Less Food for More Status

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Abstract

Even under the direst necessity, people do not seem to spend their budget in a rational of survival: the concern for social status has strong effects on the way they allocate their resources. We argue that this status concern is stronger on groups which are low in the status hierarchy, which contributes to group inequality in the long run. We document the existence of a persistent gap between lower caste and upper caste households in expenditures allocated to visible consumption rather than food in India. To explain this fact, we build an overlapping-generation model where the inherited status affects the way individuals allocate their budget. Disadvantaged groups compensate in each period their lack of status by spending more on visible consumption, at the expense of calorie intakes. Good nutrition being essential to their productivity, the distortion in their preferences dampens their future wealth and reinforces inequality in the long run. In the empirical analysis, we show that disadvantaged castes substitute visible consumption for food in regions where upper castes are relatively richer. The results have important implications for nutrition policies, and argue for group-targeted development policies rather than wealth redistribution.

Keywords: status, reference-dependent preferences, group inequality, food consumption

JEL Classification: D01, D12, D91, J15, Z13

"No class of society, not even the most abjectly poor, forgoes all customary conspicuous consumption. The last items of this category of consumption are not given up except under stress of the direst necessity. Very much of squalor and discomfort will be endured before the last trinket or the last pretence of pecuniary decency is put away."
— Veblen (1899)

1 Introduction

The consideration of social groups and historical status hierarchies matter in identifying current consumption patterns: controling for permanent income, Charles et al. (2009) find that Blacks and Hispanics in the US spend roughly 25% more on visible goods, and less on food, education and health among other goods. Khamis et al. (2012) find similar results for India: disadvantaged caste groups spend 8% more on visible consumption than upper caste groups, and less on food and education. These patterns are consistent with the idea of relative deprivation of status, and underline the fact that socially deprived groups may substitute between present status and investment in their future productivity. This could constitute a status trap in which the most disadvantaged groups self-perpetuate historical status hierarchies by under-investing in the productivity of their dynasties, and thus continue to be more disadvantaged in the next generation.

The concern for status has been reported as a strong motivation affecting individual choices. In his Theory of the Leisure Class (1899), Veblen explains that the concern for status is rooted in the need to be esteemed or respectable in society. It implies that each individual conditions his consumption choice on the choice of a reference group. It also implies a structural status hierarchy, historically rooted, where belonging to a group remains constrained by birth under some easily identifiable conditions (name for gentry and caste, phenotype for race). Furthermore, the mobility between these rigid structures has usually been highly restrained by laws relative to inter-marriage, transmission of heritage, range of occupations, and customs regarding consumption and habits so as to make the membership to a group immediately visible. An interesting account of such practices regarding castes in India can be found, for instance, in the work of Srinivas (1956) and Ambedkar (1944).

Status concern may have a substantial impact on the growth pattern and inequality between social groups. Indeed, Galor (2011) underlines that inequality is a serious impediment to human capital accumulation, and therefore growth in modern societies. But the decision of investment in human capital seems to depend much more on social interactions in society:

discrimination (Piketty (2000) provides a review of the literature), aspiration (Ray, 2002; Genicot and Ray, 2014) and status (Moav and Neeman, 2012; Ray and Robson, 2012). This article explores the last concern which is distinct from, though certainly combined with, discrimination where individuals are constrained on the return of their investment decision, and lack of aspiration where individuals do not aspire to invest as much as they could.

The substitution between conspicuous consumption and investment can take several forms. In fact, it represents an intra-temporal choice to allocate one's budget into visible and low return items, which we call conspicuous consumption, or high return items such as food, education or health, which we call investment. The item on which substitution is observed and the magnitude of the substitution are explored in the empirical section. Food appears as the main item affected by status concern. While people tend to think of food as being a pure necessity, several instances in the literature (in particular Dasgupta and Ray (1986)) show that there is a difference between hunger and malnutrition. If the former leads to death, the latter can be prevalent in the population with a significant effect on individual future productivity. Dasgupta and Ray (1986) list the long-term effects of malnutrition such as diminishing muscular strength, growth retardation, increased illness and vulnerability to disease or decreased brain growth and development. It is likely that above the starvation level, households engage in the trade-off between present status and future returns in their choice on education as well as good nutrition or health. Given its low income elasticity, food (or good nutrition) is the major item that is both less visible and can be substituted easily (households may have little access and spend little on education). We find strong evidence in support of this interpretation for India in the last decades.

This finding is even more striking if we consider another puzzling phenomenon: the decrease in calorie consumption of the Indian population in the last decades, along with non-increasing real food expenditures (Deaton and Drèze, 2009). This phenomenon does not seem consistent with the rapid growth that India has experienced in the same period. In the literature, the Indian calorie consumption decline has been explained by Deaton and Drèze (2009) as a consequence of the improved epidemiological environment and the reduction of physical activity, leading to declining needs for calories. Other research has linked this decline to a squeeze in the food budget following an increase in compulsory non-food expenditures (schooling, health, transportation, etc.) as well as a decline in home-grown food production (Basu and Basole, 2012). These mechanical explanations, however, may be insufficient to explain why more than three quarters of the population still live in households whose per capita calorie consumption is less than the estimated minimum requirement (2,100 in urban

areas and 2,400 in rural areas). Moreover, the anthropometric indicators have improved at a very slow rate compared to what could have been expected given international experience and high economic growth rates in India [1].

We exploit the Indian National Sample Surveys on Consumption and Expenditure (NSS) and its precise account of household consumption in order to explore the empirical implications of status concern in the consumption decisions of individuals across castes. Focusing on India is particularly interesting because of the low inclusiveness of the growth process the country has been witnessing in the last decades, experiencing a rise in income inequality since the 1990s (Banerjee and Piketty, 2005). The rigid caste structure of the society can help identify the group of reference for status, and to explore the strength of status concern. The particular organization of Indian society also makes it possible to explore the social dynamics of comparison between groups through consumption choices. Both redistributive policies and affirmative action have been implemented since Independence, but India remains a society characterized by a very rigid structural inequality as well as very poor indicators in terms of poverty reduction and nutrition (Deaton and Drèze, 2009). In this context, it is crucial to understand the impact of different public policies given the social externalities on consumption, especially for the most disadvantaged groups in society.

We first present several stylized facts on the link between caste affiliation and economic status in contemporary India. We then follow the empirical approach of Charles et al. (2009) and Khamis et al. (2012) and find a similar result, though slightly lower in magnitude, probably due to the more aggregate definition of castes in the NSS databases. In particular, lower castes spend relatively more on visible goods, even after controlling for permanent income and household and location characteristics. We find that Other Backward Classes (OBC) and Scheduled Castes (SC) spend respectively 1% and 2% more on status goods than Upper Castes. They also spend less on food (Scheduled Castes significantly spend 1% less), education and other expenditures.

To explain these findings, we incorporate the concern for status under the form of Bowles and Park (2005) into a Galor-Zeira model similar to Moav (2002). Individuals inherit a group with h high status or l low status. This structural status hierarchy imposes an externality on the individuals in l who compensate their lack of structural status by allocating more

[1] The last thirty years have seen a reduction of around fifty percent in the prevalence of severe undernutrition, as well as a sharp decline in the prevalence of clinical signs of nutritional deficiency. However, the overall levels of undernutrition in India are still very high. Close to half of all Indian children are underweight (some of them even in better-off households), and about half suffer from anemia. Also, thirty-six percent of adult women suffer from low Body Mass Index (below 18.5) (Deaton and Drèze, 2009).

of their budget to present consumption (conjectural status) rather than investment in their physical work capacity (food). This externality depends on the gap with the h group and makes the income a convex function of investment. There is therefore an income below which individuals in l invest less and are trapped in poverty due to a fall in work capacity. Also, even the individuals in l who are at the high income steady state are poorer, in equilibrium, than the individuals in h. This gives rise to a polarized society where structural and conjectural inequalities across groups reinforce one another.

We follow the identification strategy of Charles et al. (2009) to document the presence of a substitution effect between conspicuous consumption and food due to the structural status externality that upper castes inflict on lower castes. To do so, we exploit the variation in upper castes' level of expenditures across NSS regions and explore its effect on lower castes' expenditures. We find that the expenditures on conspicuous consumption and food are, respectively, a positive and a negative function of the mean expenditures of upper caste groups. We do not observe any significant effect of one's own group's permanent income on the conspicuous consumption of lower castes, contrary to previous findings of Charles et al. (2009) and Khamis et al. (2012). The effect is not robust to other expenditures, which further support the argument that substitution takes place between visible goods which have a high immediate status return, and expenditures on food.

We provide further evidence that the effect is indeed driven by upward-looking comparisons between castes due to the presence of a caste hierarchy. We show that the effect is stronger when we take the 25% richest Upper Castes as a reference group. We also find that the effect of Upper Castes is stronger on the lower quartile of the lower castes groups, controlling for permanent income. We argue quartiles are a good approximation of Jatis within caste groups. Finally, we run a series of placebo tests on other social groups outside the caste system (Muslims, Scheduled Tribes) and run similar specifications on other waves of the National Sample Surveys.

Ultimately, identifying the source of conspicuous consumption and the resulting distortions in preferences is critical for policy implications. In a society where concern for status affects the investment decisions of the most disadvantaged groups, redistribution alone may not modify their persistent feeling of status deprivation, and may not be enough to cease the re-creation of group inequalities. In this case, one may be more inclined to address the concern itself by introducing policies targeting specific groups.

This article is related to the literature on income distribution, inequality and the poverty trap. The evolution of income distribution and inequality has been analyzed through the

prism of occupation choices under credit market imperfections (Banerjee and Newman, 1993) and convexity of the production function (Galor and Zeira, 1993). This source of long-term inequality could be thought as equivalent to the rigid occupational affectations across castes in rural India. If inequalities could be efficient for the growth of industrial-based societies, a strand of the literature emphasizes that it is a serious impediment to human capital accumulation (Galor (2011) for a review). The recent literature has incorporated other types of interactions creating persistent inequality (Piketty, 1998, 2000; Ray, 2002; Genicot and Ray, 2014; Moav and Neeman, 2012; Ray and Robson, 2012). Moav and Neeman (2012) built a theoretical model explaining the incentive of the poorest to spend more on status consumption and invest less in human capital. Our theoretical framework differs from theirs in two ways: first we incorporate visible consumption as a relative status concern and not as a signaling device, which leads to different empirical predictions. Second, we incorporate in our analysis the notion of inherited social groups and structural inequality between them, underlying the fact that conjectural inequality may not be the only concern.

Another branch of the literature has underlined the fact that the poor do not spend money only in a rational of survival. Indeed, it seems that "the poor do see themselves as having a significant amount of choice, but they choose not to exercise that choice in the direction of spending more on food" (Banerjee and Duflo, 2007). For example, the very poor (living under $1 a day) allocate a substantial portion (25 to 45%) of their budget to non-food items. Among these items, the portion allocated to alcohol and tobacco is relatively large (5% in Udaipur, the town for which they had detailed data for India), as well as the portion spent on festivals (10% of the annual budget in Udaipur for the median poor household) (Banerjee and Duflo, 2007). Other empirical evidence shows that poor households are not as hungry for calories as one might expect. They are also switching for more expensive cereal calories (wheat and rice instead of coarse cereals[2]), especially in the places where rural infrastructures make other items easily available (Subramanian and Deaton (1996), Rao (2000)). Paradoxically, Banerjee and Duflo (2007) also show that the extremely poor still report not having enough food according to their needs, and that health problems and lack of food are primary sources of stress and anxiety. Two recent works of Atkin (Atkin (2013a), Atkin (2013b)) also suggest that other parameters than hunger have an important impact on nutrition, even when households are under malnutrition. We contribute to this literature by establishing the link between food consumption and inequality through a demand-driven

[2]Coarse cereals are considered as inferior goods, i.e. goods characterized by a negative income elasticity of demand

channel, which makes low status groups substitute conspicuous consumption to food in places where the high status group is comparatively wealthier.

The article is also related to a large body of literature on concern for status and its effect on economic choices. Attempts to theoretically formalize Veblen (1899)'s idea of conspicuous consumption have been made by Duesenberry (1949), Clark et al. (2008), Frank (2005), Frank et al. (2005) Kolm (1995) Becker and Rayo (2006) and Bowles and Park (2005). The empirical evidence on the existence of upward-looking effects is large. Easterlin (1995) first provided evidence for social status positioning in terms of income. More recent and notable contributions include Luttmer (2004), Dynan and Ravina (2007) and Oishi et al. (2011). Carr and Jayadev (2014) or Bertrand and Morse (2013) have identified relative income effects on consumption and debt based on survey data. Previous works have also shown evidence of reference-dependent preferences in India for conspicuous consumption (Charles et al. (2009) , (Khamis et al., 2012)), wedding expenditures (Bloch et al., 2004) or happiness (Fontaine and Yamada, 2013). The later example highlights the interesting fact that between-caste comparisons reduce well-being more than within-caste comparisons. This suggests that inter-group comparisons matter in the race for status.

Charles et al. (2009) contributed importantly to the empirical identification of distinction for status in an article focusing on American racial groups. They test the predictions of a signaling game, following Glazer and Konrad (1996) and Bagwell and Bernheim (1996), to show that variations in the mean income of one's own racial group explain most of the variation in conspicuous consumption between races. Such models predict that individuals spend more on conspicuous items when their group of reference is relatively poorer, as they have to distinguish themselves more from their group of reference. Also, the poorest have no incentive to consume more conspicuously than if there was no signalling motive. Our approach differs from the specification of Charles et al. (2009) in two respects: status consumption is not a signal but an endogenous external habit (or preference shifter), and we allow for the effect of other groups on one's conspicuous consumption.

The article is organized as follow: in sections 2, we present the databases used and define our variables for conspicuous consumption, social and human capital. Section 3 gives a brief review of the caste system and stylized facts on inequality between caste groups and differences in budget allocation. In section 4, we propose a theoretical framework incorporating status concern for lower caste groups and leading to a status trap. In section 5 we test the predictions of our model and demonstrate the presence of status concern and its substitution effect on disadvantaged caste groups. Section 6 concludes.

2 Database and Variables Description

The databases we use are the thick rounds of the National Sample Surveys on Consumption and Expenditure, collecting socio-economic data and consumer expenditures. These surveys are cross-sections and do not contain information on income, though the information on total and specific expenditures is very detailed. They also provide detailed economic, demographic and social characteristics for households and individuals. They are representative at the regional level, which is formed of several districts and smaller than a State (88 regions for 29 States and 7 union territories). Regions have been constructed so as to gather territories sharing similar agro-climatic and population characteristics within each State.

We present results from the 66th thick round (2009-2010) in the analysis of consumption patterns across social groups. We replicate the analysis for all thick rounds of the NSS databases from the 38th round (1983). It allows us to consider three broad caste groups, the upper castes, the Other Backward Classes (OBC) and the Scheduled Castes (SC).

The issue we face with the definition of expenditures is to determine what is conspicuous. Heffetz (2011) largely contributed to the recent advances in the definition of conspicuous consumption and its empirical implications. He shows that conspicuous goods are also more visible goods. His visibility measure predicts up to one-third of the observed variation in elasticities across consumption categories in U.S. data. Following the type of survey that Heffetz introduced, Charles et al. (2009) conducted a survey of 320 American students, and determined a set of visible items: expenditures on apparel (including accessories), personal care and vehicles. They are especially interested in the visible component of expenditures, which would be easily observable by an average individual and would convey information on wealth given the amount consumed. They exclude expenditure on housing given a potential differential treatment on the housing market depending on race. We choose to do the same in our analysis as segregation is also documented in India across castes and religions for housing (Jaffrelot, 2014). Khamis et al. (2012) follows the same approach than Charles et al. (2009) by conducting a survey on 163 Indian students in Economics, and take on a higher number of items as visible: personal goods, transport equipment, footwear, vacations, furniture and fixtures, social functions, repair and maintenance, house rent and rent, entertainment, clothing and bedding, jewelry and ornaments and recreation goods. Their list contains items disposed within houses or consumed during social occasions, which could be the sign that Indian society has stronger social ties across neighborhoods.

The set of expenditures we refer to as visible adds to the visible expenditures list of

Charles et al. (2009) the items considered by Khamis et al. (2012), which are more visible in repeated interactions among neighbors such as house furnitures. Our approach reconsiders conspicuousness under the insights of Veblen, with the central idea of wastefulness of consumption. Focusing on visible personal components could limit the phenomenon to relatively mobile areas. In the rural Indian context with very low mobility and strong social ties, it is very likely that visible consumption could be extended to household possessions.

Our measure of visible (or conspicuous) consumption in the empirical analysis contains the following items: clothing, footwear, bedding, conveyance expenses, transport equipment, personal goods, toilet articles, beauty and tailoring services, furniture and fixtures. We exclude jewlery as in the case of India, jewels are mostly used as an asset and a source of savings[3]. Food regroups all categories of aliments, from meat, fish and eggs to vegetables or cereals. We construct other aggregates of expenditures which will be used a placebo tests: education (books, journals, newspapers, library charges, stationery articles, tuition and fees, private tutor or coaching centre, educational CD and other educational expenses), social capital (cinema, theatre, mela, fair, picnic, sports, goods, toys, club fees, goods for recreation and hobbies, photography, video, cable TV, musical instruments and other entertainments), health and other services.

3 Stylized facts

3.1 A brief review of the caste system

The Indian caste system has been widely studied and debated between different competing theories about its formation, rigidity and historical evolution. We do not enter into the complexity of the concept of caste in this article, but rather would use broad definitions enabling us to highlight interesting trends produced by such a society in terms of status and economic choices.

Caste is an English term referring to two divisions: *varna* and *jati*. *Varna*, often translated from Sanskrit as *colour*, though this word could be misleading (the concept of caste is well distinguished from the one of race), is a concept that appears as early as in the Rigveda (hymn XC, on *Purusha*). Various later documents specify the rules and obligations of each of the varnas (such as the *Manusmriti*, Laws of Manu). The society is divided by occupations between Brahmin (priests and teachers), Kshatriya (warriors and royalty), Vaisya (traders,

[3]Note that our analysis is still robust to the inclusion of jewels

merchants, moneylenders) and Shudra (engaged in menial, lowly jobs). A fifth category, the Atishudra – so called Untouchables –, is considered as part of the varna system by being excluded from it.

The jati is in fact the operative category which defines codes and social relationships within the Indian society. There exist over 3,000 jatis, which try to align themselves with the scale of status determined by the varnas. However, the hierarchy and rules of conduct followed by the jatis are much more complex and do not match perfectly the rank determined by the varna system (Deshpande, 2011). Jatis are localized, hereditary, endogamous and characterized by the status acquired through their occupation as well as through a specific set of codes and customs (food, rituals, etc.). The rules of conduct are linked to a specific degree of purity or prestige vis-à-vis the members of the other jatis with which one lives or meets (Jaffrelot, 2014). Even the name of an individual, in many cases, may specify the jati to which he belongs. It is to be noted that even in urban India, arranged wedding – preserving endogamy – is much more the norm than the exception (Deshpande, 2011).

Since the adoption of the Indian Constitution on January 26th, 1950, caste- and religious-based discriminative behavior is formally forbidden and Untouchability abolished (Articles 15 and 17). Various measures of positive action have been implemented since then, especially targeting the *Dalits* (name that the Atishudra have given to themselves, meaning "oppressed") and the tribal communities of India (*Adivasis*). The corresponding administrative categories, which we will use in this article, are *Scheduled Castes* (SC) for Dalits and *Scheduled Tribes* (ST) for Adivasis. The quota policies reserve seats in the State legislative assemblies and the Parliament, as well as in the public sector and all public education establishments (15% for scheduled castes and 7.5% for scheduled tribes since the 1951 Indian Census). The 2011 Indian Census estimated Scheduled Castes to be 16.2% and Scheduled Tribes 8.2% of the total population. Another quota of 27% of seats has been introduced in 1990 in the public sector and in 2004 in all public education establishments for the *Other Backward Classes* (OBC), which could be broadly considered as the Shudra. The reservation quotas are defined at the national level and vary across Indian States.

The lower castes in the Indian hierarchy, and especially the Dalits, have a long history of persecution and prevention of access to public space and public resources. Regarding the Dalits, Ambedkar reports in a manuscript entitled *Untouchables or The Children of India's Ghetto* that it is an offense to acquire wealth such as land and cattle, to build a house with tiled roof, to put on a clean dress, wear shoes, put on a watch or gold ornaments, to give high sounding names to their children, to speak a cultured language. It is interesting to note

that these customs and characteristics are closely related to the implicit status hierarchy, and have to be made visible as such. A Dalit is supposed to conform to the status of an inferior, and must wear visible marks of his inferiority for the public to know and identify him. The hysteresis of the status hierarchy across caste groups is ensured by a complex set of rules determining the role of each within the society, not in function of the inherent merits of the individuals, but of their heredity.

This hierarchy of status causes a mimicry of customs and practices from the locally dominant caste to the lowest ranking one in a chain reaction. Srinivas (1956) formed the concept of Sanskritization as the process through which a low caste could potentially, in a generation or two, rise to a higher position in the hierarchy by adopting the customs, rites, and beliefs of the Brahmins, and the adoption of the Brahminic way of life. This does not mean that the process of rising in the status hierarchy is straightforward, as it was theoretically forbidden by Brahmanism. Also, the British Raj contributed to accentuate poor mobility across castes by formally defining the membership to one of these social categories. However, Srinivas (1956) underlines that the process of imitation itself is observed even among untouchables, who have no hope in seeing their status increase (movements across castes occur in the middle regions of the hierarchy). It therefore seems that despite very low caste mobility, the aspiration to visibly appear of a higher status is widespread in the society. He writes:

> The idea of hierarchy is omnipresent in the caste system; not only do the various castes form a hierarchy, but the occupations practiced by them, the various items of their diet, and the customs they observe, all form separate hierarchies. Thus practicing an occupation like butchery, tanning, herding swine, or handling toddy, puts a caste in a low position. Eating pork or beef is more degrading than eating fish or mutton. Castes which offer blood-sacrifices to deities are lower than castes making only offerings of fruit and flowers. The entire way of life of the top castes seeps down the hierarchy. And the language, cooking, clothing, jewelry, and way of life of the Brahmans spreads eventually to the entire society. (Srinivas, 1956)

This is consistent with the notion of relative deprivation and need for being honorable in society as described by Veblen (1899), but less so with the notion of visible consumption as simply signaling a hidden economic resource. We will come back to this distinction in the introduction of the theoretical framework.

3.2 Division of laborers, persistent division of wealth

The caste system seems to be intrinsically not so much a division of labor than a "division of laborers" (Ambedkar, 1944). It attempts to distribute tasks to each individual in society not on the basis of their aptitudes but of the social status of their parents.

> Caste System is not merely a division of labourers which is quite different from division of labourit is an hierarchy in which the divisions of labourers are graded one above the other. [...] This division of labour is not spontaneous; it is not based on natural aptitudes. Social and individual efficiency requires us to develop the capacity of an individual to the point of competency to choose and to make his own career. This principle is violated in the Caste System in so far as it involves an attempt to appoint tasks to individuals in advance, selected not on the basis of trained original capacities, but on that of the social status of the parents. (Ambedkar, 1944)

It has been argued that with development and liberalization of Indian, caste does not determine anymore occupations and social position. However, Deshpande (2011) shows that the *Upper Castes* (UC) still hold over prestigious, better-paying occupations and that the change in the occupational structure brought by economic growth continues to show a substantial discrimination on the basis of hereditary status. If the upper castes have maintained a high wealth level and high connectivity to the Indian elite, it is not so surprising that economic growth and openness do not change drastically the structure of the Indian society.

	Scheduled Castes mean	OBCs mean	Hindu Upper Castes mean	Muslims mean
Head Age	44.70	46.49	47.86	45.41
Head Literate	0.63	0.75	0.88	0.67
Head Higher Education	0.07	0.11	0.24	0.07
Household size	4.63	4.56	4.36	5.29
Rural households	0.66	0.61	0.46	0.52
Monthly Per Capita Expenditure	1124.12	1359.43	2023.03	1282.33
Land owned (ha)	0.31	0.69	0.71	0.31
Observations	16225	32894	23679	12445

Table 1: Descriptive Statistics of NSS 66th Round Household Expenditure

Table 1 gives a few descriptive statistics about economic outcomes by main caste and religious groups (Hindu Upper Castes, OBC, SC, and Muslims). The striking fact is that

the levels of education and wealth seem to follow the underlying caste structure : the head of the household has a higher education diploma for 24% of upper caste households, while only 11% of the OBC and 7% of the SC and Muslim achieve such a level. The monthly per capita expenditure of an average upper caste household is 1.5 times the one of an average OBC household and 1.8 times of a SC household. Upper Caste households are also notably more urbanized, a fact which could explain part of the difference in annual incomes. The total land owned follows a similar trend hierarchy.

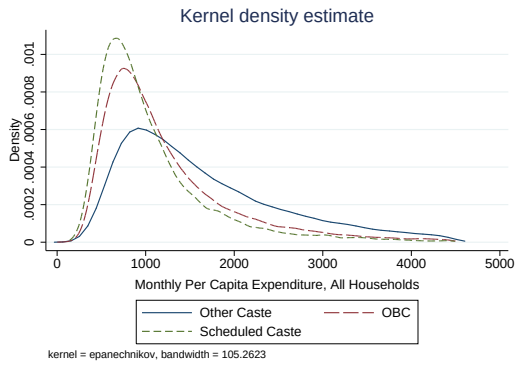

Figure 1: Kernel Density – MPCE by Social Groups

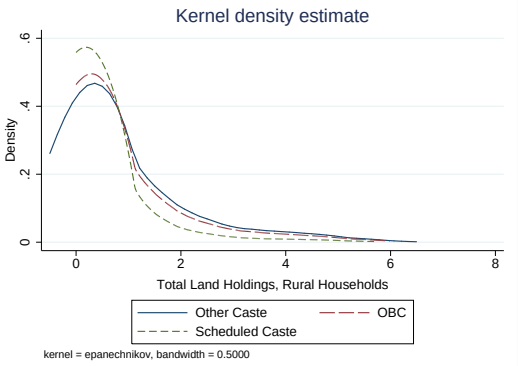

Figure 2: Kernel Density – Land Holding by Social Groups

Figures 1 and 2 draw the kernel density for monthly per capita expenditure and land ownership across social groups. Here again, the economic status varies across social groups: upper caste households are less numerous in the poorer sections of society, and their consumption and land densities have much thicker tails on the right than for other social groups. We notice, as Deshpande (2011), that even a broad decomposition in varna and religious affiliations in India provides evidence that the link between social group and economic status is not broken in contemporary India. If more than 90% of the regions in our sample are dominated by Upper Caste when it comes to average per capita expenditures, figure 3 shows that there is still important variations across regions, even controlling for the mean regional per capita expenditures:

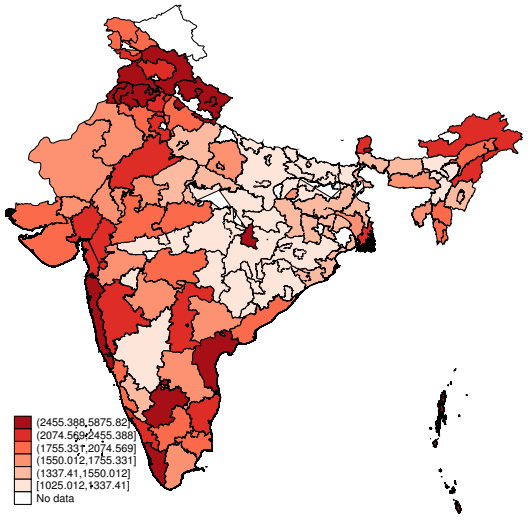

Figure 3: Variation in Upper Caste MPCE across Indian Regions Controlling for Regional MPCE, NSS 66

Since the gap in land ownership is not as strong as the gap in consumption, land distribution is not a good proxy for variations in income and consumption distribution due to market or conjectural effects. It matters however if one wants to have a sense of structural hierarchies in a given region, as differences across states and regions have been fairly stable over time (Bardhan and Mookherjee, 2010). Empirical evidences also show that asset accumulation has grown for the wealthiest in the past decades (Jayadev et al., 2007). Land concentration is also likely to be a good measure of structural polarization between caste groups, as it conveys a sense of power and dominance, especially if we focus on land owned by a particular caste group.

3.3 Conspicuous and food consumption between castes

Veblen (1899)'s theory of leisure and consumption expresses the idea that individuals try to reach an acceptable level of decency given their specific attributes to be esteemed by their peers and within society as a whole. This decency level is endogenous as it is determined by the consumption habits of the highest social and pecuniary class, defined by Veblen as the Leisure Class. This approach is therefore different from the classical one which considers conspicuous consumption as a mere signal for status and wealth. Here, everything else being equal, individuals belonging to lower castes will consume more conspicuously to make up for the lower relative status attributed to them. This higher is the gap between my group and the leisure class, the higher the effect will be.

The first step is to assess whether lower castes do consume more conspicuously compared to the highest castes. From Heffetz (2011), we identify conspicuous goods as those which have the highest visibility. To do so, we follow the empirical strategy of Charles et al. (2009) and Khamis et al. (2012), and estimate:

$$\ln(\text{visible}_i) = \beta_0 + \phi ln(\text{PermanentIncome}_i) + \sum_k \beta_k \text{Group}_{k,i} + \delta X_i + \epsilon_i \quad (1)$$

where $\ln(\text{conspicuous}_i)$ is a measure of conspicuous consumption; $Group_{k,i}$ are indicator variables denoting whether a household belongs to Other Backward Classes or Scheduled Castes (the default being Hindu Upper Castes, highest in terms of status); ln(PermanentIncome) is the household's permanent income; X_i is a vector of household attributes comprising of the number of people, the age and sex of the head of household, and wealth controls comprising of the education level of the head of the household (five categories) and the log of the land owned (in hectares). We perform the same regression for food expenditures.

The main issue with specification (1) is that we should be able to provide an adequate measure of permanent income. We do not observe incomes in the NSS databases, but total expenditures could provide a good proxy for permanent income (under the assumption of consumption-smoothing behavior from the households). Charles et al. (2009) underline two problems with this measure of permanent income: first, there is a simultaneity issue as both components of expenditures are jointly determined in decisions over the life cycle, and second, measurement errors in conspicuous consumption and total expenditures are likely to be correlated. We follow Charles et al. (2009) by instrumenting household total expenditures per capita by a vector of important determinants of permanent income: the level of education of the head of household and his detailed occupation code.

We may face other problems of endogeneity, for example in the case where individuals or jatis who enjoy relatively more consuming conspicuously, or have a preference for these items, self-select into particular locations. Munshi and Rosenzweig (2009) show that spatial mobility is extremely low in rural India due to the efficiency of jati-based networks to insure individuals and smooth consumption over time. Assuming zero mobility is therefore a common assumption for empirical works on rural India. Another issue could arise from the federal structure of India, each Indian State implementing regulations in specific domains. Also, there is a wide difference of access to coastal regions, fertility and irrigation, weather endowments across India. We therefore add fixed effects for Indian States in our specification. Another concern is that States or villages do not have access to a similar set of goods,

or the same varieties of a good. This is likely to be a function of population density and urbanization, so we add these two controls at the regional level to capture very localized supply effects. These additional controls are referred to as spatial controls.

	OLS 1	OLS 2	IV 2SLS	IV Poisson	OLS 1	OLS 2	IV 2SLS	IV Poisson
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	lvisible2	lvisible2	lvisible2	visible2	lfood	lfood	lfood	food
main								
Scheduled Caste	-0.0552***	-0.0602***	0.0237**	0.0214***	0.0503***	-0.00382	-0.0228***	-0.0114***
	(-5.16)	(-4.48)	(2.47)	(4.83)	(8.76)	(-0.69)	(-4.78)	(-5.01)
Other Backward Class	-0.0361***	-0.0575***	0.00664	0.0124***	0.0269***	0.00615	-0.00610	-0.00233
	(-3.82)	(-4.71)	(0.81)	(3.24)	(4.89)	(1.20)	(-1.41)	(-1.16)
log permanent income	1.109***	1.088***	1.385***	1.361***	0.791***	0.653***	0.588***	0.621***
	(110.14)	(57.07)	(107.65)	(254.03)	(140.63)	(94.11)	(88.75)	(205.32)
Observations	97665	97665	90494	90497	97657	97657	90494	90497
Household Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Region FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: NSS66 – visible and food expenditures gap between groups, OLS and IV

Columns (1) to (4) of table 2 show the gap in visible expenditures captured by the OLS specification (with and without household and spatial controls) and the IV specification (2SLS and Poisson). Columns (5) to (8) reproduce the same regressions for food expenditures. The instrumental approach reveals that lower castes (OBC and SC) spend on average 1% to 2% more on visible expenditures than upper caste at every level of permanent income, and similarly less on food expenditures. Other Backard Classes exhibit a smaller difference with Upper Castes, consistent with the idea that the structural status gap is smaller.

	(1)	(2)	(3)	(4)
	lcloth	lvisible1	lvisible2	lfood
log permanent income	0.966***	1.083***	1.385***	0.588***
	(61.54)	(83.32)	(107.65)	(88.75)
Scheduled Caste	0.0199*	0.0233**	0.0237**	-0.0228***
	(1.83)	(2.49)	(2.47)	(-4.78)
Other Backward Class	-0.000691	0.00687	0.00664	-0.00610
	(-0.07)	(0.84)	(0.81)	(-1.41)
Observations	90427	90494	90494	90494
Household Controls	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: NSS66 (2009) – visible and food expenditures gap between groups (other definitions), OLS and IV

This apparent substitution between visible consumption and food is not specific to the period 2009-2010. Indeed, we replicate the analysis for previous waves of the NSS and find similar results (see Tables 4 and 5).

	(1) lcloth	(2) lvisible1	(3) lvisible2	(4) lfood	(5) lcalorie
log permanent income	1.015***	1.114***	1.437***	0.653***	0.203***
	(61.99)	(79.77)	(98.15)	(100.49)	(24.31)
Scheduled Caste	-0.00580	-0.00477	0.0236***	-0.0184***	-0.0152***
	(-0.55)	(-0.54)	(2.62)	(-5.28)	(-2.91)
Other Backward Class	-0.00271	-0.00521	0.00873	-0.00509*	0.00358
	(-0.31)	(-0.70)	(1.16)	(-1.67)	(0.81)
Observations	89632	89911	89911	89909	89909
Household Controls	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: NSS55 (1999) – visible and food expenditures gap between groups

	(1) lcloth	(2) lvisible1	(3) lvisible2	(4) lfood	(5) lcalorie
log permanent income	1.117***	1.264***	1.520***	0.721***	0.222***
	(44.60)	(72.12)	(90.62)	(122.59)	(26.72)
Scheduled Caste	0.0324**	0.0257**	0.0621***	-0.0250***	-0.0306***
	(2.47)	(2.50)	(6.07)	(-7.52)	(-6.29)
Other Backward Class	0.0708***	0.0628***	0.0835***	-0.0194***	-0.0385***
	(6.18)	(7.08)	(9.33)	(-6.66)	(-9.22)
Observations	88246	89892	89907	90050	90116
Household Controls	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: NSS43 (1989) – visible and food expenditures gap between groups

Besides education, there is no similar pattern of substitution in other categories of expenditures: lower caste spend a similar share of their permanent income in health, social

capital goods or services as the upper castes, as evidenced in table 11 for NSS 66th (see Appendix). These empirical results confirm the fact that social groups which are placed lower in the status hierarchy seem to engage in a race for status through an increase in visible consumption. As a consequence, they consume relatively less in food, a specific kind of high return expenditures. We now propose a theory of structural status inequality to interpret and explain these findings.

4 Theoretical Framework

We develop a model of structural status inequality between social groups where groups can be ranked from low to high structural (inherited) status. The model studies the long-term impact of inherited status on inequality and consumption choices between groups. Conspicuous consumption corresponds to visible goods whose value depends on the reference group in society. What you visibly consume is what you are, or what you aspire to be. In other words, visible consumption typically confers conjectural status in compensating for a lack of structural status. Conjonctural status can vary over the course of one's lifetime, but only structural status can be transmitted between generations and improve intergenerational mobility. As a consequence, consuming more conspicuously does not go with higher structural status. It does not affect the productivity of the dynasty. Quite on the contrary, conspicuous consumption implies some degree of intra-temporal substitution with investment goods, which directly impacts future productivity. To capture this idea, we follow an alternative formulation of the Galor-Zeira model (Galor and Zeira, 1993) by Moav (2002), who introduces convexity in the bequest function with respect to income (fixed cost to education). We instead introduce a Veblen externality on visible consumption relative to investment.

Visible consumption versus investment in food (calorie intakes) represents one possible intra-temporal choice between low versus high future return items. Several instances in the literature (and in particular Dasgupta and Ray (1986)) show that there is a difference between hunger and malnutrition, and if the former leads to a certain death, the latter can be prevalent in the population without facing immediate death. Dasgupta and Ray (1986) list the long-term effects of malnutrition such as diminishing muscular strength, growth retardation, increased illness and vulnerability to disease, decreased brain growth and development, etc. It is likely that above the starvation level, households engage in the trade-off between present status and future returns in their choice on education as well as good nutrition or health. If the theory does not define which investment good can be substituted for con-

spicuous consumption, we can think that in a subsistence society, and given its low income elasticity, food (or good nutrition) is the major item we can think of. Indeed, households have very little access and therefore spend very less on education.

4.1 Production and Prices

This is a small, open, overlapping-generations economy. It produces one good which can be used for consumption or investment. Production occurs at each period t following a concave, constant-returns-to-scale technology. Two factors are used to produce the good: capital K_t and human capital efficiency units H_t. The production process is $Y_t = F(K_t, H_t)$, where investment in physical and human capital is made one period in advance. The world capital rate of return, R, is constant and the amount of capital is adjusted at each period such that $F_K(K_t, H_t) = R$ (unrestricted international capital movements). Given the properties of the production function, the wage per unit of human capital, w, is uniquely determined given R and is constant over time. Without loss of generality, we normalize w so that $w = 1$.

4.2 Social Groups and Inherited Status

The economy is composed of two dynasties belonging to group $i = H, L$. Group H corresponds to a high caste dynasty with total wealth I_t^H at time t. Similarly, group L is composed of low caste households with total wealth I_t^H at time t [4]. Each dynasty corresponds to a single representative household composed of two individuals: a parent and his child. A household from generation t lives for one period and gives birth to one child who will become a parent in generation $t + 1$. There is a continuum of generations in each dynasty, starting from generation t_0 born with income $I_{t_0}^i$. Households care about their own utility, which is a function of the household's consumption and investment in his immediate progeny. A parent from generation t transmits his social group i to his single child, consumes c_t^i and invests b_t^i in his child's future physical work capacity and income. In generation $t+1$, his child is now a parent whose income I_{t+1}^i is a function of his parental investment b_t^i. He decides the amount c_{t+1}^i he wishes to consume and the investment b_{t+1}^i he provides to his child.

The investment b_t^i can take the form of future physical work capacity, or savings transmitted to the child at rate R. Lenders have no means of pressure if the borrower defaults.

[4] We could also assume heterogeneity within dynasties, with wealth being normally distributed according to $N_t^i \sim \mathcal{N}(\mu_t^i, \sigma_t^2)$. There would be a gap in the mean wealth of the two groups at each period t: $\mu_t^h \geq \mu_t^l \quad \forall t$

Therefore, the economy does not give the opportunity of borrowing in order to finance investment (credit market imperfection). In period t, the child only devotes time to acquire efficiency units, and his future work capacity increases with the investment from their parent. In the case where their parent do not spend on investment, they still acquire one efficiency unit of labor skill – this is the minimum level before starvation, after malnutrition and no education. The level of efficiency units is an increasing concave function of the level of investment, with g corresponding to the return on investment in work capacity. When investment in work capacity reaches a maximum level of efficiency units $\bar{e}$, households save at rate R for their child. We define the marginal return to investment in work capacity by g and follow Moav (2002) in assuming that g is larger than the marginal return to capital R for $e_t^i < \bar{e}$, so that individuals have an incentive to invest in physical work capacity up to $\bar{e}$. This allows to describe the determination of income I_t^i by bequest received in period t, which, as follows from the optimal allocation of the budget between consumption and investment, determines the evolution of income within a dynasty.

A parameter $v \in [0, 1]$ determines the visible distance, or status externality, between inherited social groups (1 being completely visible). This parameter is a function of various elements such as historical wealth difference between groups, phenotype, family name, cultural norms such as clothing habits or other elements that could reveal the difference. It is important to note that v is socially constructed, and that the inheritance of a group does not automatically entail a hierarchy, neither a visible difference[5]. We assume upward-looking preferences, so that $v = 0$ for dynasty H: the highest in the hierarchy does not bear the externality. We can think of H as the reference group in the society.

The allocation between consumption and bequest for individuals in group $i = H, L$ follows a Cobb-Douglass utility function, with $\gamma \in (0, 1)$ capturing how parents care for their child's future income relative to the household's conjonctural status. For the reference dynasty H, the problem reduces to the following maximization:

[5]For the sake of tractability, v is endogenous to the model. However, we could think of two populations coexisting at $t = 0$ (war, invasion, etc.) with group H initially richer than the other. H individuals, having access to more bargaining power (through their wealth), implement institutions which makes v high so as to allow H and L dynasties to be visibly different. This is well documented regarding the caste system: endogamy, discrimination in access to resources, and other norms so as to make membership to a caste visible. We propose a refinement of the comparison parameter in the Appendix

$$\begin{aligned} \max_{c_t^H, b_t^H} \quad & U_t^H = (1-\gamma)\ln(c_t^H) + \gamma \ln(b_t^H) \\ \text{subject to} \quad & I_t^H = \begin{cases} I_t^H = c_t^H + b_t^H & \\ 1 + g b_{t-1}^H & \text{if} \quad b_{t-1}^H < \bar{e} \\ 1 + g\bar{e} + R(b_{t-1}^H - \bar{e}) & \text{if} \quad b_{t-1}^H \geq \bar{e} \end{cases} \end{aligned} \tag{2}$$

Individuals who are born in the L social group have to bear the fact that their social status is structurally lower, and are reference-dependent towards the group H in order to feel more honorable in society (Veblen, 1899). We think of this externality of the H's on the L's as an attempt of the L group to compensate a low status stock at birth (visibly expressed through c_t^H) by an extra conjectural status which goes into present consumption c_t^L. She must compensate a lower inhertited status adopting by emulating the level of visible consumption of the H group. Utility is comparison-concave in visible consumption: a higher level of visible consumption from group H increases her marginal utility of consuming more conspicuously. For the dynasty L we thus have:

$$\begin{aligned} \max_{c_t^L, b_t^L} \quad & U_t^L = (1-\gamma)\ln(c_t^L - v c_t^H) + \gamma \ln(b_t^L) \\ \text{subject to} \quad & I_t^L = \begin{cases} I_t^L = c_t^L + b_t^L & \\ 1 + g b_{t-1}^L & \text{if} \quad b_{t-1}^L < \bar{e} \\ 1 + g\bar{e} + R(b_{t-1}^L - \bar{e}) & \text{if} \quad b_{t-1}^L \geq \bar{e} \end{cases} \end{aligned} \tag{3}$$

v is the Veblen coefficient, modeled as in Bowles and Park (2005). The consumption externality is endogenous to the model as it depends on the reference group's optimal allocation between consumption and investment[6].

4.3 Long Term Steady States and Status Trap

Solving the optimization problem for the L households, we first obtain b_t^L as a function of their income I_t^L:

$$b_t^L = \begin{cases} 0 & \text{if} \quad I_t^L \leq v c_t^H \\ \gamma(I_t^L - v c_t^H) & \text{if} \quad I_t^L > v c_t^H \end{cases} \tag{4}$$

[6]We may think of a distribution of groups instead, where the highest may be reference-dependent but marginally so compared to other groups. The reference group may also wish to distinguish from lower status groups when they get richer. This is not the focus of the present article, which questions the presence of a status trap for the poorest class in society.

For the H individual, for which v is normalized to zero, we obtain the standard conditions $c_t^H = (1-\gamma)I_t^H$ and $b_t^H = \gamma I_t^H$. However, individuals in L may choose zero bequest if their income is low enough or the Veblen externality high enough. When the income level below which individuals in L choose a zero bequest, $v(1-\gamma)I_t^H$, is larger than the minimum wage, $w = 1$, they will spend all on conspicuous consumption:

Assumption 4.1. $v(1-\gamma)I_t^H > 1$

Assumption 4.1 is the exact contrary from the one of signaling models where the poorest has no incentive to spend on conspicuous consumption (he has nothing to signal). It ensures that for all $I_t^L \in [1, v(1-\gamma)I_t^H]$, $I_{t+1}^L = \psi(I_t^L) = 1$. Therefore there exists a status trap steady state for group L, $\underline{\mathrm{I}}^L = 1$, where investment is minimal and the entire budget is spent on visible consumption. From the definition of income defined in the budget constraint, the steady state income of the L dynasty can thus be specifed by the following dynamical system:

$$I_{t+1}^L = \begin{cases} 1 & \text{if} \quad I_t^L \leq v(1-\gamma)I_t^H \\ 1 + g\gamma(I_t^L - v(1-\gamma)I_t^H) & \text{if} \quad \gamma(I_t^L - v(1-\gamma)I_t^H) \in [0, \bar{e}] \\ 1 + g\gamma\bar{e} + R(\gamma(I_t^L - v(1-\gamma)I_t^H) - \bar{e}) & \text{if} \quad \gamma(I_t^L - v(1-\gamma)I_t^H) > \bar{e} \end{cases} \tag{5}$$

where $I_0^i \geq 1$ are given. The income dynamics of H can be easily recovered from $v = 0$. Given the economy, the income of the child is fully determined by the bequest of his parent, and thus his parental income: $I_{t+1}^i = \psi(I_t^i \geq 1)$ for all I_t^i (ψ function which maps child income in function of his parent's income through bequest).

We further assume that the return to investment g and its potential magnitude $\bar{e}$ are sufficiently large so that a bequest $b_t^i = \bar{e}$ translates into a higher bequest to one's offspring, $b_{t+1}^i > b_t^i$ (Note that this is always the case for an individual in group H). This requires the following condition:

Assumption 4.2. $\gamma + g\gamma\bar{e} - v(1-\gamma)I_t^H > \bar{e}$

Assumption (4.2) assures the existence of a range of incomes in which $I_{t+1}^L = \psi(I_t^L) > I_t^L$. Under Assumptions 4.1 and 4.2, there exists an income threshold $\hat{I}_t^L$ such that dynasties with income below the threshold converge to the poverty trap income level, and dynasties with income above have their income increasing period by period. From the dynamical system in Equation (5), we get:

$$\hat{I}_t^L = \frac{\gamma g v (1-\gamma) I_t^H - 1}{g\gamma - 1} \tag{6}$$

Assumptions (4.1) and (4.2) ensure that $\hat{I}^L > 0$, and thus that $\gamma g > 1$.

To assure the existence of a high income, high education steady state, rather than a diverging path, it is finally assumed that the return to physical capital is sufficiently low:

Assumption 4.3. $R\gamma < 1$

As follows from the dynamical system (5), there exists a unique long-term high income steady state for H and L given by:

$$\overline{I}_\infty^H = \frac{1 + \gamma g \bar{e} - R\bar{e}}{1 - R\gamma} \tag{7}$$

And:

$$\overline{I}_\infty^L = \nu \overline{I}_\infty^H \quad \text{such that} \quad \nu \equiv 1 - \frac{v(1-\gamma)R\gamma}{1-R\gamma} \leq 1 \tag{8}$$

In the long-run, a dynasty L able to reach its high income steady state will always be poorer than a dynasty H by a fraction $\nu \in (0,1)$ which is an decreasing function of v. Figure 4 illustrates the long-term steady states of the L dynasty when dynasty H reaches its unique (long-term) steady state I_∞^H:

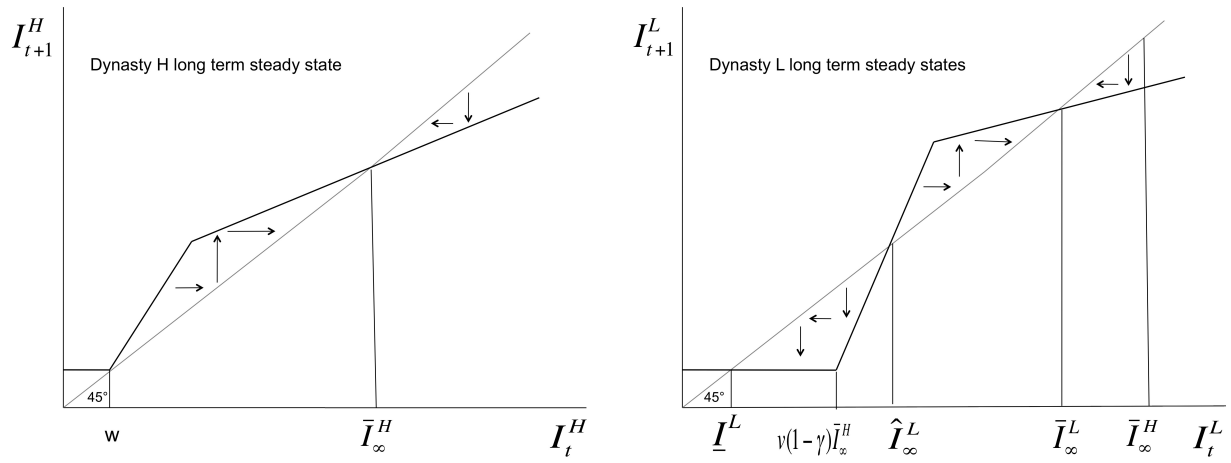

Figure 4: Steady State Levels of Income given Inherited Low or High Structural Status

With income below the long-term steady state threshold level $\hat{I}_\infty^L$, dynasty L converges

to a status trap steady state $\underline{I}^L = 1$, characterized by the minimum efficiency unit and a zero bequest[7]. A dynasty L whose income is above $\hat{I}^L_\infty$ converges to the high income and education steady state $\overline{I}^L_\infty$, but is still below the high income steady state of the H dynasty, $\overline{I}^H_\infty$. Indeed, individuals in L who belong to a lower structural status group have an incentive to compensate by spending an extra amount on present consumption instead of investment, which prompts a self-fulfilling belief making them poorer than the individuals in H at any period.

Figure 7 in appendix illustrates what may happen if the status hierarchy imposes a lower externality on the L group, which corresponds to a fall in v. We could imagine this situation in the case of a third group, m, being in the middle of the structural hierarchy. Or else that could be the case in a society where structural inequality between H and L is historically lower. The result is a decrease of the basin of attraction of the status trap, and a higher high income steady state for the L group.

4.4 Variation in Between Groups Regional Inequality

So far, it has been assumed an economy with no heterogenity in terms of fundamentals or returns to (physical) work capacity. Any H dynasty should end up in the same long-run equilibrium. As a consequence, there is no reason to observe long-run differences in income or consumption choices between regions for group L either. This goes against important evidence of persistent variations in between group inequality and consumption across regions, as shown in figure 3. Let's consider two regions, R_1 and R_2, with $g^H_{R_2} > g^H_{R_1}$ while $g^L_{R_2} = g^L_{R_1}$. This could be due to variations in discrimination or elite capture between regions, with H individuals being able to capture higher returns on future investment than L individuals in certain regions. This is equivalent to a different and lower g in R_2 for those who inherit the L status. Figure 5 shows what happens to the long-run steady states of H and L dynasties in the two regions:

[7]The long-term steady state threshold level is easily derived from equation 6 when $I^H_t = I^H_\infty$

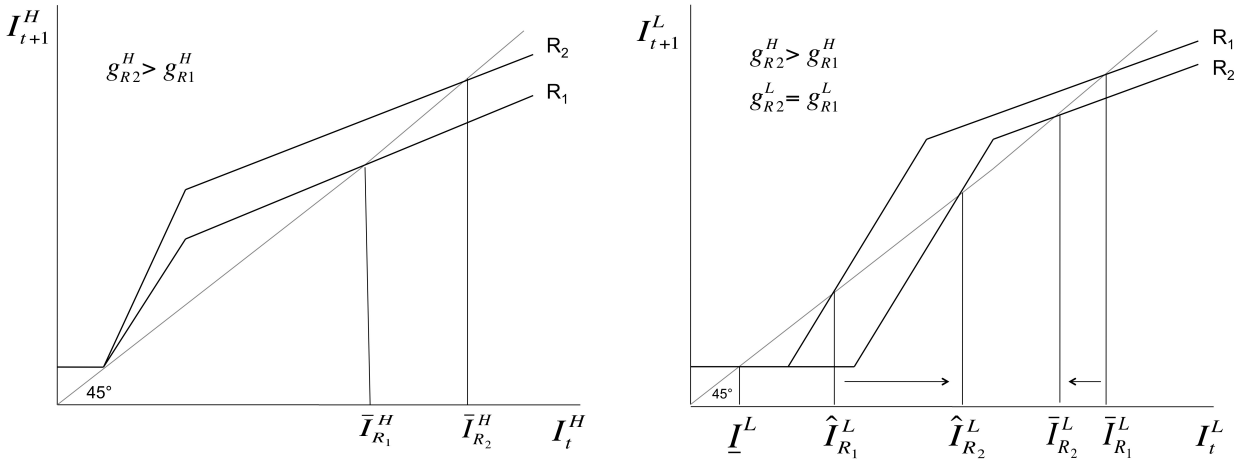

Figure 5: Steady State Levels of Income with Regional Heterogenity in g

The slope of the curve of $\Psi(I_t^H)$ increases on the interval on which individuals have a positive bequest below $\bar{e}$, which raises $\overline{I}^H_{R_2}$ and increases the interval under which L individuals are trapped into poverty. Note that it also decreases their long-run high income steady state.

It could however be that some regions are simply richer than others, because they benefited from historically more favorable agro-climatic conditions for instance. This would translate into higher returns on work capacity in region 2 compared to region 1 for both groups: $g^i_{R_2} > g^i_{R_1}$. This is illustrated by figure 6:

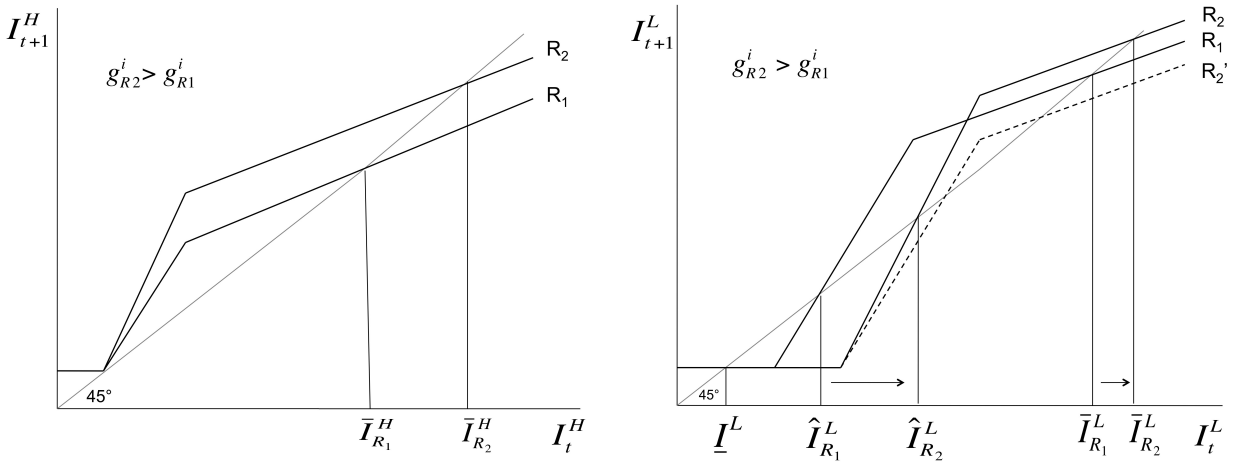

Figure 6: Steady State Levels of Income with Regional Heterogenity in g

Interestingly, in the presence of a structural status externality, regions which are rela-

tively richer are more likely to generate a status trap for L dynasties. If the permanent income gap between L and H is not too high however, the high income steady state may be higher for the L group. This comparative statics exercise allows us to derive the following testable predictions:

Proposition 1 *In the long-run, the substitution between conspicuous consumption and investment of group L is an increasing function of between group regional inequality.*

Proposition 2 *The substitution effect is stronger when the structural status coefficient v is higher, i.e. when social groups are further away from the reference group along the caste hierarchy.*

Proposition 3 *Historical divergences in growth rates between regions can have ambiguous effects on the substitution effect of the L group. Substitution will be higher in regions where the L dynasty was historically poorer.*

5 Empirical Analysis

5.1 Identification Strategy

We test the prediction of the theoretical framework that lower castes would tend to spend more on visible items and less on food in regions where upper castes are relatively wealthier. We follow Charles et al. (2009)'s identification using the variation in income levels of upper castes across NSS regions in order to capture its effect on lower castes. We saw in figure 3 that there were important variations in wealth of upper caste households across regions, even controlling for the mean regional per capita expenditures. We take the average consumption per capita of a group in each region as a proxy for its mean permanent income (as in Section 3.3).

We focus on three major Indian caste groups: Upper Caste (Brahmin and Other Upper Caste), Other Backward Class (OBC) and Scheduled Caste (SC), that can be ranked from higher structural status to lower structural status. We perform the empirical analysis on the two disadvantaged social groups which are thought as having inherited a low level of structural status, the OBC and the SC. First, we test whether variations in the current level of higher castes permanent income, captured by the mean per capita consumption of the caste

at the regional level, can explain the gap in visible consumption, social and human capital of the lower castes households. As robustness checks, we then test for geographical variations in the permanent income of the household's own caste group. Finally, we reproduce the same regressions on health expenditures and services expenditures. We use the following specification:

$$\begin{aligned} ln(expenditure_i) = \beta_0 + \phi_i ln(\text{PermInc}_i) \\ +\delta_{uc} ln(\text{MeanExp}_{uc,r}) + \delta_{own} ln(\text{MeanExp}_{own,r}) \\ +\beta_1 X_i + \beta_2 X_r + \text{FE}_{\text{state}} + \epsilon_i \end{aligned} \tag{9}$$

The coefficient ϕ_i captures how the expenditure on item i (typically visible consumption or food) varies with the permanent income of a household i. The household's permanent income is captured by the total monthly expenditure with the same IV as in specification (1). The lower geographical unit for a representative sample of households is the agro-climatic region, so we compute the average regional consumption level of each caste group for the 87 Indian agro-climatic regions. We control for own permanent income and for the reference income of i's own caste group, taking the mean per capita expenditures of all households from his group in region r. Coefficient δ_{own} is what Charles et al. (2009) and Khamis et al. (2012) are interested in. Remember that they have in mind a signaling story in which only my own group matters. They do not address the issue of between group inequality. To assess whether our model is better at understanding patterns of conspicuous consumption than a signaling model, we add the mean per capita expenditures of the Upper Castes households in the region, captured by coefficient δ_{uc}. This will allow us to discriminate between the signaling and the relative income approach. We expect δ_{own} to be insignificant and δ_{uc} to be positive for visible expenditures and negative for food. We also use the same vector X_i of household controls as in specification (1). We add state fixed effects to control for institutional differences between states and a vector of regional controls X_r, which includes the regional fraction of Indian population, the regional fraction of urban households and the mean consumption level in each region to make sure δ_{uc} and δ_{own} do not capture any regional trend.

5.2 Regression results

Table 6 shows the results of the regression on conspicuous consumption and food expenditures, with and without instrumenting households' permanent income. As expected, coefficient δ_{uc} is positive and highly significant for visible expenditures. There is also evidence of

a strong substitution effect with food, with a negative and highly significant coefficient on δ_{uc}.

	OLS	IV 2SLS	OLS	IV 2SLS	OLS	IV 2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
	lvisible2	lvisible2	lfood	lfood	lcalorie	lcalorie
log permanent income	1.039***	1.387***	0.677***	0.605***	0.131**	-0.0550
	(0.0242)	(0.0195)	(0.00949)	(0.00964)	(0.0622)	(0.0523)
log mean mpce UC	0.102***	0.130***	-0.0803***	-0.0914***	-0.0740	-0.0877*
	(0.0327)	(0.0321)	(0.0178)	(0.0172)	(0.0768)	(0.0450)
lmpce_own	0.116**	0.0127	-0.0195	0.0112	-0.195*	0.0711
	(0.0472)	(0.0434)	(0.0226)	(0.0219)	(0.103)	(0.0489)
Scheduled Caste	0.0131	0.0173	-0.0133**	-0.0157***	-0.0238	0.0344***
	(0.0122)	(0.0118)	(0.00598)	(0.00585)	(0.0308)	(0.0124)
Observations	48439	45366	48432	45365	48429	45364
Household Controls	Yes	Yes	Yes	Yes	Yes	Yes
Spatial Controls	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: NSS66 – effect of upper and own caste on visible and food expenditures, OLS and IV 2SLS

The average consumption of own caste group is either positive or not significant, contrary to Charles et al. (2009) and Khamis et al. (2012). This clearly invalidates signaling within group. The absence of a significant positive effect on visible or food expenditures is also consistent with the absence of an insurance network effects at the regional level, which could positively linked household consumption with its own group. Mazzocco and Saini (2012) show that the risk sharing occurs at the level of the caste within a village, it therefore seems a very localized effect. As we do not observe jatis but broader caste groups, this should be less of a concern.

This important result is robust to previous waves of the NSS.

The effect on conspicuous consumption does not depend on the measure of visible goods that we use. Table 7 shows that using the exact same definition as Charles et al. (2009) or looking only at the expenditures on clothing and footwears does not affect the significance of the results. Interestingly, the effect on food is even stronger once we remove expenditures on vegetables, which corresponds to the consumption diet of the Brahmins. The fact that we find a positive and significant coefficient for vegetables is another evidence of the process

of Sanskritization described by Srinivas (1956). As another robustness check, we run the same regression on other categories of expenditures, namely education, social capital, health and services. Results are shown in table 12 (Appendix). Except from a significant and negative coefficient on health, the effect of UC on other expenditures is not significant. This may address the concern of general equilibrium effects on prices given the regional level of inequality, as other types of expenditures do not seem to be affected by it[8].

	(1)	(2)	(3)	(4)
	lcharles	lcloth	lother_food	lvegetables
log permanent income	1.020***	0.976***	0.641***	0.364***
	(0.0181)	(0.0221)	(0.0108)	(0.0184)
log mean mpce UC	0.118***	0.178***	-0.136***	0.229***
	(0.0305)	(0.0394)	(0.0180)	(0.0430)
log mean mpce own group	0.0935**	0.0872	-0.00458	0.113**
	(0.0427)	(0.0534)	(0.0235)	(0.0541)
Scheduled Caste	0.0253**	0.0260*	-0.0183***	-0.00166
	(0.0115)	(0.0141)	(0.00632)	(0.0131)
Observations	45366	45329	45365	44908
Household Controls	Yes	Yes	Yes	Yes
Spatial Controls	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: NSS66 – effect of upper and own caste on other definitions of visible and food, IV 2SLS

5.3 Relevance of caste hierarchies

An important concern may be that our estimates do not reflect a between-caste comparison effect but capture a more general trend in the evolution of living standards. We therefore test for proposition 2 of our model, which says that the higher is the structural status gap v^i between the highest ranked group and other castes, the stronger is the substitution effect. Since NSS surveys group together Brahmins and Other Upper Castes households in a single category, we can only approximate the group of Brahmin. Income remained a good proxy for jatis in India, in particular within broad caste categories. We thus look at the effect of the top 25% Upper Castes households' mean per capita expenditures. Table 8 shows the

[8]The absence of a negative effect on education despite lower expenditures in the first stage could be indicative of discrimination effects in education leading to a lower return for low caste compared to high caste households. Discrimination may therefore be too strong to identify a substitution effect of conspicuous consumption on human capital. Lower castes households cannot substitute what they do not have.

results for visible and food expenditures of the top 25% UC, the median UC and the bottom 25% UC households.

	(1) lvisible	(2) lvisible	(3) lvisible	(4) lfood	(5) lfood	(6) lfood
log permanent income	1.372***	1.375***	1.375***	0.606***	0.604***	0.606***
	(0.0199)	(0.0198)	(0.0197)	(0.00966)	(0.00967)	(0.00964)
log mean mpce top 25% UC	0.147***			-0.106***		
	(0.0305)			(0.0157)		
log median mpce UC		0.110***			-0.0306*	
		(0.0347)			(0.0179)	
log mean mpce bottom 25% UC			-0.0621			0.173***
			(0.0705)			(0.0341)
log mean mpce own group	0.0133	-0.0355	-0.0489	0.00158	0.0492**	0.0308
	(0.0444)	(0.0428)	(0.0436)	(0.0219)	(0.0214)	(0.0215)
Scheduled Caste	0.0158	0.00879	0.00662	-0.0165***	-0.00921	-0.0125**
	(0.0120)	(0.0116)	(0.0118)	(0.00588)	(0.00577)	(0.00578)
Observations	44878	45366	45250	44877	45365	45249
Household Controls	Yes	Yes	Yes	Yes	Yes	Yes
Spatial Controls	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: NSS66 – test of proposition 2, effect of higher ranked jatis on lower castes, IV 2SLS

Clearly, the effect is stronger for the mean expenditures of the top 25% households within the upper castes than for the median UC household. This is in line with a Veblen interpretation of our findings. It is the highest caste (typically the Brahmins) which seems to determine the reference level of social status. An increase in inequality within the UC will therefore lead to a rise in conspicuous consumption of lower castes at the expense of food and nutrition. We can also question the effect of the Upper Castes households on lower ranked castes and jatis. Following our theoretical framework, the effect should also be stronger. In columns (1) and (2) of table 9, we interract the regional mean per capital expenditures of the Upper Castes with a dummy for whether the household belongs to the Schedule Castes (SC) as opposed to the OBC. We should expect a positive and significant sign on visible expenditures and a negative and significant sign on food. In columns (3) and (4), we interract the regional mean per capital expenditures of the Upper Castes with households' quartile of total per capita expenditures. Since we keep controling for permanent income in the regression, quartile should be interpreted as jatis, with the first quartile corresponding to the lowest ranked jatis. Again, we expect the subsitution effect to be increasing with lower

quartiles.

	(1) lvisible2	(2) lfood	(3) lcalorie	(4) lvisible2	(5) lfood	(6) lcalorie
log permanent income	1.387***	0.605***	-0.0551	1.780***	0.458***	-0.411***
	(0.0194)	(0.00965)	(0.0522)	(0.0523)	(0.0252)	(0.147)
log mean mpce UC	0.123***	-0.0945***	-0.0980**	0.166***	-0.0776***	-0.0236
	(0.0322)	(0.0172)	(0.0458)	(0.0365)	(0.0184)	(0.0401)
1.sc*c.lmpce_uc	0.0476**	0.0209*	0.0705***			
	(0.0213)	(0.0107)	(0.0273)			
2.quartile*c.lmpce_uc				-0.0252	-0.00487	0.0141
				(0.0251)	(0.0128)	(0.0249)
3.quartile*c.lmpce_uc				-0.104***	0.00581	0.0388
				(0.0269)	(0.0140)	(0.0251)
4.quartile*c.lmpce_uc				-0.255***	0.0505***	-0.180***
				(0.0347)	(0.0184)	(0.0610)
lmpce_own	0.0436	0.0248	0.117**	0.0595	-0.0100	0.0193
	(0.0471)	(0.0237)	(0.0521)	(0.0446)	(0.0212)	(0.0461)
1.Scheduled Caste	-0.333**	-0.169**	-0.485**			
	(0.157)	(0.0786)	(0.199)			
Scheduled Caste				0.0240*	-0.0180***	0.0283**
				(0.0123)	(0.00578)	(0.0121)
Observations	45366	45365	45364	45366	45365	45364
Household Controls	Yes	Yes	Yes	Yes	Yes	Yes
Spatial Controls	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: NSS66 – test of proposition 2, effect on lower ranked castes and Jatis (quartile), IV 2SLS

Richer upper caste leads to a stronger increase in visible consumption for the Scheduled Castes than for OBC, but the difference in subsitution with food is only weakly significant and is lower than for OBCs. However, the effect is clearly stronger for lower jatis identified with quartile. An increase in inequality between the upper castes and the lower jatis should therefore lead the poorest jatis to give up more on food in exchange of higher spendings in conspicuous consumption.

Finally, we check whether there is a general effect of upper caste on the conspicuous consumption of other households, even when they are not part of the caste system. The Scheduled Tribes (ST) and Muslims are also historically disadvantaged groups in India. However they were never part of the caste system, so the process of Sanskritization described

by Srinivas should not affect them as much. In columns (1) and (2) of table 10 we regress the mean regional per capita expenditures of the upper castes on visible and food consumption of Muslims and Scheduled Tribes:

	(1) lvisible	(2) lfood	(3) lvisible	(4) lfood
log permanent income	1.347***	0.616***	1.373***	0.576***
	(0.0271)	(0.0140)	(0.0160)	(0.00844)
log mean mpce UC	0.0910*	-0.0384*		
	(0.0480)	(0.0232)		
log mean mpce SC			-0.161***	0.0494**
			(0.0485)	(0.0237)
log mean mpce own group	-0.127***	-0.00523	0.0274	0.0187
	(0.0445)	(0.0274)	(0.0314)	(0.0187)
Muslim	-0.0323**	0.0599***		
	(0.0157)	(0.00821)		
Upper Caste			-0.0142	0.00687
			(0.0144)	(0.00788)
Observations	22086	22087	50756	50756
Household Controls	Yes	Yes	Yes	Yes
Spatial Controls	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: NSS66 – placebo tests for the relevance of caste hierarchy, IV 2SLS

Our results confirm that ST and Muslim are much less affected by the effect of upper castes' wealth level when it comes to conspicuous consumption. Both the significance and magnitude of the effect is much lower. Interestingly, own group matters for those households, with a negative and significant sign for visible consumption, as in Charles et al. (2009). This indicates that Muslims and Scheduled Tribes being outside of the caste system, they are likely to be their own reference. A signaling approach is therefore more relevant to understand the conspicuous behaviors of these households.

As a last placebo test, we arbitrarily inverse the status hierarchy and suppose that the Scheduled Castes determine the reference level of status: when they are richer, the Upper Castes and OBC castes consume more conspicuously and spend less on food. We keep the exact same specification as before but we run the regression on the subsample of Upper Castes and Other Backard Classes. The parameter of interest in now δ_{sc} instead of δ_{uc}. Results are showned in columns (3) and (4) of table 10. Coefficients are now of the opposite signs: higher castes groups act less conspicuously when lower ranked groups become richer.

This confirms the relevance of our approach. A signaling story at the level of the group would argue the opposite, as higher ranked groups would react to an increase in visible consumption of low-ranked group by acting even more conspicuously. Quite on the contrary, within the caste system, the conspicuous behavior of the high ranked groups seem to be the consequence of a higher degree of structural inequality to start with. A reduction in between caste inequality may therefore lead to the progressive erosion of luxury spendings and conspicuous behaviors in India.

6 Conclusion

This article documents a gap in conspicuous consumption between caste groups, with lower caste groups consuming more conspicuously than upper castes at every level of permanent income. It also underlines a pattern of substitution between conspicuous consumption and food expenditures. This could lead to a status trap in which the structurally disadvantaged social groups face a Veblen externality which crowds out high return investments in physical work capacity.

Testing the empirical predictions of the model by using the variation in levels of income of upper castes across NSS Indian regions, we provide evidence for the status externality effect of higher caste households on lower castes. We find that the richer upper castes are, the more lower castes tend to spend on conspicuous consumption and the less they spend on food. This finding is robust across waves and remains true for calorie intakes equivalent.

These results raise a number of questions needed to be addressed in subsequent works: first, the structural gap between social groups could be endogenized by historical wealth level achievements. For example, if one group has a high economic and/or political power for a number of period, we would expect that this affects its inherited status. Also, a number of restrictions have historically been put in place in order to constrain social mobility across groups. This is an interesting avenue both for theoretical and empirical works, typically by exploiting the changes in land ownership in a rural context, or other measures of local and structurally rigid structures. Another interesting fact to exploit is that these effects seem to differ within and between caste groups, and are very likely not to affect the distribution of disadvantaged groups in the same way: rich lower castes versus poor lower castes, or high concentration of wealth among upper castes versus low concentration of wealth. Also, the local level of social segmentation is likely to affect expenditures through other channels such as discrimination and aspiration on education. Finally, we are concerned about general

equilibrium effects of inequality on prices (especially of immobile factor) and public good provision, all effects that we have to take into consideration to insure the robustness of our results.

These preliminary results suggest that it is crucial to take into account a group-level analysis of inequality when deriving development or redistributive policies. Indeed, the self-reinforcement effect of status concern given a structural status gap between groups may not be solved by pure redistribution if we do not consider inherited group membership. Instead, there may be a need of considering group-targeted policies so as to directly affect the Veblen externality imposed on disadvantaged groups. It is taking shape with the awareness of the persistence of caste or race inequality, and the support for affirmative action policies.

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7 Appendix

7.1 Endogeneity of the Veblen parameter

Let's assume a function $v^i = v^i(\lambda, \mu_t^h/\mu_t^i)$, strictly increasing in its two arguments: $\frac{\partial v^i}{\partial \lambda} > 0$ and $\frac{\partial v^i}{\partial \mu_t^h/\mu_t^i} > 0$. This illustrates the fact that economic inequality and hierarchical differentiation increase the status externality born by the lower-ranking groups. The concavity of $v^i(\lambda, \mu_t^h/\mu_t^i)$ in its two arguments would give interesting interpretations as to how increasing inequality or hierarchical differentiation affects the status externality . We would assume in this article that $\frac{\partial^2 v^i}{\partial(\mu_t^h/\mu_t^i)^2} < 0$ and $\frac{\partial^2 v^i}{\partial \lambda^2} < 0$, which models a type of aspiration window where individuals are increasingly influenced by the reference group as the wealth difference of hierarchical differentiation gets larger, but less and less so.

7.2 Additional figures

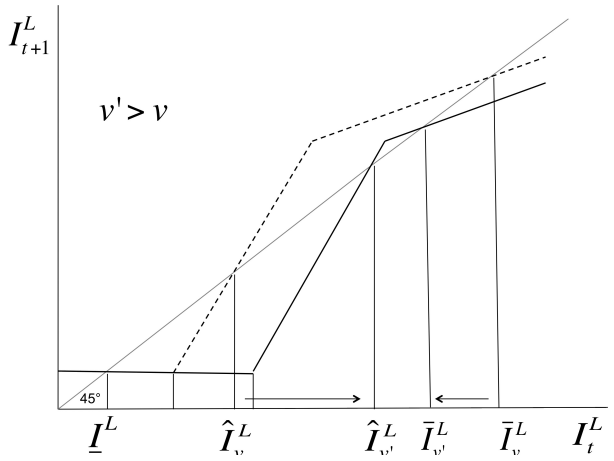

Figure 7: The Evolution of Income for Low Status Group if Veblen Externality Increases

	(1) education	(2) social_cap	(3) health	(4) service
Scheduled Caste	-0.0800***	-0.00834	0.00804	0.00591
	(-2.85)	(-0.35)	(0.15)	(0.50)
Other Backward Class	-0.0563**	-0.0381**	0.00736	-0.000912
	(-2.27)	(-2.00)	(0.17)	(-0.10)
log permanent income	2.768***	2.062***	1.091***	2.034***
	(72.43)	(61.32)	(14.94)	(133.34)
Observations	90497	90497	90497	90497
Household Controls	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: NSS66 – other expenditures gap between groups, Poisson IV

	(1) education	(2) social_cap	(3) health	(4) service
log permanent income	3.044***	2.083***	1.175***	1.993***
	(0.0700)	(0.0533)	(0.0987)	(0.0223)
log mean mpce UC	0.137	-0.108	-0.521***	0.0323
	(0.104)	(0.0872)	(0.180)	(0.0387)
log mean mpce own group	-0.0700	-0.289***	0.0152	-0.144***
	(0.145)	(0.105)	(0.224)	(0.0466)
Scheduled Caste	-0.0180	-0.0237	0.0153	-0.0303**
	(0.0348)	(0.0299)	(0.0626)	(0.0133)
Observations	45367	45367	45367	45367
Household Controls	Yes	Yes	Yes	Yes
Spatial Controls	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: NSS66 – effect of upper and own caste on other expenditures, Poisson IV