0019709	0.324	0.0021893	0.219
Land owned by HH (in acres)	-0.000311	0.536	-0.0000322	0.939
Irrigated land owned by HH (acres)	0.0011885	0.074	-0.000042	0.939
Any treatment of Drinking water	0.002365	0.374	0.0103267	0.000
female/male ratio in the HH	0.0065567	0.263	-0.0126915	0.020
age_inmonths	4.32E-06	0.454	-0.0000161	0.010
land_location category	0.0040634	0.002	0.0049635	0.000
_cons	1.549877	0.000	1.493389	0.000

Table 6.17 Heights and caste (quantile Regressions)			(Telangana)		
Male		Number of obs = 14625	Female		Number of obs = 15835
height_meters	Coef.	P>t	height_meters	Coef.	P>t
q20	.20 Pseudo R2 = 0.0156		q20	.20 Pseudo R2 = 0.0173	
hh_amenities***	0.007447	0.000	hh_amenities***	0.0079541	0.000
caste***	0.0080648	0.000	caste***	0.0049004	0.000
Health Insurance***	0.0091158	0.000	Health Insurance**	0.0037777	0.029
Land owned	-0.0006767	0.335	Land owned	-0.0005915	0.301
Irrigated Land**	0.0020085	0.046	Irrigated land	0.0007718	0.236
Treated Water	-0.0005854	0.853	Treated Water***	0.0071553	0.001
femalehh_ratio	0.008957	0.224	femalehh_ratio	-0.0034627	0.484
age_inmonths*	-0.0000128	0.070	age_inmonths***	-0.0000457	0.000
land_location***	0.0049155	0.000	land_location***	0.0059914	0.000
_cons***	1.457876	0.000	_cons***	1.41651	0.000
q40	.40 Pseudo R2 = 0.0151		q40	.40 Pseudo R2 = 0.0117	
hh_amenities***	0.0080138	0.000	hh_amenities***	0.0053152	0.000
caste***	0.007032	0.000	caste***	0.0056663	0.000
Health Insurance*	0.0032893	0.069	Health Insurance**	0.0014712	0.235
Land owned	-0.0001478	0.780	Land Owned	-0.0000281	0.932
Irrigated Land	0.0009025	0.222	Irrigated Land**	0.0008931	0.044
Treated Water	-0.0028073	0.208	Treated water***	0.008061	0.000
femalehh_ratio	0.0006917	0.911	femalehh_ratio	-0.0006871	0.831
age_inmonths**	-0.0000146	0.012	age_inmonths***	-0.0000254	0.000
land_location***	0.0040693	0.001	land_location***	0.0025973	0.000
_cons***	1.529853	0.000	_cons***	1.461699	0.000
q60	.60 Pseudo R2 = 0.0221		q60	.60 Pseudo R2 = 0.0127	
hh_amenities***	0.009406	0.000	hh_amenities***	0.0063709	0.000
caste***	0.0080521	0.000	caste***	0.0057831	0.000
Health Insurance**	0.004429	0.011	Health Insurance	-0.001384	0.364
Land owned	-0.0000554	0.864	Land owned	0.0002105	0.665
Irrigated land	0.0009084	0.135	irrigated land	0.0005029	0.398
Treated water	-0.0038946	0.138	Treated water***	0.0072841	0.000
femalehh_ratio	-0.001545	0.809	femalehh_ratio*	-0.0074481	0.064
age_inmonths***	-0.0000117	0.003	age_inmonths***	-0.0000199	0.000
land_location***	0.0036288	0.000	land_location***	0.0032585	0.001
_cons***	1.561402	0.000	_cons***	1.500044	0.000

Table 6.18 Heights and Caste (quantile Regressions) Telangana					
Heights (Telangana) Males				Heights (Telangana) Females	
q80	.80 Pseudo R2 = 0.0183		q80	.80 Pseudo R2 = 0.0112	
hh_amenities***	0.0105542	0.000	hh_amenities***	0.0067023	0.000
caste***	0.0074335	0.000	caste***	0.0047866	0.000
Health Insurance	0.0020869	0.307	Health insurance**	-0.003729	0.033
Land owned	0.0011218	0.107	Lam owned	0.0006028	0.243
Irrigated land	-0.0002602	0.763	Irrigated land	-0.000634	0.259
Treated water	-0.0024959	0.310	Treated water***	0.0101358	0.000
femalehh_ratio	-0.0010331	0.868	femalehh_ratio	-0.007372	0.114
age_inmonths***	-0.0000226	0.000	age_inmonths***	-1.93E-05	0.000
land_location	0.001377	0.292	land_location*	0.0019343	0.087
_cons***	1.618177	0.000	_cons***	1.543929	0.000

Table 6.19 BMI and Castes in Telangana

	Female BMI		Male BMI	
	R-squared = 0.1306	Number of obs = 7137	R-squared = 0.0980	Number of obs = 1056
	Coef.	P>t	Coef.	P>t
Social Groups (Base Caste = Others)				
SC	-69.3***	0.002	-29.4	0.55
ST	-84.2***	0.001	-59.0	0.254
OBC	-76.5***	0	-42.1	0.305
Don't Know	-75.7	0.32	-203.2*	0.072
Wealth Index				
Poorer	29.7	0.124	46.5	0.322
Middle	111.4***	0	122.2**	0.031
Richer	236.2***	0	157.7**	0.014
Richest	411.2***	0	331.7***	0
Education (Base No Education/ Pre-School)				
Primary	-31.9*	0.082	26.8	0.558
Secondary	-159.2***	0	-71.4**	0.026
Higher	-229.2***	0	-52.5	0.208
Don't Know	-283.9***	0	-390.5***	0
Member Cover by Health Insurance/Scheme				
Yes	-42.7***	0.001	-34.9	0.215
Don't Know	-369.0**	0.031		
Ownership of House				
	-35.1***	0.001	-28.4	0.283
Has Bank Account				
Yes	-14.7	0.483	-46.2	0.31
Don't Know	-303.4***	0.003		
Living Standard Score				
	46.8***	0	32.3	0.048
Constant				
	2109.4***	0	2107.1***	0

Source: Authors Calculation based on NFHS-4

Note: Age Group =15-49 Years; Significance level: *>=90, **>=95%, *** >=99%

Table 6.20 Heights and Castes in Telangana

	Female Height		Male Height	
	R-squared = 0.0674	Number of obs = 7145	R-squared = 0.1281	Number of obs = 1056
	Coef.	P>t	Coef.	P>t
Social Groups (Base Caste = Others)				
SC	-23.2***	0	-20.5**	0.01
ST	-7.8**	0.02	2.7	0.751
OBC	-6.2***	0.009	1.7	0.787
Don't Know	-13.8*	0.099	3.0	0.876
Wealth Index				
Poorer	8.5**	0.012	13.8	0.117
Middle	12.0***	0.001	26.8***	0.007
Richer	18.2***	0	38.0***	0
Richest	27.0***	0	50.2***	0
Education (Base No Education/ Pre-School)				
Primary	0.0	0.999	8.0	0.34
Secondary	12.4***	0	22.8***	0
Higher	20.8***	0	28.6***	0
Don't Know	16.0	0.266	-21.3**	0.013
Member Cover by Health Insurance/Scheme				
Yes	-1.6	0.339	-2.4	0.633
Don't Know	0.6	0.981		
Ownership of House				
	-1.3	0.361	0.6	0.882
Has Bank Account				
Yes	-3.7	0.201	-4.4	0.497
Don't Know	-14.7	0.447		
Living Standard Score				
	0.4	0.65	2.5	0.35
Constant				
	1509.2***	0	1597.9***	0

Source: Authors Calculation based on NFHS-4

Note: Age Group =15-49 Years; Significance level: *>=90, **>=95%, *** >=99%

Table 6.21 BMI and Castes in Andhra Pradesh

	Female BMI		Male BMI	
	R-squared = 0.1256	Number of obs = 9782	R-squared = 0.1039	Number of obs = 1436
	Coef.	P>t	Coef.	P>t
Social Groups (Base Caste = Others)				
SC	-15.6	0.328	-76.7*	0.061
ST	-83.3***	0.000	-128.1**	0.011
OBC	-53.7***	0.000	-55.2*	0.094
Don't Know	-55.6	0.487	-47.2	0.689
Wealth Index				
Poorer	85.4***	0.000	-21.9	0.673
Middle	138.5***	0.000	77.2	0.176
Richer	303.2***	0.000	189.9***	0.003
Richest	470.3***	0.000	274.9***	0.000
Education (Base No Education/ Pre-School)				
Primary	44.4***	0.002	-12.1	0.745
Secondary	-86.7***	0.000	-23.5	0.464
Higher	-131.2***	0.000	23.1	0.573
Don't Know	-77.8	0.530	-138.6**	0.012
Member Cover by Health Insurance/Scheme				
Yes	-45.2***	0.000	-35.9	0.217
Don't Know	-28.5	0.753	-127.9	0.395
Ownership of House				
	-50.5***	0.000	9.2	0.754
Has Bank Account				
Yes	-5.8	0.819	118.7**	0.017
Don't Know			-141.4**	0.037
Living Standard Score				
	35.8***	0.000	31.3**	0.036
Constant				
	2113.2***	0.000	2038.8***	0.000

Source: Authors Calculation based on NFHS-4

Note: Age Group =15-49 Years; Significance level: *>=90, **>=95%, *** >=99%

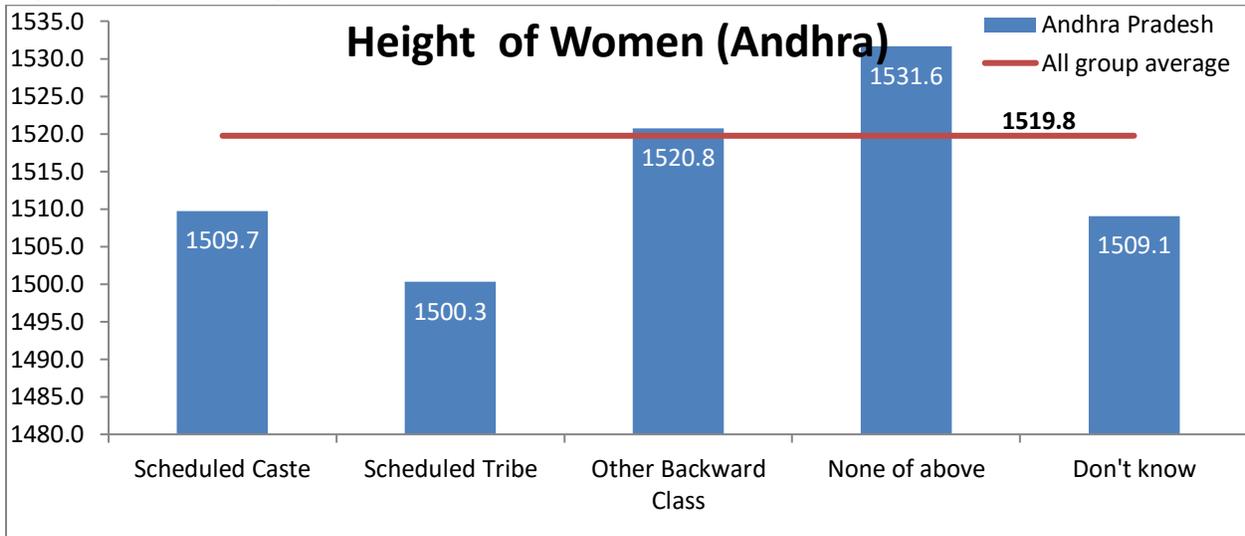
Table 6.22 Heights and Castes in Andhra Pradesh

	Female Height		Male Height	
	R-squared = 0.0438	Number of obs = 9786	R-squared = 0.0825	Number of obs = 1436
	Coef.	P>t	Coef.	P>t
Social Groups (Base Others)				
SC	-15.9***	0.000	-27.7***	0.000
ST	-21.0***	0.000	-29.4***	0.001
OBC	-6.7***	0.000	-13.7***	0.004
Don't Know	-15.5	0.106	-50.8**	0.047
Wealth Index				
Poorer	8.2**	0.010	-13.2	0.238
Middle	9.9***	0.002	-15.0	0.187
Richer	12.2***	0.001	-5.9	0.625
Richest	15.0***	0.000	15.0	0.256
Education (Base No Education/ Pre-School)				
Primary	1.2	0.476	-6.9	0.276
Secondary	7.8***	0.000	4.7	0.340
Higher	17.7***	0.000	10.8*	0.082
Don't Know	1.3	0.956	-27.9***	0.003
Memembr Cover by Health Insurance/Scheme				
Yes	-3.3**	0.018	-7.0	0.104
Don't Know	6.2	0.519	-12.5	0.237
Onwership of House				
	6.7***	0.000	4.8	0.311
Has Bank Account				
Yes	-1.3	0.663	0.6	0.946
Don't Know			10.3	0.468
Living Standard Score				
	1.7**	0.014	2.7	0.223
Constant				
	1503.8***	0.000	1649.5***	0.000

Source: Authors Calculation based on NFHS-4

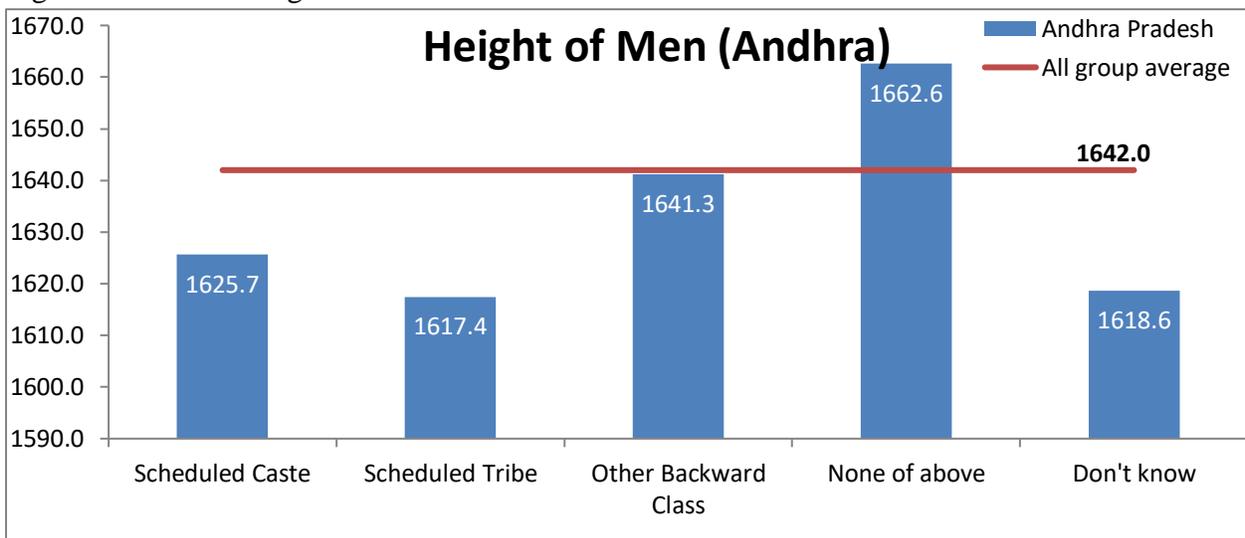
Note: Age Group =15-49 Years; Significance level: *>=90, **>=95%, *** >=99%

Figure 1.1: Mean Heights of Women in Across Caste in Andhra Pradesh



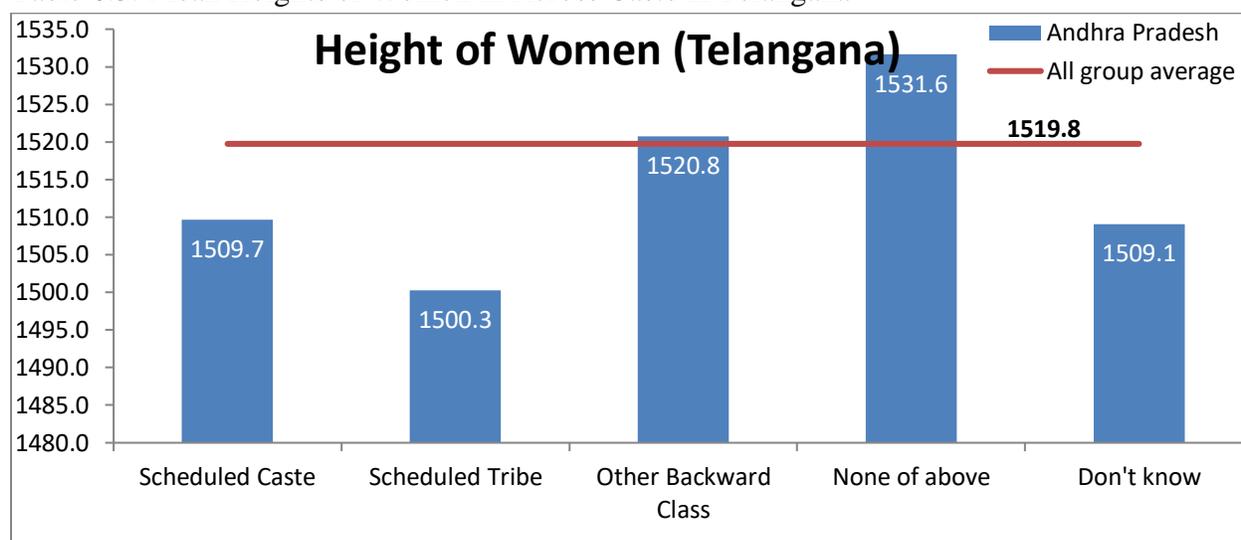
Source: NFHS-4

Figure 1.2: Mean Heights of Men in Across Caste in Andhra Pradesh



Source: NFHS-4

Table 6.3: Mean Heights of Women in Across Caste in Telangana

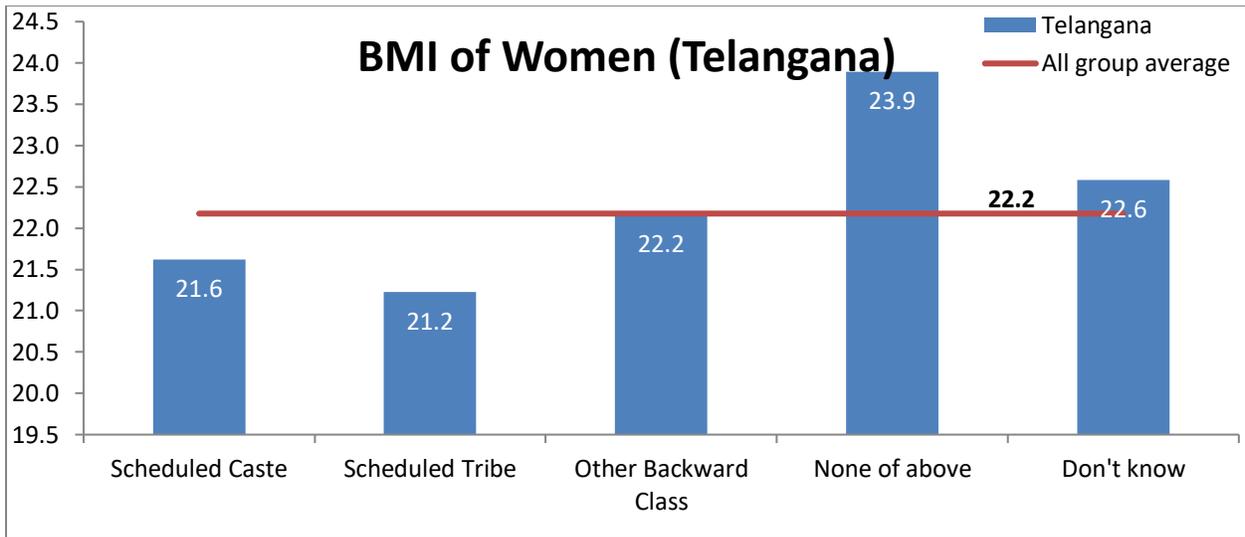


Source: NFHS-4

Table 6.4: Mean Heights of Men Across Caste in Telangana

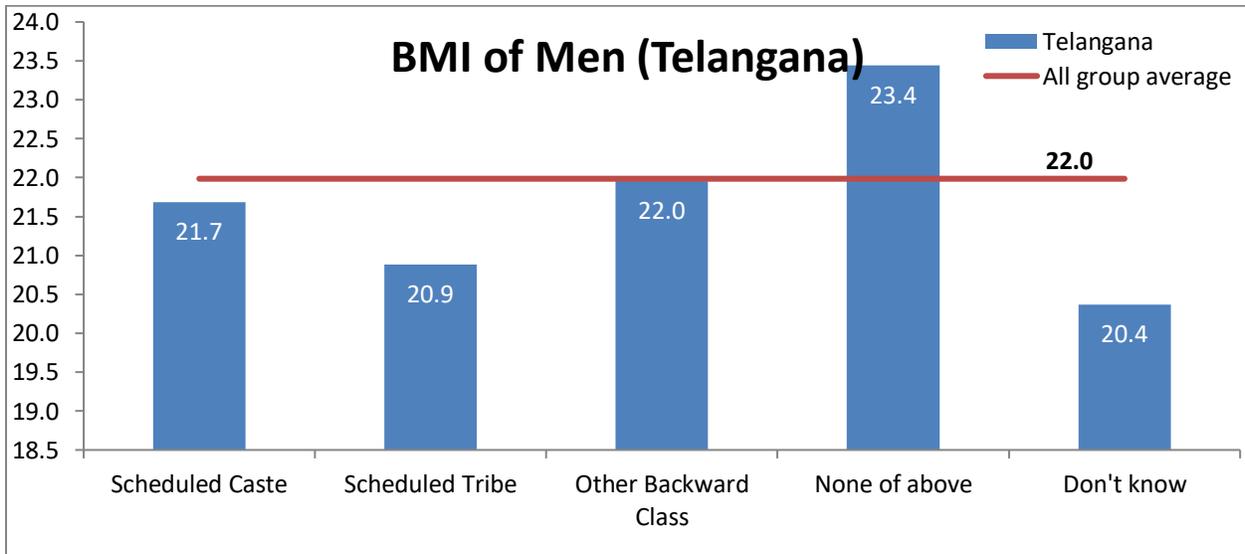
Source: NFHS-4

Table 6.7: Mean BMI of Women in Across Caste in Telangana



Source: NFHS-4

Table 6.8: Mean BMI of Men in Across Caste in Telangana



Source: NFHS-4