

1.1 Introduction

In this paper I identify a disturbing paradox in Kerala. For over two decades the Human Development Index (HDI) has given Kerala the highest state-disaggregated score in India, leading to a general consensus over the 'Kerala Model' as a prototype for other developing societies (Lieten, 2002; Dreze and Sen, 1997; Sen, 1994). In 2005 the United Nations (UN) published its first and only Kerala-only human development report (HDR) with the Planning Commission of India, writing of its 'commendable' achievements in 'reducing, and even eliminating, gender disparity in many socio-economic indicators' (POI, 2005), and going on to discuss its first rank in the analogous Gender-Related Development Index (GDI). If anything has changed since the HDR's original 1990 publication, it is the institutionalisation of the HDI as *the* development metric across interdisciplinary discourses (Jha and Bawa, 2006; Bonini, 2008; Bradley and Putnick, 2012). Yet in this paper I problematise this consensus, finding that Kerala is a complex development paradox, which neither the HDI nor the capabilities approach upon which it is based are sufficiently sophisticated to identify. The state concurrently sustains the highest rates of HDI, GDI, female suicides and crimes against women (CAW) in India. I suggest that the default use of HDI and its gendered indicators to measure female¹ 'quality of life' may therefore be obscuring significant gender inequities and a patrifocal² drift in Kerala.

¹I use "Female" or "Females" as the aggregate unit without reference to overlapping social, status and religious categories, such as caste, relation to the

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Understanding this paradox is the central aim of this paper, and motivates our research question: *To what extent is the Human Development Index a useful indicator of female quality of life³ in Kerala?*

This paradox pre-dates 1991, the point from which I am collecting data. However, I start in 1991 for two reasons: firstly, because of its importance as the 'year of new beginnings' (Bajpai, 1992). If this is widely considered the opening of liberalised India, with the New Economic Policy (NEP) heralding India's global socialisation, then it is important to limit our enquiry to either before or after this point. To do otherwise would risk entangling my analysis with numerous other limitation points based upon the disparate forms of economic governance across the period. Secondly, for methodological accuracy: I compare fertility data sets based on National Family Health Survey (NFHS) and Sample Registration Survey (SRS) reports, and it is only after 1988 that these

'poverty line' or class. I do so at the risk of simplifying my analysis, but on the understanding that it is preferable to leave each of these aspects for further investigation, than offer a limited analysis of select categories. Certainly, each demands its own close interrogation; my paper seeks only to identify the overarching themes and problems with the HDI upon female quality of life, so that these same concerns can frame later studies in this area, which focus on these categorisational specificities.

² I use the term 'patrifocal' to denote the ideational bias represented within the family and broader social structures when it 'in important aspects, focuses on the interests of men and boys' (Eapen and Kodoth, 2002). The term first appears in Mukhopadhyay and Seymour's 2004 book "Women, education and family structure in India".

³I accept the ambiguity of the term 'quality of life', and suggest it is most usefully defined through an intersection of objective and individually subjective measures. In this case, I use the term in its broadest definition, 'overall life satisfaction' (Rosenfield, 1992) because it is both universally applicable to all cases of suicide, assuming death-preference in all cases, and representative of the 'capabilities approach' development ideology that justifies the HDI scoring system.

figures converge. I collect data up to 2011 for the sake of the TFR-suicide one-sided T test I conduct in Section 2.1, which requires data sets of equal size.

I use statistical analysis to find counterintuitive relationships between the HDI and certain measures of female quality of life. I collect original data from government and UN sources to conduct a one-sided T test to find a positive and highly significant relationship between state-level total fertility rate (TFR)⁴ and the HDI, extending this enquiry using linear regression to identify a similar HDI-CAW relationship, and no significant relationship between female suicide and HDI. These results raise a number of concerns about the nature of 'development' and whether we are exaggerating the meaning and value of 'capabilities' in our understanding of it. Three central issues within our contemporary understanding of development emerge in my study: the indicators themselves and how we may be basing our current interpretations upon simplistic and misleading chains of 'cause and effect'; the role of males in subverting female human development; and, the agency of ideational trends upon (specifically gendered) human development. The HDI is unable to capture any of these, despite the transformative impact I show each can have upon quality of life.

I collect suicide and CAW data from the NCRB; human development scores are taken from the Human Development Report (HDR), and TFR from the Sample Registration System (SRS). Where state-level or demographic disaggregates are unavailable I interpolate data-point estimates to foreground

⁴ The UN defines TFR as 'the number of children born to a woman if she follows the current fertility pattern in her reproductive life' (POI, 2005: 2)

the broader concern underlying this study; namely, the urgency for a more intensive inquiry into the value of gendered human development indicators as a measure of female quality of life.

The structure of this paper is as follows: In Section One I identify our research question(s); discuss the various problems in defining the role and success of development; define the HDI and identify the problematic constructions embedded within the capabilities approach upon which it is based. In Section Two I introduce our paradox. I compare all-India and Kerala-specific data for the HDI gendered indicators: TFR, female literacy, and male-to-female ratios; discuss the rise of CAW; and identify the highly significant positive relationship between TFR and female suicide. In Section Three I create a series of linear regression models using original data sets to locate the statistical relationships between my variables. In Section Four I interrogate the divergence between our regression findings and the results we might expect based upon HDI scores and CA ideology. I go on to identify and investigate three factors that may have a hand in this paradox: household-level gender relations, the post-1991 liberalisation processes and the misinterpretation of HDI indicators and their meanings. In Section Five, I suggest that Kerala is a critical case study in human development because of the extent to which it is used as an example for others to follow based on its HDI score, when it has such numerous other development problems that this measure is unable to capture. I contend with the idea that the HDI may be reproducing existing gender inequalities by using a measurement system that may itself be

qualitatively gendered. Finally, I conclude in Section Six, where I summarise with a critique of the HDI and its predominance in contemporary development discourse, and the implications of its continued use upon our understanding of female quality of life in each of the 47 countries that it currently assesses.

1.2 Defining 'Development': Problems, Solutions and the HDI Capabilities Approach

In this section I define the capabilities approach and its theoretical context. I argue that any index we use to measure development is imperfect because of the biases inherent in any scheme that claims to identify, deconstruct and improve quality of life for heterogeneous populations. This is no more pronounced than in the HDI, which uses the same measure to compare the diverse populations of its 47 subject countries. I discuss its favourable interpretation of female autonomy⁵ within Kerala based upon its gendered-indicator scores, and suggest this is problematic because the index does not have any mechanism to qualify these scores.

Extensive debate exists over the precise meaning of 'development'; whether it should exist as a social or economic project (Dreze and Sen, 2013; Bhagwati and Panagariya, 2013), what it should seek to achieve, and how we should measure its success. Theoretical responses to these questions proliferate throughout literature: it is variously defined using GNP or GDP per capita, its

⁵ I define 'female autonomy' as the 'extent to which women exert control over their own lives within the families in which they live, at a given point in time' (Jejeebhoy, 2000: 205).

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components and their growth (World Bank, 2013; Mazumdar, 2002); the provision of 'basic needs' within a society, which 'shifts away from the goal of output maximisation to poverty minimisation' (Farooq, 1988: 363; McHale and McHale, 1979; Long, 1978); height as a representative of net calories, nutrition, health, disease demands and the balance between caloric intake and expenditure (Deaton, 2007; Bozzoli *et al*, 2009; Klasen, 1999); the extent to which a state has achieved its Millennium Development Goals (Fukuda-Parr, 2004; Kuruvilla *et al*, 2012); and by the absolute and proportional numbers of those living beneath an established poverty line (Ray and Lancaster, 2005; Saith, 2005). At the heart of each of these conceptions is the idea of *quality of life* and how to improve it (Slottje, 1991). However, in spite of numerous other forms of measurement it is the United Nations Development Programme's HDI that has become the default guide to a country's development status since its 1990 inception.

Kerala is a paradox. It is popularly considered a normative model for developing countries (Parayil, 1996; Lieten, 2002). Despite relatively low per capita product it has the highest state-level scores on both the HDI and its 'gender sensitive extension', the Gender Development Index (GDI) in India⁶ (Kodoth and Eapen, 2005). The HDI is a composite development statistic developed by the UN, which measures country-level indicators such as infant mortality rate (IMR), life expectancy and literacy to assess 'progress towards

⁶ This paper deals exclusively with the HDI. For an important critique of the GDI I recommend Dijkstra and Hanmer's article "Measuring socio-economic gender inequality: toward an alternative to the UNDP gender-related development index".

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greater human well-being' or *quality of life* (Stanton, 2007: 3). The UN uses these statistical results to rank states into four tiers of relative human development. Given this, the popularity of the Kerala model is indicative of a general consensus that we can measure the success of development by the extent to which it empowers the *autonomous* individual. Moreover, it suggests that empowerment can occur at low levels of income, and can therefore take place with an immediacy that does not depend upon uncertain 'trickle down' wealth to become available to the poorest in society. The HDI operationalises these considerations using Amartya Sen's capabilities approach (CA), because it accounts for this variance and is therefore considered a more humanistic model than conventional approaches to welfare, which base themselves upon crude measures of input and output (Anand and Sen, 2000).

The CA recognises the disparate range of 'value-purposes' that beleaguer any debate on 'development' as a practical social goal, and hence self-justifies on the basis that there may be infinite individual preferences that affect the way its efforts manifest in any society. This approach uses these arguments to show that the ubiquitous parametric use of 'achievement' in development discourse is conceptually misleading. The CA posits that the more useful alternative to this measure is a capability metric, which assesses the extent to which the individual has the option to exercise personal agency in 'key areas' such as health, education and so on, leading to 'development as freedom' (Sen, 1999); Sen writes that the 'main point here is that standard of living is really a

matter of 'functionings'⁷ and capabilities, and not a matter directly of opulence, commodities or utilities' (1985: 23). HDI indicators are therefore, combinative estimates of capability and functioning that assess individual freedom or *autonomy* in a given society; for example, 'poverty' is defined through the deprivation it creates for the individual that limits his capability to live a 'good life' (IEP, 2014). Unlike GNP or 'consumer utility' measures, the HDI incorporates longevity and hence, the development progress a country is making; this allows comparisons to be made between the different development experiences that states are undergoing (Sharma, 1997). They therefore emphasise the importance of 'distribution of resources and opportunities' (Nussbaum, 2003: 3) over assumed utility.

The CA is hence considered the least prescriptive approach to development; it extends the availability of basic services, such as health and education, but on the understanding of autonomy, is unconcerned with the way an individual chooses to engage with these provisions (Stanton, 2007; Fukuda-Parr, 2003); it observes human differences in converting commodities into capabilities, depending on individual social, cultural or personal circumstances (Sen and Nussbaum, 1993). The irony is that based on our Kerala

⁷Sen defines 'functionings' as a person's 'combined doings and beings' (1990:113), writing that 'given n different types of functionings, an n -tuple of functionings represents the focal features of a person's living, with each of its n components reflecting the extent of the achievements of a particular functioning' (Ibid: 114). Martha Nussbaum's later (2003) definition may be more useful; she distinguishes between individual intentionality and the act of doing something. In this conception, there is no intrinsic value to functionings, and the pleasure (or discomfort) one derives from functionings are supervenient. Hence, we can read them as, simply, the actions an individual performs using his capabilities, to improve his quality of life.

findings, the popularity of the CA as an agency-driven approach, has in part been motivated by the claim that it engages more fully with gender equity by promoting collective action (Ibid).

Using this measure, the HDI suggests that Kerala outperforms all Indian states on gendered indicators, and has done since its inception; Sen describes the state as 'an outstanding example of the importance of literacy for social and economic progress' (1997: 326). Of concern to us are not the individual processes that have led to its 'transformation' but rather, the theoretical justification upon which this claim is based. My paper identifies the problematic application of these assumptions, relating to the blind association of quantitative value and the broader societal and household-level ideational norms that must accompany any assessment of quality of life. Dreze and Sen argue that the female-specific HDI record represents the gendered success of the 'Kerala experience'; they write 'certain features of female empowerment in Kerala are vital to its achievements...their importance really cannot be overemphasised' (1997: 233), citing its TFR and female literacy records, alongside the more suspect 'evidence' in light of our study, the 'great importance [of] social and cultural attitudes towards female survival' (Ibid.), as proof of this claim. However, I argue that these causality linkages between HDI and personal autonomy or quality of life are idealised constructions that do not account for the presence or intervention of other variables. As such, they have limited theoretical meaning without the use of proxy variables to qualify claims of cause-and-effect.

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Of course, any measure that objectifies development retains an inherent bias when 'the ultimate analysis will depend on the preferences of the evaluator' (Chowdhury, 1991: 125). However, I argue that the HDI is particularly misleading because of the general consensus⁸ that exists over its evaluative utility, to the extent that it has become the default development statistic in both contemporary scholarship and UN reports (Genovese, 1990; Dholakia, 2003; Kannan, 2005; UN, 2014).

2.1 The Kerala Human Development Paradox

Section two introduces the Kerala human development paradox. I discuss the conflict between its high HDI status and the oppositional values of non-conventional indicators: CAW and female suicides. I explain the meaning and value of the TFR indicator in the HDI and contemporary development accounts and present my preliminary statistical evidence that suggests this consensus is problematic; conducting a one-sided T test using original data to present a counterintuitive and highly significant relationship between TFR and female suicide.

The Kerala human development paradox highlights the extent to which the CA and HDI are imperfect measures of female empowerment. According to

⁸ To give a brief idea of the breadth and agency of this consensus, the HDI not only forms the basis of all UN assessments of relative country development, but is also employed by a number of its subject country governments in formulating policy. In India, the HDI forms the basis of it's the annual Government of India Planning Commission Human Development Report (POI, 2005 for example), which partially determines the geographical distribution of state resources into development programmes based on HDI-suggested need assessment.

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the HDI, females in Kerala have the highest quality of life in India. Yet, I argue that suicide is the most reliable measure of quality of life, especially given our definition of the term discussed in Footnote 3, Section 1.1. Indeed, unlike other indicators for which we ascribe value or crudely assume the effect it has upon quality of life, suicide is the only variable for which we can assume without reasonable doubt, a death-preference in each case. It is therefore surprising that Kerala concurrently maintains the highest state-level female suicide rate of all the major Indian states. It suggests that there are a number of limitations to the HDI that contemporary scholarship is failing to identify. It points to the existence of variables that the HDI does not account for, which are holding significant influence over the causality relationships assumed by the CA. Table 1 presents the disparities between Kerala and all-India levels of certain gendered HDI indicators (Female Literacy, TFR and the male-to-female ratio) for 1991, 2001 and 2011. I note that the male-to-female ratio has not been adjusted for age (for more detail on the age-disaggregated sex ratio, refer to Section 4.1)

Table 1

| | 1991 | | 2001 | | 2011 | |
|-------------------------|-----------|-----------|---------------|-----------|-----------|-----------|
| | Kerala | All-India | Kerala | All-India | Kerala | All-India |
| M: F Ratio | 1036:1000 | 1000:927 | 1000: 1058 | 1000:933 | 1000:1084 | 1000:940 |
| TFR | 1.6 | 3.8 | 1.7 | 3.04 | 1.7 | 2.53 |
| %Female Literacy | 86.17 | 39.29 | 87.7 | 53 | 91.98 | 61.46 |

(COI 1991; COI, 2001; COI, 2011)

I am using CAW⁹ as a proxy indicator for household gender relations because of the high proportion of these that occur in the home, by perpetrators known to the female (Bower, 1993), and reflect an ideological reality of CAW (un)acceptability in Kerala. Though estimates of domestic violence prevalence vary, Kerala has had a consistently high record of cases filed under the 2005 Protection of Women from Domestic Violence Act (PWDVA) since its

⁹ The NCRB category “Crimes Against Women” covers rape, kidnapping and abduction, cruelty from husbands or relatives, dowry deaths, molestation and sexual harassment.

inception; in its first year it had the second highest number at 1028, or almost a third of all cases nationally (Infochange, 2007), and between 2001 and 2012 reported CAW rose from 2561 to 5216 (NCRB, 2001; NCRB, 2012). I argue that the popular counter argument, which suggests that this change has been driven by the numbers of females reporting CAW rather than CAW itself, relies upon the problematic, normative logic of the CA. I show in more detail in Section 4.3, that there are a number of flawed theoretical causal assumptions we make in interpreting gendered HDI indicators. In this case, as I argue that females have not become more 'empowered' as a result of HDI, it is unlikely that the level of reporting CAW has significantly affected its official numbers¹⁰.

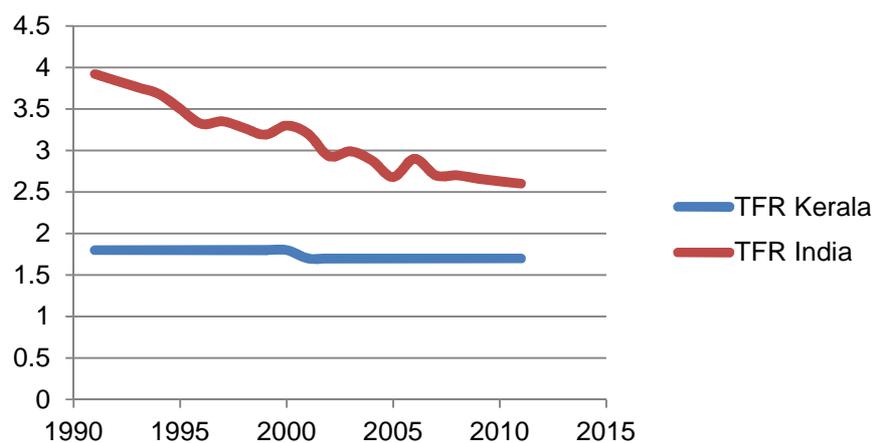
The expeditious increase of male to female violence corroborates a number of contemporary ethnographic studies, which identify the re-emergence of ideational patriarchy in the state (Chua, 2014; Mukhopadhyay and Seymour, 2004). The conclusion these authors reach is that this is reconfiguring power arrangements between males and females so that the male dominates across a number of spheres (Chua, 2012). I tentatively suggest that if this does have some responsibility for the CAW-HDI positive relationship, it emphasises the absence of any mechanism within the CA to assess ideological trends and the way they may be impacting upon human development. I discuss this problem in Section 4.2.

¹⁰ We may also refer to Sandhya's 2010 study into women's access to the criminal justice system in Kerala between 1999 and 2009. She finds that despite limited increase in the numbers of women using this service for all crimes, there are still numerous obstacles preventing from this taking place, which suggest CAW are still severely under reported in the state.

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I find a third aspect to this paradox. Using annual state-level Sample Registration System (SRS) reports, I created a data set (1991-2011) for TFR. As a female-specific HDI variable, TFR is widely considered representative of the extent to which female autonomy exists within a society; this hypothesis posits that lower fertility indicates greater female education, power over personal and household-level decision making, and therefore, quality of life (Dyson and Moore, 1983; Basu, 1992; Morgan *et al*, 2002; Jeejebhoy, 1995). The considerable extent to which Kerala's TFR has been consistently lower than the all-India average has thus been seen as evidence of greater female autonomy within the state; Graph 1 compares state and national level TFR rates between 1991 and 2011.

Graph 1



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I use SRS TFR data¹¹ to conduct a one-sided T test to locate a relationship between TFR and female suicide. The limitation of this data set in our context is that HDI TFR estimates are based upon infrequent National Family Health Survey (II and III) rounds. We are saved from estimative discrepancy by virtue of our starting point, 1991; Mumbai's International Institute for Population Studies makes a detailed comparison of SRS and NFHS data (Narasimhan *et al*, 1997), finding identical TFR data between sources after 1988. The 2005 HDR writes of Kerala's TFR record as a 'remarkable performance' (2005: 23), denoting the agency it is considered to have over quality of life.

However, my results contradict these claims: I find a p value of 2.296 to the power of -13, indicating a highly significant positive correlation between TFR and female suicide (I explain p values in Section 3.1). This suggests that if there is any causal link, contrary to HDI expectations, declining TFR is increasing female suicide rates. I take a more nuanced approach and argue that it is more likely that these variables are only related indirectly. In this case, TFR may be having hitherto undetected consequences in Kerala, which are reducing female quality of life. These results further indicate that if HDI is improving female quality of life in any way, it is through its non-gendered indicators. This surprising contradiction of contemporary development doctrine, engages our study with a broader concern: the theoretical grounds and *purposes* of macro-

¹¹ All of the data sets I use in my statistical analysis, both for this T-test and the linear regression in 3.1 and 4.2 are presented in my Appendix.

level development projects. This paper responds to the disjuncture between female-specific human development expectations and realities in Kerala.

3.1 Statistical Analysis

I conduct three linear regression analyses to show that the HDI relationships with non-conventional female quality of life indicators are antonymous to CA predictions. I present these results graphically, to illustrate more clearly the strength of our p values.

I base my regression interpretations upon the p values of its results, the statistical probability of rejecting our null hypotheses. Of course, these are not isolated values, and without this data to qualify our p statistics I exclude the other results at the risk of exaggerating relationships. However, I do so for the sake of consistency and clarity where discussional space is so limited. State-disaggregated HDI data is unavailable for the following years: 1997, 1998, 2000, 2002, 2003. I interpolate these values based on known trends. This is an imperfect method in that it assumes a steady increase between data points. I am confident that it reflects existing trends because the 'lopsided development'¹² (Subrahmanian, 1990; HDR, 2005) of the 'Kerala Model' has been widely acclaimed, discussed and studied throughout development scholarship since the 1970s (Parayil, 1996; Mencher, 1982; Radhakrishnan, 1981).

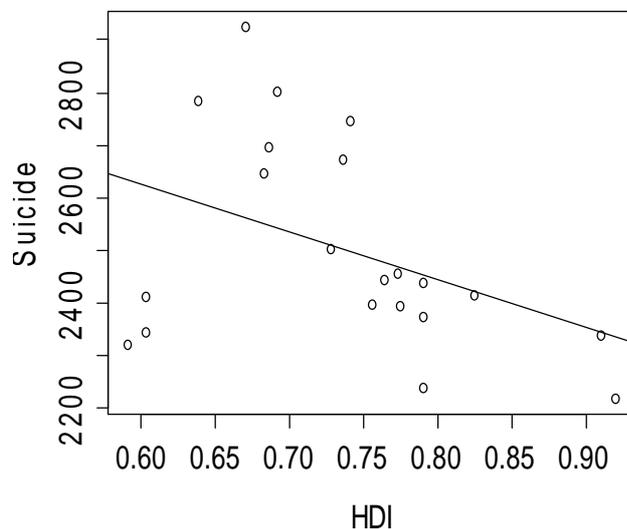
3.2 HDI and Female Suicide

¹² 'Lopsided development' denotes Kerala's high levels of social or human development despite relatively low levels of GDP and GNP.

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The relationship between state-level HDI and the percentage of female state suicides in Kerala 1991-2011 indicates the extent to which human development is regulating female quality of life. I find linear regression the most useful method for producing a tractable result to estimate the strength of this relationship. Using our HDI data set as our independent variable and our suicide data set as our dependent variable I find a moderately statistically significant negative relationship, with a p value of 0.06, suggesting that HDI may be improving female quality of life. However, the relative weakness of this statistic may be more indicative of a non-causal relationship. The results are presented in Graph 2.

Graph 2

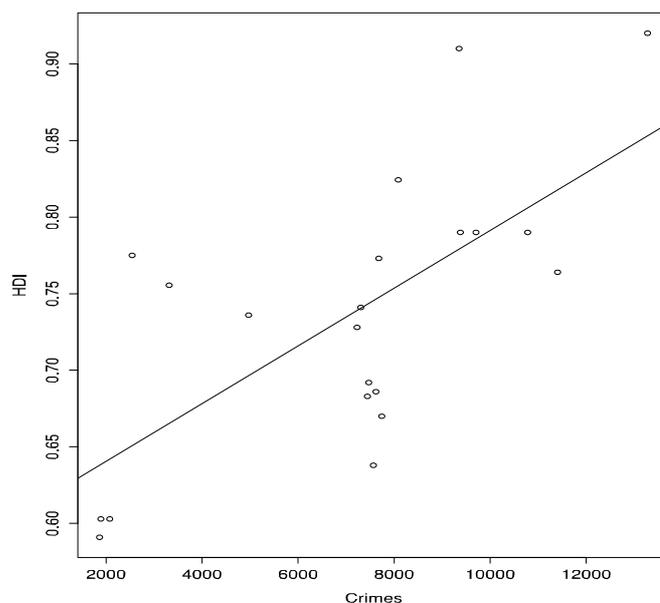


3.3 Crimes Against Women and HDI

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Using NCRB data (1991-2011) to calculate percentage differences across our time series, Crimes Against Women rose 610.7% in Kerala between 1991 and 2011. Certainly, this disturbing trend is contrary to the CA theoretical expectations of concurrent HDI increases. Our regression model for the aggregate sample (1991-2011) finds a p value of 0.0000054. These results show a highly significant positive relationship, which suggests that in spite of rising HDI, CAW in Kerala are concurrently increasing. The results are shown in Graph 3.

Graph 3



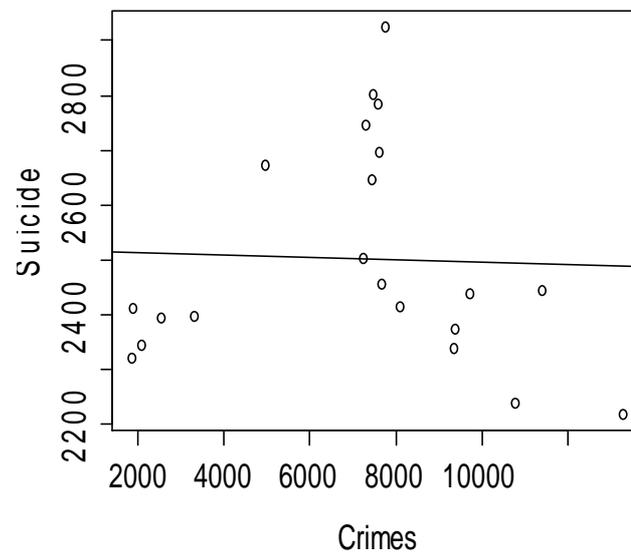
3.4 Crimes Against Women and Female Suicide

I run a final regression using our CAW and female suicide data sets (1991-2011). This model tests for a relationship between these values that may indicate the significance of extraneous societal variables unaccounted for by the HDI, that are (in)directly impacting upon these figures. The sample gives insignificant

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results ($p = 0.88$), suggesting that these variables are influenced by different factors. This is a surprising result, which suggests that household-level gender relationships and overall female quality of life are not interlinked as we might expect; I investigate this further in Section Four. The regression results are shown in Graph 4.

Graph 4



4.1 Interpreting the Data

My data interpretation consists of three parts. In 4.1 I consider the meaning of our CAW statistical findings and the implications that these have for contemporary household-level gender relations and ideational trends. In particular I investigate for evidence of a male reaction to rising female-specific HDI in Kerala, and whether this has contributed to the resurgence of patriarchy in the state. In 4.2 I consider the post-1991 liberalisation processes in Kerala, and whether these may have created a societal-level transitional insecurity for females, creating greater suicide risk. I make a comparison between the NEP and the post-Soviet 'shock therapy' regimes in Eastern Europe, to interrogate claims that this developmental instability may initially decrease quality of life and increase male on female violence. 4.3 considers whether we are misunderstanding the implications of the HDI's indicators, with special focus on its gendered measures. 4.4 concludes the section, pointing to the limitations of the HDI in understanding female quality of life and how its popularity may be leading to the neglect of more important relational trends.

4.2 Crimes Against Women: Household-Level Gender Relations and Ideational Trends

I use CAW as a proxy indicator for household-level gender relations, based on the assumption that patriarchy is an essential condition of the etiology of domestic violence (Dobash and Dobash, 1979; Stark and Flitcraft, 1991; Anderson, 1997). Numerous sociological studies find that male power-seeking

and positional (or hierarchical) insecurity within the home, are the most significant risk factors towards crimes against women (Umberson *et al*, 1998; Amirthalingham, 2005; Poonacha and Pandey, 2000). Certainly, contextualising this theory within Kerala's impressive female-specific HDI record suggests that we may view 'female empowerment' and patriarchal insecurity as symbiotic phenomena. This indicates that the connecting variable in the CAW-HDI relationship, may be a significant male reaction against female-specific HDI increases, which in turn reduces female quality of life through the patrifocal reorientation expressed through CAW growth. To examine this hypothesis, I consider whether there is evidence to suggest that Kerala is experiencing a 'patrifocal' shift.

The growth of 'son preference' indicates this attitudinal change is taking place; since the 1881 census Kerala has been an outlier in India, as the only state to maintain a sex ratio in which females outnumber males in every age group (Sweetman, 2003). However, since 1981 this trend has inverted in the 0-6 age group, and been accompanied by an alarming growth in female infant mortality (Patel, 2002). Patel argues that the 'abuse of scientific technologies for femicide' (Ibid: 2125) is responsible for this retrogressive inversion, and certainly he is not alone with this position (Oommen and Ganatra, 2002; John, 2011). This turnaround coincides with the early years of acclaim for the 'Kerala Model' of development, and the 1975 UN publication 'Poverty, Unemployment and Development Policy', which first put Kerala in global focus. Of course, this shows that Kerala's HDI success predates its sex ratio inversion.

This may itself be greater evidence of a link between them on the basis of a time-lagged effect; rarely is impact immediate, especially in development policy, which relies upon multiple processes to take form. Chesnais discusses the issues of time lag in understanding the effects of policy upon fertility rates, and how this demands that we take a longer-term approach to data collection and analysis (1997). I suggest that HDI increases should also be categorised as such because 'causes take times to have effects', and when a relational model does not account for this 'biased estimates of effects are often obtained' (Gollob and Reichhardt, 1987: 80). Therefore, I argue that growing son preference after the initial stages of accelerated social development in Kerala is sufficient evidence to substantiate this claim of a gendered reaction to HDI growth. Whether or not it is technological growth driving increases in female foeticide and infanticide as Patel and others suggest, these figures represent an emerging tendency towards ideational patriarchy.

Moreover, Kerala's female labour force participation (LFPR) has not met HDI expectations: between 1991 and 2001 this declined from 15.9% to 15.3% (COI, 1991; COI, 2001), rising only to 19% for urban females and 34% for rural females by 2010 (Ramakumar, 2011). It is important to note the concurrent growth of the urban secondary sector and the shrinking of the rural and agrarian sectors in the composition of the state economy (Indian Planning Commission, 2008). In this case, greater urban employment opportunities were created, but produced only negligible differences in female LFPR. Arun and

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Arun's ethnographic study into the gendered dynamics of Kerala's burgeoning information technology industry reaches a similar conclusion; they write that the creation of employment opportunities in this sector has reproduced gender inequities, in which less qualified men are routinely favoured over more qualified women (2002). Yet, LFPR is almost universally considered an indicator of female autonomy (Breen and Cooke, 2005; Elson, 1999). Engels argued that this is the single mechanism through which women are 'unchained' from male dependency (1887), and this position has been fundamental to welfare economics since; the World Bank has produced annual reports since 1995 promoting LFPR to 'provide woman with mechanisms to reduce the control of their peers and families' (2013: 185). This aspect of the 'Kerala experience' (Sen, 1994) appears more poignant when we consider the differences between the educated female and male LFPR.

The 2008 Kerala Development Report finds an alarming disparity; with the educated female LFPR almost three times as high as the male equivalent (POI, 2008). This trend sustains for all levels of education (Ibid) and in a comparison of male and female wage rates in the state (Kishor and Gupta, 2004; Prabhu *et al*, 1996). Of course, this raises a number of concerns about the value of female literacy if the quality of life a female can expect to have does not change; does it *really* represent agency if there is no opportunity to exercise it? I discuss this in more detail in Section 4.3. This data certainly suggests that even if there has been no distinct move towards patriarchy, there is little evidence of a move against it.

Our discussion now turns to female property rights in the state, which are, contrary to HDI expectations, declining (Kodoth, 2004). Numerous scholars identify the under-recording of female labour in Kerala after the 1970 Land Reform Act, which enshrined male land and property rights, and not those of cultivator wives (Ibid; Narayana, 2002), which continues to reduce female worker visibility and give legal property rights to household males. The concurrent decline of female inheritance rights has created a situation in which women, especially in rural areas, are tied to property and land rights only through marriage, with pronounced ambiguity over their autonomous access to these same rights (Kodoth, 2004). Of course, these are surprising findings when we consider that 'women's rights to inherit, own and control property are determined primarily by the *values* and *norms* which are socially acceptable, as well as the mechanisms of intra-household decision-making and distribution [emphasis mine]' (Mukund, 1999: 1352). Certainly, this agrees with our alternative hypothesis: the emergence, or spread, of ideational patriarchy, which the HDI is insufficiently sophisticated to capture. Indeed, In an almost ironic twist, the UNDP are one of the most prominent global advocates of female property rights, sponsoring numerous efforts and publications to 'advocate for women's land and property rights as part of its core strategy to enhance women's economic security and rights and reduce feminised poverty' (UN, 2014).

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If we can therefore identify a general consensus within development theory about the role and meaning of women's labour and property rights, it is worrying that this trend has hitherto been excluded from the HDI because it is seen as a 'functioning' rather than a 'capability' as per the CA¹³. This point highlights the practical danger of using a development metric that is unable to account for other significant variables that may affect the extent to which the individual is able to operationalise his or her capabilities.

To conclude this section I turn to ethnographic evidence in support of our patrifocal drift hypothesis. Numerous anthropological studies examining quality of life through the proliferation of suicide and mental health problems in Kerala's women identify a recent pattern in the discursive representation of femininity in the state (Chua, 2014; Lukose, 2005; Devika and Sukumar, 2006). Chua writes that the sexualised female body has become the site of contestation where wider social battles over social and political concerns crystallise and find expression, basing her argument on fieldwork in Kerala hospitals and the different treatment given to suicidal male and female patients (2014; Chua, 2012). In these studies, female patients are not considered at any serious risk and sidelined, as male patients gain access to the facilities they require. Of course, this is only one area of Kerala's welfare system, but the extent to which it corroborates our other findings, indicates that it may be more representative of the values men and women are attributed within the state. I suggest we may broadly consider it a microcosm of contemporary

¹³ I explain this distinction in Footnote 4, Section 1.2.

Kerala, and the values embedded within social interaction and human value. Therefore, I find ample evidence of a patrifocal drift, and argue that this is likely linked to increases in female-specific HDI and CAW.

4.3 Female Suicide: Economic Liberalisation and Societal Transition

In Section 3.4 I identified a distinction between the causal factors of CAW and female suicide. In this section I elaborate on this distinction, moving our attention away from patrifocal drift hypothesis and towards a theory of socioeconomic change. I argue that absolute female quality of life, which I define in terms of suicide, may be more responsive to broader socioeconomic developments in Kerala. I discuss the changes that have taken place since 1991 alongside the institutional adjustment hypothesis, suggesting that the curvilinear rise of female suicide in the state that has accompanied these processes, is more germane to this theory than HDI growth. I illustrate this by conducting two further regression analyses using bifurcate data sets for female suicide and HDI (1991 – 2001) and (2002-2011), to show that the moderately significant statistical relationship in our aggregate sample was driven by the dramatic decline of female suicide as social norms and institutions adapted to NEP changes. I extend this enquiry by showing that despite this decrease of female suicide rates in Kerala since 2002, they remain the highest of all Indian major states, and go on to draw comparisons between post-Soviet European states and their rising female suicide rates in the wake of ‘shock therapy’

economic liberalisation programmes. I conclude Section 4.2 arguing that this points to the existence of numerous sociological factors hitherto unaccounted for in development discourses, which are having a highly significant impact upon female quality of life.

In 1991 the NEP was introduced, bringing a liberal economic model to India, which reduced state intervention and strengthened the influence of market forces (Prasad, 1997). Kerala's economic growth surpassed the all-India average for the first time, due in part to Gulf State remittances and a shifting emphasis in sectoral composition towards the services and non-tradable sectors; for example, annual growth from construction leapt from its 1.9% 1980s level to 10.2% throughout the 1990s (McCartney, 2009). These changes have, to an extent, sustained. However, our interest is in the immediate transition from stagnation to growth and how female quality of life responded to it.

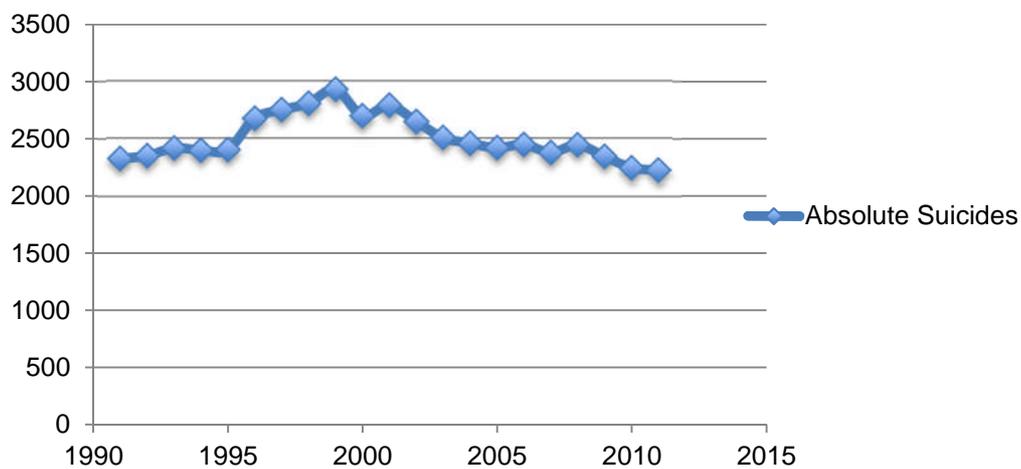
The institutional adjustment theory posits a curvilinear relationship between suicide rates and developing societies, in the aftermath of significant social or economic change¹⁴ (Foss and Larkin, 1976; Steffensmeier, 1984). The immediate normative uncertainty this produces, reduces both the regulation and integration within a society, thus creating the ideal conditions for anomic

¹⁴ I broadly define 'significant social or economic change' as one in which the existing social or economic structures within a society are disrupted and reformed with some immediacy.

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suicide¹⁵ to take place, with this trend returning to its initial level as institutions adapt to these norms (Stack and Danigelis, 1985; Pampel, 1998). It is of interest to us that these theories fit our data sets perfectly; Graph 5 presents the absolute numbers of annual female suicide in Kerala between 2001 and 2011 based upon NCRB data.

Graph 5



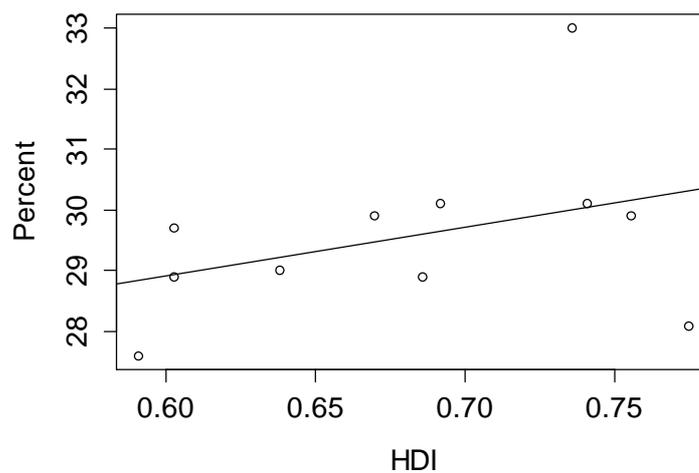
Certainly, we can see this relationship and how period after the NEP may have been one in which females were ‘integrated into groups and yet not...regulated by the normative demands of the group’ (Bearman, 1991: 513). We need turn only to the high levels of female literacy and the failure of post-1991 industry growth to provide opportunities to use it, for evidence of disjuncture between expectations of status and their realities. This becomes

¹⁵ This refers to Emile Durkheim’s *anomie*, ‘a condition in which society provides little guidance to individuals’, increasing suicide risk. The term first appears in Durkheim’s 1897 monograph ‘Suicide’.

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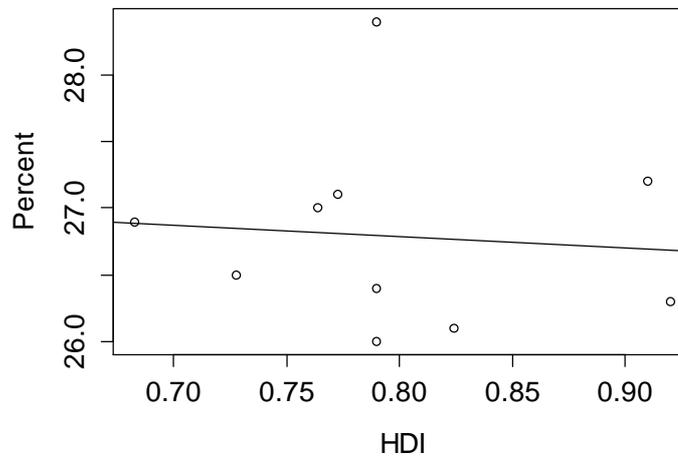
more pronounced when I conduct two further regression analyses based on bifurcating our female suicide data into sets *a* (1991-2001) and *b* (2002-2011) and comparing these figures to HDI across these same periods. Graph 6 shows the moderately positive relationship we find for data set *a*, and Graph 7 shows the non-significant relationship we find for data set *b*.

Graph 6



Graph 7

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The implications of these relationships in light of our conclusions for the moderately negative relationship I find for our aggregate samples discussed in Section 3.2, re-emphasise the limited utility of the HDI as an indicator of female quality of life. When each of these results is read together, it appears that the significance our aggregate result is driven by the decline in female suicide rates after 2002, not a causal or otherwise relational link. I argue that in light of our regression findings and converse link with our institutional adjustment hypothesis, we can identify a significant relationship between female quality of life and social or economic conditions and their stability within a society.

It is useful to draw crude parallels with post-Soviet Europe, and how countries subject to 'shock therapy' economic programmes experienced a similar immediate rise in female suicide rates, to present a stronger case for female quality of life as a sociological phenomenon. I acknowledge the much greater extent and diversity of reform in these states compared to Kerala at this time, but suggest that if we are comparing them for the effect of social or

economic transition upon suicide, these differences are unimportant. De Vogli and Gimeno (2009) compare the suicide rates of formerly Soviet states after 1989; they find that from 1989 'the year when economic reform changes' (2009: 956), these rates steadily increase until 1997 when they peak for nearly all countries, representing the stabilisation of the post-Communist regimes (Ibid). Fleming identifies a rise in suicide rates in Poland during its period of structural adjustment (2012), and Bosilijka *et al* find the same trend in their study of Serbia after Milosevic (2010). The relationship between quality of life and societal transition is therefore well documented in literature, and the absence of an HDI mechanism to capture and/or measure it is worrisome. This raises a further issue about its nature as a blanket measure; applied across such various and disparate contexts it cannot account for the individual social or economic conditions of each of these societies. This may be obscuring sociological aspects that are having a greater impact upon quality of life than HDI indicators, as I suggest in our Kerala case study. I discuss this in more detail in Section 4.4.

4.4 HDI: Are We Misinterpreting Its Indicators?

This section discusses the implications of our Section 4.1 and 4.2 findings, based on the question of whether we are misinterpreting or exaggerating the impact that HDI indicators are having upon female quality of life. I discuss concerns raised in Sections 4.1 and 4.2, and contextualise them in arguments from existing literature, to show how these may pertain to our Kerala case study.

The variables any development measure chooses to exclude are as important as those it includes. In Sections 4.1 and 4.2 I give several examples of variables the HDI overlooks, such as female LFPR and suicide rates, and how this is misleading. Feminist development theory emphasises the idea of 'exclusion'. That is, the decision to measure or define a phenomenon using indicators that are relevant only to males, without acknowledging this mode of selection, or the inherent implications (Spelman, 1988). We can clearly identify this within our study; here it is manifest in the selection of HDI parametric variables that do not account for the work or household responsibilities of females through the 'omission of structural variables, such as poverty, inequality and patriarchy' (Hirway and Mahadevia, 1996: 88). This may suggest a certain structural violence¹⁶ intrinsic to the CA and HDI, which creates a value system in which male quality of life is given greater importance than its female equivalent. I argue that the HDI reflects a bias towards male interests in the indicators that it does not include (in many cases, those classified 'female specific'), in as much as the ones that it does.

The failure of the HDI to offer any recognition to aspects of 'unorganised' or 'informal' sector female work is equally distortive. 2008 Planning Commission figures show that 75% of Kerala's females in the

¹⁶ I use 'structural violence' to refer to 'violence inherent in the social order...[that] measures the difference in the social order between an actual society and a potential one; one without structures of violence' (Hoivik, 1977: 60). The term first appears in Johan Galtung's 1969 article 'Violence, Peace and Peace Research'.

manufacturing industry and 81% in the industry sector work in the informal sector, with similar percentages found in rural and agrarian industries (POI, 2008). That is before we account for the 'invisible' female work that takes place within the home. Hirway and Mahadevia argue that through the twinned absence of these variables and the inclusion of income or paid work in the HDI 'those involved in damaging activities and thus earning higher income are considered more developed than those in altruistic activities and not earning income' (Ibid: 89). This suggests the HDI uses indicators that are inherently slanted towards capturing specifically male quality of life. Behr *et al* allude to this problem, writing that gendered assumptions guide development policies, and it is because of this that gender inequalities are reproduced through development programmes (2009). I consider this in more detail in Section 5.1.

My second criticism is of the claims of cause and effect between indicators and autonomy that the HDI is based upon. My one-sided T test for TFR in Section 2.1 shows a highly significant counterintuitive relationship with female suicide, and I argue that this highlights the problematic assumptions the CA makes in order to self-justify: the causal links between its indicators and autonomy. I first turn to female literacy. Bhat and Rajan write that female literacy is the 'single most important factor in explaining the demographic transition in Kerala' (1990: 1979), with Dreze and Sen corroborating this argument, writing that it is closely linked with

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'a higher average age at marriage, higher rates of female employment in the organized sector, higher levels of health awareness and information among women...greater decision making roles of women in Kerala households. Of great importance too are the social and cultural attitudes towards female survival: primary-data based studies in Kerala emphasize the absence of parental discrimination in providing healthcare to girls and boys' (1997: 233).

Yet, I have shown that as this approach has become the mainstay of development analyses, the outcomes have been very different to Sen's expectations. Parental sex discrimination is increasing, as the post-1991 inversion of the infant sex ratio and female infant mortality rate make clear. If literacy has affected attitudes towards female survival, how do we explain the vast increase in CAW concurrently to female literacy in the state? I have discussed the marginal percentage increase in female employment since 1991, despite much higher levels of female education; it is altogether more unsettling that Sen does not comment on this in his 1997 passage, when female employment was in steady decline between 1991 and 2001. It is also however, indicative of the way in which people engage with the HDI: how its indicators have become unduly representative of largely unrelated trends on basis of poorly grounded cause-and-effect linkages.

Sen makes an interesting claim about the importance of 'social and cultural attitudes' in linking female literacy to these broader changes; it is the

admission that ideational trends are critical to the success of gendered indicators. The second implication of this claim is the failure to acknowledge the *human* aspect of human development; that is, the improbability of predicting human preferences, behaviours or ideological beliefs. The approach assumes that government-led increases in female literacy must denote a more general support for female empowerment in the state, but as I show through my CAW-HDI highly significant positive relationship in Section 3.3, this is certainly not the case. It may be, as McGillivray argued in the year after the HDR's initial publication that the HDR 'more effectively serves to prove an ideological statement rather than new insights into intra-country developments' (1991: 1467). Certainly, our analysis suggests that the HDI interpretation is based upon the blanket assumptions of the CA ideology to a far greater extent than any empirical evidence of its effects.

I extend this criticism to highlight a third problem with the HDI as an indicator of female quality of life. If it does not account for these ideational trends, it is a theoretical weakness that the measure does not qualify the success of HDI increases through proxy variables, such as female suicide or CAW. The significance of ideational trends in female quality of life highlights the problematic use of any single development measure that claims to measure human development across multiple settings; 'while women's education may be highly correlated with female autonomy in one setting, it may be highly uncorrelated in another' (Agarwala and Lynch, 2006: 2079). It is necessary to here make a point of conceptual clarity in distinguishing this point from my

analysis in Section 4.2, and the use of the institutional adjustment hypothesis in framing female suicide trends in different countries during periods of social instability. If anything, considering these two points together re-emphasises the value of cross-state development comparison and/or the application of the same development measure, only when they are contextually similar.

The HDI conception of empowerment is also limited as it does not consider either female 'autonomy' or quality of life as multidimensional phenomenon. It is problematic that the HDI conceives of 'freedom' through a binary approach in that, despite using a combinative scoring system, the extent to which a country is considered to be developed (or not) is based on a single estimative figure and which category of 'development' this figure places it in. I suggest that these problems arise out of the ambiguous construction of 'capabilities' and 'autonomy' within the CA; Sen's freedom is a generalist, poorly articulated concept that leaves itself open to (mis)interpretation (Robeyns, 2001, 2003; Gasper, 2011). Gasper writes that this concept is so 'under elaborated' that it does not 'sufficiently distinguish between autonomous agency and the variety of values that may be promoted through such agency' (2011: 157), and certainly I find this an incisive conclusion based on our results. The failure of the CA to recognise the important differences between its indicators and what it *assumes* they represent causes misleading conclusions.

I conclude this section by showing the contradictory approach to GDP as a development indicator in the HDI. The CA emerged in reaction to economic

approaches that compared inter-country development through relative levels of GNP and GDP growth. Yet, Charmes and Wieringa show that the CA retains a significant reliance upon these same measures (2003). They dissect the HDI computation system to demonstrate that GDP is so weighted in country scores that 'they measure general welfare rather than gender (in)equality' (Ibid: 430), findings which are corroborated by a number of other statistical studies into HDI-GDP dependency (Dijkstra and Hanmer, 2000; Bardhan and Klasen, 1999). Bardhan and Klasen's extension of this theory makes this relationship appear even more profound. They show that both the HDI and the GDI give more value to GDP than any other variable, to the extent that the 'earned income gap' (representing male-female difference) accounts for more than 90% of the gender penalty (Ibid). In our context I suggest that these arguments corroborate my conclusion that the HDI scoring system, indicators and CA ideology retain an exclusionary bias against female interests and needs, which renders the HDI, to an extent, structurally gendered. Of course, given the diverse populations that the measure accounts for, this limits the reliability of the HDI as an indicator of female quality of life.

5.1 Conclusions and Implications: Are we fully understanding the HDI, and to what extent is it a useful indicator of female quality of life?

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In this Section I summarise our findings and address the final concern of Section 4.3: Does the HDI reproduce gender inequities in Kerala by obscuring more significant gendered trends in the state? I identify the limitations of this research and subsidiary questions it raises, before suggesting further research that may illuminate the relationship between HDI and female quality of life more extensively.

To address this first concern I point to the structures that govern the HDI and the values embedded within. Vavrus writes that 'developmentalism has made women visible without a concomitant re-visioning of the macro-economic environment that shapes gender relations' (2002: 25), and we can apply this insight to Kerala's HDI experience. I argue that because the index restricts itself to three main components: health, education and income, it fails to recognise the more significant development inequities that exist within a society. UNESCO's 'World Culture Report' (2000) highlights the difficulties in reconciling human development with existing social structures in developing states, finding that the asymmetric distribution of access to information, political power, the media, and other resources, limits the agency of development initiatives. Kerala is a lesson in the realities of this disjuncture. It presents a realised example of how the strict adherence to HDI doctrine is obscuring more potent development processes, and in doing so, allowing them to sustain. My study presents the dangers of this oversight, as the illusion of HDI-led 'empowerment' creates the space and opportunity for new,

retrogressive gender norms to mature and disseminate. The HDI consensus may thus be indirectly reducing female quality of life in Kerala.

5.2 Limitations

One limitation of this study has been the use of 'females' as an aggregate category. Issues pertaining to class, caste or religion; categories, which, in India are so often necessary conditions in themselves to determine an individual's quality of life, have been excluded from this paper. However, as I hope I have made clear, this distinction (or lack thereof) has been critical to investigating the broader structural themes and gendered trends and asymmetries, obscured by HDI parametric hegemony in development discourses.

My paper has also been structured around arguments, which though plausible, are based upon my own hypothesis; for example, the notion of a male-led patrifocal reaction to increasing female social development in Kerala. Of course, there may be infinite other variables that have contributed to the concurrent rise of HDI and CAW that I have been unable to cover. However, I have used these single lines of argument to highlight the manifold areas that the HDI is unable to capture, and which evidence suggests may be holding predominant influence over female quality of life.

5.3 Implications for the HDI

Of the numerous critiques that have emerged of the HDI and its scoring system in the last twenty years (Beja, 2013; Fukuda-Parr, 2003), two recognisable trends emerge. These papers are either theoretical accounts, which dissect the concept and application of capabilities (Noorbakhsh, 1998; McGillivray and White, 1993), or indicator-specific, in that they present the limitations of a single indicator and the meaning we ascribe to it (Kelley, 1991; Despotis, 2005). In this study I have sought a third way: using Kerala, India's global 'Model of Development', to find statistical and qualitative limitations of the HDI, upon female quality of life as both an absolute and relative concept.

Kerala is the ideal case study because it is such an extreme outlier for HDI scores and oppositional non-conventional indicators. I use its human development paradox to highlight the extent to which we are misinterpreting HDI indicators, and how its present use as a default development metric is obscuring more important trends affecting female quality of life. My linear regression analyses provide the evidential data upon which the rest of this paper is based, and show how there is no statistical evidence to suggest a significant relationship between HDI and what I have termed 'absolute quality of life', female suicides. These results show two further counterintuitive relationships: the highly significant CAW-HDI relationship, and the absence of a CAW-female suicide relationship.

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This second conclusion alerts us to a critical distinction in showing that it is highly unlikely that CAW and female suicide are motivated by the same variables. This problematises the utility of the HDI as it conceives quality of life as a one-dimensional phenomenon, which can be calculated as a simple statistical sum. Our results find fault with this equation, and demand we acknowledge female quality of life in two parts: (a) relating to an absolute quality of life, which we can crudely assess in a life-death preference binary, and (b) relating to its relative properties; that is, where female quality of life is appropriated less value than its male counterpart in its society, by virtue of the ideational trends that CAW represents.

By making this distinction, I am able to develop two separate theories. Firstly, that female suicide is a sociological phenomenon, and is therefore better explained using theories of social transition or stability. Our engagement with the institutional adjustment hypothesis suggests that the curvilinear rise of female suicides after the NEP is closely aligned with this theory. This highlights the uncertainty of quality of life conclusions drawn from the HDI, when it is blindly applied to disparate populations and contexts, and the individual sociological conditions of these societies are not taken into account.

Secondly, that if we assume CAW is motivated by household-level male positional instability, and consider its link to HDI, there is evidence of a patrifocal reaction to the increased (superficial or otherwise) visibility of modes of female agency, such as female literacy or higher education. It is not only the

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series of ethnographic studies highlighting differentiated value given to male and female life in the Kerala health service that present a bleak picture of this trend, but also a significant body of hard data that goes relatively ignored in contemporary development discourse: growing son preference, marginal increases in female LFPR and wages and declining property rights in the state, to name only those in this study.

In Section 4.3 I ask whether we are misinterpreting the indicators of the HDI. I introduce the feminist theory of 'exclusion', and suggest that the both the indicators chosen and the relative weight in computation that each is given, suggest a degree of male-oriented structural violence within its scoring system and ideology. I suggest this is a nuanced form of exclusion; for example, the high numbers of female workers in the Kerala's informal sector are of course, only estimate-based by virtue of 'unofficial' occupation, and hence, do not exist in the data sets upon which the HDI is based. Further investigation may choose to understand this link in more detail, and how it may be related to the gendered indicator bias of the HDI.

Finally, I show that the causal relationships that the CA and HDI assume are unfounded. The normative logic that underpins their causality claims is qualitatively weak, as it does not account for individual human thought, preference or action.

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I have presented the significance of variables unaccounted for in the HDI upon female quality of life in comparison to conventional indicators. This demonstrates how using, and referring to, specific indicators can inscribe predetermined meaning, bias and conclusions upon the relationships we are trying to measure. I argue that in Kerala, this is obscuring variables that are having a more meaningful impact upon quality of life. In this case, analyses may give undue emphasis to indicators based on HDI readings with little attempt at critical engagement with their grounded realities. In Kerala this has created an unfortunate circumstance, in which gendered indicators, such as female literacy and TFR, are being associated with chains of cause and effect over which they may have only a minimal influence. Of course, Kerala is just one state in India, and we applying these same statistical and qualitative theoretical models to an alternative context, may give contradictory results. Further study should adopt this same mode of investigation to alternative settings to support a more direct and substantiated challenge to the HDI and CA.

5.4 Closing Statement

This paper raises troubling conclusions about contemporary development discourses and how we are measuring female empowerment. I have used Kerala as my case study, but the implications are much more far-reaching. In response to my research question, I show that the HDI offers little indication of female quality of life beyond the individual progress of its own

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indicators. More attention must be paid to the 'non-conventional' and deeply critical quality of life indicators. I suggest however, that the gruesome portrait of Kerala's female autonomy I have found, demands we ask a more urgent question: To what extent is the HDI indirectly *reducing* female quality of life worldwide?

Word Count: 9988

Appendix

| Year | Crimes Against Women (Kerala) | HDI (Kerala) | Female Suicide Rate/1000 (Kerala) | TFR Kerala | Absolute Female Suicide Numbers (Kerala) |
|------|-------------------------------|--------------|-----------------------------------|------------|--|
| 1991 | 1867 | 0.591 | 10.83 | 1.8 | 912 |
| 1992 | 2078 | 0.603 | 11.39 | 1.8 | 923 |
| 1993 | 1894 | 0.603 | 12.41 | 1.8 | 1006 |
| 1994 | 2545 | 0.775 | 10.72 | 1.8 | 912 |
| 1995 | 3316 | 0.7555 | 11.81 | 1.8 | 1033 |
| 1996 | 4970 | 0.736 | 12.9 | 1.8 | 1154 |
| 1997 | 7306 | 0.741 | 14 | 1.8 | 1275 |
| 1998 | 7473 | 0.692 | 15.09 | 1.8 | 1396 |
| 1999 | 7743 | 0.67 | 16.18 | 1.8 | 1517 |
| 2000 | 7621 | 0.686 | 17.28 | 1.8 | 1638 |
| 2001 | 7568 | 0.638 | 18.4 | 1.7 | 1761 |

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| | | | | | |
|------|-------|--------|-------|-----|------|
| 2002 | 7445 | 0.683 | 16.44 | 1.7 | 1570 |
| 2003 | 7228 | 0.728 | 14.48 | 1.7 | 1379 |
| 2004 | 7681 | 0.773 | 12.52 | 1.7 | 1188 |
| 2005 | 8087 | 0.8243 | 10.56 | 1.7 | 997 |
| 2006 | 11406 | 0.764 | 8.6 | 1.7 | 806 |
| 2007 | 9381 | 0.79 | 6.8 | 1.7 | 610 |
| 2008 | 9706 | 0.79 | 8.6 | 1.7 | 751 |
| 2009 | 9354 | 0.91 | 10.4 | 1.7 | 892 |

Female suicide (rates and absolute numbers) and CAW data come from annual NCRB reports 1991-2011. TFR data comes from the SRS, and HDI data come from Human Development Reports 1991-2011.

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