BEAUTY, STATURE AND THE LABOUR MARKET:

A BRITISH COHORT STUDY.

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ABSTRACT

The influence of physical appearance in the labour market is examined using longitudinal cohort data covering 11,407 individuals born in Britain in 1958. Results show that physical appearance has a substantial effect on earnings and employment patterns for both men and women. Irrespective of gender, those who are assessed as unattractive or short, experience a significant earnings penalty. Tall men receive a pay premium while obese women experience a pay penalty. The bulk of the pay differential for appearance arises from employer discrimination, although we find evidence for productivity differences among occupations. The impact of physical appearance is also evident in the marriage market. Among women, those who are tall or obese are less likely to be married; while among men, lower marriage rates are found for those who are short or unattractive.

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BEAUTY, STATURE AND THE LABOUR MARKET:

A BRITISH COHORT STUDY[1]

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Those who are well-endowed with desirable physical attributes are often thought to obtain significant economic and social advantages over the not-so-well-endowed. A small but growing body of research, almost exclusively from the USA, suggests that physical appearance, measured by attractiveness, stature and body mass, has significant effects on the success of male and female workers in the labour market. Wages have been found to be positively associated with attractiveness (Hamermesh and Biddle, 1994; 1998) and height (Loh, 1993), and negatively related to obesity (Sargent and Blanchflower, 1994; Averett and Korenman, 1996). Using longitudinal data drawn from the National Child Development Study (NCDS)[2] we examine the effect of physical appearance on hourly earnings, employment patterns, and family income in Britain.

The paper makes the following contributions to the study of the effects of physical appearance on the labour market. First, we examine the effect of being assessed as attractive or unattractive on earnings for a British sample. All previous economic research has examined solely US data. Second, to distinguish between pure employer discrimination and productivity effects, which include customer discrimination, we assess whether the rewards for appearance vary by occupation. As a further test, we

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examine evidence for hiring bias and occupational sorting arising from physical appearance. Third, we update the work of Sargent and Blanchflower (1994) on the effects of height and obesity on earnings in Britain. Finally, we examine the effect of physical appearance on household labour income via the marriage market.

The paper is organised as follows. A simple human capital model of the effect of physical appearance on hourly earnings is discussed in Section I. Section II examines unadjusted data regarding physical appearance and economic attainment in the NCDS. Estimation results are presented in Sections III-IV, and Section V contains a summary and conclusions.

I. THE MODEL

Physical appearance may affect labour market success for a number of reasons. First, worker productivity may be affected directly by physical appearance. For example, Sorensen and Sonne-Holm (1985) find that, controlling for social origin and intelligence test scores, obese individuals undertake fewer years of schooling. Second, physical appearance may affect a worker’s productivity in a specific occupation. This may arise either from physical productivity effects or from customer discrimination (Becker, 1957). Third, as a result of pure employer discrimination, employers prefer individuals with certain physical characteristics which are unrelated to their productivity. These preferences translate into fewer job opportunities and lower pay for the less preferred group[3].

[2] The NCDS is a continuing longitudinal survey of individuals living in Britain who were born in the week 3-9 March 1958. The most recent sweep in 1991 surveyed 11,407 individuals when aged 33.

[3] Also, employers may erroneously ascribe personal qualities to individuals solely on the basis of their physical appearance. Research by social psychologists, for example, suggests that greater height among men is positively related to perceived social status which may, as a consequence, result in tall men being treated preferentially (Martel and Biller, 1987). We do

One approach to capture the effect of appearance on earnings is to estimate a standard earnings equation

$$\ln(w_i) = \alpha_0 + \alpha_1 X_i + \alpha_2 OCC_i + \alpha_3 \lambda_i + \varepsilon_i \qquad (1)$$

where w_i is the hourly wage of individual i, X_i represents a vector of productivity-enhancing attributes, OCC_i is the individual's current occupation, λ_i is a vector of physical appearance characteristics, and ε_i is a random error term. To examine any differential effects of appearance across occupations, appearance/occupation interaction terms may also be included. The earnings equation becomes

$$\ln(w_i) = \beta_0 + \beta_1 X_i + \beta_2 OCC_i + \beta_3 \lambda_i + \beta_4 \lambda_i OCC_i + \varepsilon_i \qquad (2)$$

where β_3 may be interpreted as the return to appearance regardless of occupation and β_4 the differential return to appearance which is occupation-specific.

The existence of pure employer discrimination would imply that $\beta_3 \neq 0$ and $\beta_4 = 0$. Under these restrictions the rewards to physical appearance will be independent of occupational status. As an alternative test for employer discrimination we examine whether physical appearance affects an individual's probability of unemployment, which would be consistent with employer hiring bias. Conversely, evidence for productivity differences obtains where $\beta_4 \neq 0$ and $\beta_3 = 0$. As an additional test we examine evidence for occupational sorting arising from physical appearance. Individuals are expected to sort into occupations that reward a particular attribute and away from occupations where penalties exist.

II. THE DATA

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not examine this explanation in the paper. For a review of the literature on the psychological, social and economic effects of

The NCDS is a continuing longitudinal survey of individuals living in Britain who were born in the week 3-9 March 1958. In the original 1958 survey 17,733 individuals were in the target sample. There have been five subsequent sweeps of the original study, when members were aged 7, 11, 16, 23 and 33, by which time the achieved sample had fallen to 11,407. Of the 11,407 cases in the 1991 sweep of the NCDS, 5,606 are male. The data cover an individual's family background and his or her social, educational and physical development. Mean values of selected variables for male and female employees are presented, respectively, in Tables 1 and 2.

Each sweep of the NCDS contains information on the respondent's height and weight. Information on attractiveness is only available, however, for the respondent at age 7 and age 11. In each of these sweeps the respondent's teacher was asked to complete a questionnaire in an attempt to acquire a picture of the child's behaviour and character. Questions covered the respondent's attitude towards the teacher, school work, games and play. Teachers were also asked to assess the respondent's physical appearance in terms of the following categories: attractive/ not so attractive as most/ looks very underfed/ has some abnormal feature/ nothing noticeable[4].

Teachers' assessments of the attractiveness of respondents at age 7 and age 11 are reported in Table 3. Teachers placed most respondents in the attractive or average category with the proportion in the former category decreasing between age 7 and age 11. One obvious concern is that teachers may differ in what they consider to be attractive or unattractive. This measurement error will lower the efficiency of our estimates. Evidence from previous studies suggests, however, that assessments of

physical appearance see also Hatfield and Sprecher (1986) and Jackson *et al.* (1995).

[4]The variable abnormal feature was always insignificant in our estimated equations in a previous version of the paper.

beauty by individuals are quite uniform, change slowly over time, and that women's appearances evoke stronger reactions, whether positive or negative, than men's (see Hatfield and Sprecher, 1986). In Table 3 it would appear that the ratings of attractiveness are quite closely related at age 7 and age 11. Hence, 57.3% of young females were assessed as attractive at age 7, of whom, 64.8% were also considered attractive at age 11. However, we attempt to reduce potential measurement error by including information on attractiveness at both age 7 and age 11. We construct a simple measure identifying those who were assessed as being attractive, or unattractive, at age 7 only, age 11 only, or at both age 7 and age 11[5]. Discussion on the interpretation of any link between appearance in childhood, and earnings and employment in adulthood, is left until Section IV.

The height and weight of respondents was measured by interviewers at each sweep except at age 23 when information on height and weight was self-reported[6]. Obesity is defined as an excess of body fat. In this study we employ the Body Mass Index (BMI), defined as weight (in kilograms) divided by the square of height (in meters), as an indirect measure of the individual's fat composition[7]. The average BMI values for males and females at age 23 and age 33, presented in Tables 1 and 2, show a marked upward trend over the period 1981-91.

[5]Measurement error also appears to arise from the original coding of the data whereby missing and nothing noticeable are not distinguished separately. All such cases are coded as nothing noticeable.

[6]Height and weight data at age 33 are adjusted to exclude extreme values on the assumption that they reflect coding errors. Height data are also adjusted where major discrepancies arise between age 23 and age 33. Details of excluded cases and data adjustment are available from the author.

[7]Measures of obesity most widely used are combinations of height, weight and skinfold thickness. All commonly used measures are found to be highly correlated (Kannel, 1983).

We examine relative and absolute measures of obesity. The latter are based on medical criteria[8]. To measure relative weight we construct indicator variables representing the location of the respondent in the gender distribution of body mass, for a given age. Our findings suggest that relative weight provides a better explanation of earnings than absolute measures of obesity. Social norms regarding being considered as over-weight appear to be based, therefore, on relative weight criteria.

Unadjusted data, presented in Tables 1 and 2, indicate that those who are well-endowed with desirable physical attributes obtain pay and employment advantages over the not-so-well-endowed. These data reveal substantial unadjusted pay gaps between the attractive and unattractive of 19.5% for males and 13.1% for females, and a pay gap between those who are tall and those who are short of 23.2% and 25.9% for, respectively, males and females. Obese males and females earn, respectively, 12.8% and 13.6% less than sample mean earnings for their gender. Also the likelihood of being employed in a professional occupation increases for those who are attractive or tall, but decreases for those who are unattractive, short or obese.

Even after controlling for occupation, significant pay differentials are still observed. Data presented in Table 4 report, for example, an unadjusted pay gap between tall and short individuals employed in professional occupations of 17.4% for males and 12.4% for females. In addition, data presented in Table 5 indicate that appearance also affects the probability of employment. Those who are unattractive or short have lower employment rates, typically arising from both lower activity rates and higher unemployment rates.

[8] This uses criteria, based on associated mortality risks, to identify weight categories The relevant BMI values for males (females) are as follows; underweight<20 (<19), overweight 25-29 (24-29), and obese $\geq$30 (30).

III. APPEARANCE AND EARNINGS

Adopting the human capital model given in equation (1), we explain hourly earnings at age 33 as the return to an individual's endowment of productive attributes, investment in education and training, and labour market experience. Our base sample is all respondents who are employees in 1991. Hence we exclude those who are self-employed, unemployed or not economically active, giving a total of 4,160 males and 3,541 females[9]. In Table 6 we present results for earnings equations estimated separately for men and women[10]. Body mass at age 23, rather than at age 33, is included, being potentially less subject to endogeneity bias (Averett and Korenman, 1996).

In columns 1 and 4 of Table 6 regressions with controls for just health status, social class, and race confirm our earlier observations from unadjusted data regarding the effects of physical appearance on earnings[11]. Those who are attractive or tall have advantages over the unattractive, short or obese. However, when we include controls for academic ability at age 11 and sociability at age 16 in columns 2 and 5, the effect of attractiveness on earnings becomes small and insignificant[12]. It would appear that the assessment of attractiveness in our sample is not independent of the respondent's academic ability or personality. It may be that teachers were more likely to assess those with higher measured

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[9] We examine potential bias that may arise from employment selection. For panel attrition both Connolly *et al.* (1992) and Harper and Haq (1997) find no evidence of estimation bias for males due to systematic data loss associated with panel drop-outs or cases with 'holes' or missing information.

[10] All estimates are obtained using LIMDEP 7.0. Details of controls used in the earnings equations are given in the notes for the relevant tables. All results reported in the paper, but not presented in tables, are available from the author.

[11] Family background and health status are potential indirect routes by which appearance may affect earnings (Boldsen and Mascie-Taylor, 1985; Kannel, 1983).

[12] Hatfield and Sprecher (1986) report that the one of the main observed differences between those assessed as attractive and others is that they appear to be more sociable.

intelligence or those with a sociable disposition as attractive[13]; alternatively, attractiveness may be correlated with an individual's productivity[14]. Controlling for sociability is uncommon in economic studies of appearance and earnings. Sociability therefore represents a potential source of bias in research using interviewer assessments of attractiveness. Also, an advantage of using information up to age 11 is that we reduce potential estimation bias arising from attractiveness, or unattractiveness, and income being determined simultaneously or because interviewer-assessed standards of attractiveness are spuriously correlated with the respondent's earnings

Our preferred equations for the effect of physical appearance on the earnings of men and women, which include an extensive set of controls, are reported in Table 6, columns 3 and 6. Controls include, in addition to those reported for column 2, actual work experience, years of tenure with the firm, and indicators for educational qualifications, training, trade union membership, part-time employment, marital status, broad occupational category, firm size, industry and region of residence. To increase sample size we include missing data indicators for both industry and region and recode missed values of these variables to zero for all the relevant cases. Excluding cases where we have missing data for industry and region leaves most coefficient estimates for appearance broadly unchanged.

The results indicate asymmetry with respect to the effect of beauty on pay. It is those who are assessed as unattractive, not attractive, who experience differential rewards in our sample. Men assessed as unattractive at both age 7 and 11 incur a large and significant pay penalty of -14.9% while

[13] See for example Felson *et al.* (1979).

[14] There is some evidence of a positive relation between both attractiveness and height with intelligence (Eisenberg *et al.*, 1984; Lynn, 1989; Jackson *et al.*, 1995).

men assessed as unattractive at only age 11 experience a -4.0% pay disadvantage (Table 6, column 3). A similar pattern of results is found for women. The effect of attractiveness remains insignificant while women assessed as unattractive at both age 7 and 11 experience an earnings penalty of -10.9%. The size of the pay penalty for unattractiveness is substantial and exceeds, in absolute value, the return to education, compared to those with no qualifications, for all educational qualifications up to and including A Level qualifications. Our estimates of the penalty of unattractiveness are larger than those obtained by Hamermesh and Biddle (1994) for unattractive North American men and women of, respectively, -9.1% and -5.4%. However, as in Hamermesh and Biddle (1994), we find that the penalty for plainness exceeds the premium for attractiveness, and stronger effects for men than for women.

Results in Table 6 also update the estimates of Sargent and Blanchflower (1994) regarding the effects of stature and obesity on earnings in Britain. People who are relatively short suffer an earnings penalty. Men and women in the bottom 10% of the height distribution (less than, respectively, 1.685m and 1.545m) [15]experience, respectively, a -4.3% and -5.1% earnings penalty relative to individuals in the excluded reference group representing the 20-79 percentile range. Relatively short men in the 10-19 percentile range experience a smaller penalty of -3.8% while we find a significant pay premium of +5.1% for short women in the same percentile range. Relatively tall men, but not the very tallest, obtain a pay premium. Men in the 80-89 percentile range, who are around 6 feet tall (1.829m), earn 5.9% more than those of average height. The premium for the tallest men in the 90+ percentile range is small and insignificant. We find no significant effects of being tall for women, which confirms social-psychological evidence which emphasises the importance of height primarily among men. The results also provide evidence of non-linearity in the relationship between height and earnings.

[15]Division into a percentile range is only approximate given the discrete nature of the measures of the respondent's height and weight.

Consistent with most other studies we find a significant pay penalty for obesity in women but not men. Obese women who are in the top 10% of the weight distribution at age 23 experience a pay penalty of -5.3% (Table 6, column 6). The penalty also extends to those women in the 80-89 percentile range. The earnings differential of 6.4% for males identified by their teachers as having a sociable disposition at age 16 represents a substantial premium. The effect of sociability of young females on their earnings is smaller and insignificant.

We test for sample selection bias as our estimates are conditional on individuals being employees[16]. The sample selection correction term for males, when included in the earnings equation, is negative and significant, suggesting that, for male employees, unobserved variables influencing employment selection are negatively related to male pay. The inclusion of the selection term results in only marginal changes in the estimated coefficients, indicating that the bias arising from selection is relatively small. We find no evidence of systematic selection for women in the NCDS cohort[17]. Selection terms, which contain a substantial number of missing observations, are not included in our final equations.

[16]The employee status selection term is derived from a multinomial logit selection model (Lee, 1983) for the outcomes of inactive, unemployed/self-employed, and employee. Variables in the selection equation include controls for poor health, ability, highest educational qualification obtained, house mortgaged, number of dependent children, age of youngest child, partner's earnings and region of residence.

[17]Waldfogel (1995) reports similar findings for women in the NCDS.

IV. EMPLOYER DISCRIMINATION, PRODUCTIVITY AND OCCUPATIONAL SORTING

In this section we examine whether our results for physical appearance arise from pure employer discrimination or from productivity differences which include customer discrimination. We estimate equation (2) to assess whether differential rewards for appearance arise among occupations, which would be consistent with productivity differences[18]. To reduce the number of appearance/occupation interaction terms we include teacher's assessment of the respondent's attractiveness only at age 11. We re-estimate our preferred equation, reported in Table 6, columns 3 and 6, following this substitution. Results are presented in Table 7, columns 1 and 3. Excluding age 7 information reduces the estimated penalty for unattractiveness (t-values in parentheses) for males and females to, respectively, -0.057 (1.95) and 0.006 (0.17).

We then include, in addition to our one digit occupational dummies, 20 interaction terms between appearance and the respondent's occupation[19]. The initial reference occupation being service. Interaction terms with the lowest t-value are omitted sequentially to produce our preferred final equations. The remaining significant interaction terms capture any differential effects of appearance on earnings arising from appearance/occupation-specific productivity effects. Results for men and women are presented, respectively, in Table 7, columns 2 and 4. The findings provide support for both pure employer discrimination and productivity differences.

The estimated coefficient for unattractiveness, independent of occupational status, refers to the effect of unattractiveness on earnings for individuals employed in the omitted occupational categories

[18]This result would also arise from non-uniform employer discrimination among occupations. We do not provide a test between the two approaches.
[19]Of the possible appearance/occupation interactions we do not examine short 10-19%, tall 90-100%, or obese 80-89%.

for the unattractive/occupation interaction terms which are, in this case, professional, service and craft occupations. This coefficient may be interpreted as the effect of pure employer discrimination. For males the results do not alter, substantially, our previous conclusions. The penalty for unattractiveness arising from employer discrimination is estimated to be -11.1%. This represents a large penalty for the 7.5% of male employees in our sample who were assessed as being unattractive. Our results also provide evidence of employer discrimination against short males and in favour of tall males. Also attractiveness becomes significant, with attractive males earning a premium of 5.3%.

While it appears that the bulk of the pay differential for appearance arises from employer discrimination, we do find evidence for differential effects of appearance among occupations which is consistent with productivity differences. For example, we find significant negative effects of attractiveness on pay for men in professional and craft occupations which offset the general benefits of attractiveness. Overall, the earnings differential for attractive males in professional occupations, relative to individuals with average appearance, is just -0.8% (5.3% - 6.1%). Also, unattractiveness appears to command a very large pay premium of +21% in manual occupations whereas increased height is a disadvantage in the occupation.

For women, the numerical size of earnings differentials for appearance are similar to those previously reported except for unattractiveness where the estimated coefficient is +0.052 but insignificant. While we find no evidence for pure employer discrimination against unattractive women, our results indicate adverse productivity effects for unattractive women in clerical occupations, which include secretarial grades. Overall, the earnings of unattractive females in clerical occupations are, *ceteris paribus*, -9.4% (5.2% - 14.6%) lower than women of average appearance.

As an alternative test of employer discrimination we expect those with less favourable appearance attributes to have an increased probability of being unemployed. Selecting those who are economically active we estimate a binary logit model of economic status taking a value of 1 if unemployed and zero otherwise. Controls include father's social class, poor health, race, ability, educational qualifications, training, sociability, marital status, number of dependent children, age of youngest child, house mortgaged, regional dummies and, if partner present, partner's years of education and partner's pay[20].

As coefficient estimates of the binary logit model are difficult to interpret we calculate the probability of being unemployed for a representative individual assigned sample mean values for all variables except for indicators for appearance which are set to zero. The effect of appearance on the probability of unemployment, calculated from the binary logit estimates, are presented in column 6 of Table 8. We find some evidence in support of pure employer discrimination in that the probability of unemployment rises by 1.9 percentage points for unattractive men but falls from 2% to 0.9% for attractive women. Very tall men in the 90+ percentile range are also more likely to be unemployed. All other quantitative effects are comparatively small and statistically insignificant.

Conversely, if occupations reward appearance differently, as a result of productivity effects, then differences in expected earnings will affect occupational choice (Robertson and Symons, 1990) and occupational mobility (Harper, 1995). We investigate this possibility by estimating a multinomial logit model of occupational status which includes physical appearance. To summarise our results we

[20] Estimating a multinomial model we find no significant effects of appearance on the probability of being self-employed relative to being employed.

calculate the probability of being employed in a broad occupational category for a representative individual. To construct our base we assign occupational mean values, calculated for individuals in our estimated sample, for all variables except appearance indicators which are set to zero. The independent effect of appearance on the probability of employment in each occupation is then computed. Results are reported in Table 8, columns 1-5.

Our results indicate that physical appearance causes significant differences in the probability of being employed in an occupation. For example, the probability of working in professional or clerical occupations is significantly higher for attractive women. Also, men and women who are relatively short or obese are less likely to be employed in, respectively, professional and clerical occupations[21].

In addition, we expect individuals to sort into occupations that reward a particular attribute and away from occupations where penalties exist. The results in Table 8 are broadly consistent with our estimates of pay differentials associated with physical appearance presented in Table 7. All probability estimates change in the expected direction except for attractiveness for men having no effect on the probability of employment in craft occupations and women who are unattractive being slightly more likely to be employed in a clerical occupation. However, in the latter case, attractiveness raises the probability, *ceteris paribus*, of being in a clerical occupation by 4.6 percentage points.

The results of this section show that those assessed as unattractive as children fare less well in the labour market in adulthood while children assessed as attractive obtain significant economic advantage. How are these results to be interpreted? One explanation is that we are measuring, with

[21]Hamermesh and Biddle (1994) find some evidence for occupational sorting arising from attractiveness but conclude that the effects are generally small.

error, beauty at age 33. Hatfield and Sprecher (1986) report evidence of stability in the assessment of an individual's appearance at different stages of their adult lives. We are not aware, however, of any evidence that examines the stability of appearance ratings from childhood into adulthood. Indirect evidence, that assessments of attractiveness in childhood are a proxy for attractiveness at age 33, is reported later in Section V where we find significant effects for our attractiveness variables in the marriage market.

Another possible explanation for our results is that the assessment of attractiveness, and other appearance variables, are correlated with unobserved productivity. We report earlier, for example, how assessments of appearance are not independent of ability and sociability. However the effects of appearance on pay continue to be observed in our preferred final equations after controlling for these variables plus an extensive set of additional controls. As an additional test we examine whether physical appearance, psychological development and earnings may be related[22].We test for this by including an indicator for depression[23] in the earnings equations reported in Table 6, columns 3 and 6. For both males and females the effects on the estimated coefficients are very small and the indicator for depression is always insignificant. However, as is always the case in this type of study, we cannot reject the possibility that all our measures of appearance are correlated with unobserved productive attributes which affect earnings.

V. PHYSICAL APPEARANCE, MARRIAGE, AND FAMILY LABOUR INCOME

[22]For example, obesity may be associated with some psychological disorders (Kannel, 1983) which may be correlated with unobserved productivity.

[23]Calculated for the respondent at age 23 from a 'malaise' score, derived from a 26-item self-completed questionnaire, developed by Rutter *et al*. (1970). A score of seven or more is suggested to be an indication of depression.

Physical appearance may, in addition to its effects on earnings and employment, also affect an individual's family income by altering opportunities for marriage and the earnings of a partner. Derivatives, evaluated at sample means, calculated from a binary logit equation relating marriage to physical appearance[24], are reported in Table 9, columns 1 and 3. Controls include social class, education, health, race, and region of residence. In heterosexual couples, men are much more likely to be taller than their female partner than would arise from random matching (Gillis and Avis, 1980). Our results show that the probability of being married is 7 percentage points lower for short men and 5 percentage points lower for tall women, indicating that short males and tall females may experience greater difficulty in finding a suitable match. Also, the partners of tall men appear to earn around 15% more than those in the reference group (Table 9, column 4). Unattractive men are less likely to be married while attractive women are more likely to be married. However, attractiveness has no significant effect on partner's pay.

For women, obesity imposes significant economic costs in terms of the likelihood of marriage and partner's income. The likelihood of marriage for obese women in the 90+ percentile category is 7 percentage points lower than the reference group and partners earn 15% less. Similar to findings for the USA (Averett and Korenman, 1996), we find that the greater part of the economic disadvantage associated with obesity among women results from disadvantage in the marriage market.

From our estimated equations we present in Table 10 predicted differences in household income, accruing from the labour market and marriage, for selected categories relative to household income for males or females, and their potential partners, with average physical appearance and who are assumed to receive sample full-time average earnings. The largest absolute and relative penalties

[24]Marriage in NCDS is defined as currently married or living as married.

for physical appearance accrue to unattractive men and obese women. Unattractive men, however, experience most of their income disadvantage from the labour market while, for obese women, a substantial part of the household income penalty arises from a lower probability of marriage and, where married, lower expected earnings of a partner.

VI. SUMMARY AND CONCLUSIONS

In accord with previous studies, our results indicate that, contrary to popular belief, physical appearance is as important for men as it is for women. In particular, we find that, irrespective of gender, those who are assessed as unattractive or of short stature experience significant earnings disadvantage. Tall men receive a pay premium while obese women experience a pay penalty. The impact of physical appearance is also evident in the marriage market. Among women, those who are tall or obese are less likely to be married; while among men, lower marriage rates are found for those who are short or unattractive. If assessments of the attractiveness of individuals remain stable over time then our results provide estimates of the economic returns to beauty in the labour market.

Our results indicate that the bulk of the pay differential for appearance arises from employer discrimination. The probability of unemployment increasing for unattractive men but decreasing for attractive women provides additional support for employer discrimination. However, we also find evidence which is consistent with productivity differences arising from either physical productivity or from customer discrimination. Earnings differentials for appearance, especially attractiveness, vary among occupations. As additional support we find evidence for sorting across occupations arising from physical appearance. The differential effects of appearance for women in clerical/secretarial occupations are substantial.

Distinguishing the proportion of the earnings differential which may be attributed to discrimination, as opposed to greater productivity, is problematic. However, our conclusion that the bulk of the estimated pay differential arising from physical appearance is due to employer discrimination appears to be quite robust. Further investigation of this result for other economies would be beneficial.

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REFERENCES

Averett, S. and Korenman, S. (1996). ‘The Economic Reality of The Beauty Myth’, *Journal of Human Resources*, Vol. 31, pp. 304-30.

Becker, G. (1957). *The Economics of Discrimination*, Chicago University Press, Chicago.

Boldsen, J.L. and Mascie-Taylor, C.G.N. (1985). ‘Analysis of Height Variation in a Contemporary British Sample’, *Human Biology*, Vol. 57, pp. 473-80.

Connolly, S., Micklewright, J., and Nickell, S. (1992).‘The Occupational Success of Young Men Who Left School at Sixteen’, *Oxford Economic Papers*, Vol. 44, pp. 460-79.

Eisenberg, N., Roth, K., Bryniarski, K.A., and Murray, E. (1984). ‘ Sex Differences in the Relationship of Height to Children’s Actual and Attributed Social and Cognitive Competencies’, *Sex Roles*, Vol. 11, pp. 719-34.

Felson, R.B. and Bohrnstedt, G.W. (1979). ‘"Are the Good Beautiful or The Beautiful Good ?" The Relationship Between Children's Perceptions of Ability and Perceptions of Physical Attractiveness’, *Social Psychology Quarterly,* Vol. 42, pp. 386-92.

Gillis, J.S. and Avis, W.E. (1980). ‘The Male-Taller Norm in Mate Selection’, *Personality and Social Psychological Bulletin*, Vol. 6, pp. 396-401.

Hamermesh, D.S. and Biddle, J.E. (1994). ‘Beauty and the Labor Market’, *American Economic Review*, Vol. 84, pp. 1174-94.

Hamermesh, D.S. and Biddle, J.E. (1998). ‘Beauty, Productivity, and Discrimination: Lawyers’ Looks and Lucre’, *Journal of Labour Economics*, Vol. 16, pp. 172-201.

Harper, B.A. (1995). ‘Male Occupational Mobility in Britain’, *Oxford Bulletin of Economics and Statistics*, Vol. 57, pp. 349-69.

Harper, B.A. and Haq, M. (1997). ‘Occupational Attainment of Men in Britain’, *Oxford Economic Papers*, Vol. 49, pp. 638-50.

Hatfield, E. and Sprecher, S. (1986). *Mirror, Mirror....: The Importance of Looks in Everyday Life*, State University of New York Press, Albany.

Jackson, L.A., Hunter, J.E., Hodge, C.N. (1995). ‘Physical Attractiveness and Intellectual Competence: A Meta-Analytic Review’, *Social Psychology Quarterly*, Vol. 58, pp. 108-22.

Lee, L. (1983). ‘Generalized Models of Selectivity’, *Econometrica*, Vol. 51, pp. 507-12.

Lynn, R. (1989). ‘A Nutrition Theory of the Secular Increases in Intelligence; Positive Correlations Between Height, Head Size and IQ’, *British Journal of Educational Psychology*, Vol. 59, pp. 372-7.

Kannel, W. (1983). ‘Health and Obesity: An Overview’, in H.L. Conn, E.A. DeFelice, and P.T. Kuo (eds), *Health and Obesity*, Raven, New York.

Loh, E.S. (1993). 'The Economic Effects of Physical Appearance', *Social Science Quarterly*, Vol. 74, pp. 420-38.

Martel, L.F. and Biller, H.B. (1987). *Stature and Stigma*, D.C. Heath and Company, Lexington.

Robertson, D. and Symons, J. 'The Occupational Choice of British Children', *Economic Journal*, Vol. 100, pp. 828-41.

Rutter, M., Tizard,J., and Whitmore, K. (1970). *Education, Health and Behaviour*, Longman, London.

Sargent, J.D. and Blanchflower, D.G. (1994). 'Obesity and Statute in Adolescence and Earnings in Young Adulthood: Analysis of a British Birth Cohort', *Archives of Pediatrics and Adolescent Medicine*, Vol. 148, pp. 681-7.

Sobal, J. and Stunkard, A.J. (1989). 'Socioeconomic Status and Obesity: A Review of the Literature', *Psychological Bulletin*, Vol. 105, pp. 260-75.

Sorensen, T.I. and Sonne-Holm, S. (1985). 'Intelligence Test Performance in Obesity in Relation to Educational Attainment and Parental Social Class', *Journal of Biosocial Science*, Vol. 17, pp. 379-87.

Waldfogel, J. (1995). 'The Price of Motherhood: Family Status and Women's Pay in a Young British Cohort', *Oxford Economic Papers*, Vol. 47, pp. 584-610.

TABLE 1

Selected Variable Means by Physical Appearance: Male Employees

Variable	*All employees*	*Attractive (age 11)*	*Unattractive (age 11)*	*Short (0-9%)*	*Tall (90-100%)*	*Obese (90-100%)*
Hourly wage (£)	7.792	8.239	6.893	6.770	8.341	6.794
Attractive (age 11)	0.454	1.000	0.000	0.360	0.447	0.335
Unattractive (age 11)	0.075	0.000	1.000	0.088	0.060	0.105
Body Mass Index	25.551	25.401	26.237	25.894	25.085	30.982
Body Mass Index age 23	23.064	22.950	23.409	23.015	22.960	28.853
Height (meters)	1.770	1.773	1.766	1.654	1.890	1.766
Father's social class I (birth)	0.051	0.054	0.035	0.035	0.082	0.012
Father's social class II (birth)	0.137	0.148	0.099	0.093	0.156	0.077
Father's social class III (birth)	0.621	0.633	0.602	0.629	0.633	0.660
Father's social class IV (birth)	0.115	0.106	0.134	0.139	0.071	0.156
Ability (age 11)	8.836	9.359	7.842	7.691	9.655	7.635
Apprenticeship	0.049	0.043	0.057	0.042	0.034	0.051
O' Levels	0.259	0.263	0.244	0.289	0.280	0.302
A' Levels	0.214	0.228	0.176	0.214	0.197	0.222
HND / Teaching	0.137	0.153	0.107	0.097	0.143	0.088
Graduate	0.155	0.170	0.118	0.108	0.209	0.046
Firm tenure in years	7.650	7.805	6.771	7.428	7.583	8.079
Work experience: years 23-33	10.413	10.481	10.208	10.323	10.36	10.477
Trade union member	0.437	0.448	0.410	0.449	0.410	0.454
Work related training	0.505	0.526	0.418	0.452	0.548	0.436
Part-time employee	0.010	0.009	0.013	0.017	0.007	0.014
Poor health	0.009	0.008	0.006	0.014	0.012	0.011
Respondent white	0.978	0.985	0.981	0.957	0.995	0.980
Sociable (age 16)	0.212	0.245	0.147	0.189	0.201	0.201
Depression (age 23)	1.030	1.023	1.042	1.033	1.034	1.057
House mortgaged	0.743	0.787	0.640	0.647	0.757	0.667
Married	0.820	0.836	0.783	0.748	0.829	0.827
Partner left school age 17-18[2]	0.245	0.259	0.171	0.213	0.249	0.183
Partner left school age 19 plus	0.170	0.188	0.117	0.094	0.255	0.078
Partner's net weekly pay[3]	121.429	118.028	111.619	105.289	138.510	107.022
Number of children: 1	0.199	0.199	0.196	0.172	0.198	0.205
2	0.355	0.379	0.329	0.338	0.339	0.327
3+	0.131	0.121	0.150	0.172	0.102	0.153
Age of youngest child	3.157	3.074	3.314	3.450	2.859	3.752
Professional occupation	0.421	0.459	0.320	0.347	0.480	0.255
Service occupation	0.113	0.122	0.070	0.093	0.153	0.128
Clerical occupation	0.062	0.062	0.077	0.069	0.055	0.048
Craft occupation	0.217	0.195	0.280	0.279	0.168	0.264
Manual occupation	0.186	0.162	0.253	0.213	0.143	0.306
Sample size	4160	1889	313	422	416	352

Notes:
1. Data refer to respondents at age 33 unless otherwise stated.
2. Partner's education, if respondent is married.
3. Annual earnings of partner, if respondent is married and partner in employment.

TABLE 2

Selected Variable Means by Physical Appearance: Female Employees

Variable	*All employees*	*Attractive (age 11)*	*Unattractive (age 11)*	*Short (0-9%)*	*Tall (90-100%)*	*Obese (90-100%)*
Hourly wage (£)	5.591	5.749	5.085	4.888	6.153	4.831
Attractive (age 11)	0.564	1.000	0.000	0.442	0.617	0.439
Unattractive (age 11)	0.078	0.000	1.000	0.088	0.054	0.165
Body Mass Index	24.578	24.121	26.857	25.309	24.131	32.336
Body Mass Index (age 23)	22.184	21.913	23.785	22.738	21.791	29.181
Height (meters)	1.630	1.634	1.618	1.515	1.747	1.617
Father's social class I (birth)	0.044	0.048	0.023	0.019	0.069	0.018
Father's social class II (birth)	0.135	0.140	0.121	0.096	0.177	0.082
Father's social class III (birth)	0.617	0.626	0.607	0.609	0.600	0.630
Father's social class IV (birth)	0.127	0.121	0.160	0.159	0.098	0.192
Ability at age 11	8.835	9.270	7.674	8.000	10.058	7.802
Apprenticeship	0.039	0.043	0.037	0.047	0.031	0.040
O' Levels	0.368	0.381	0.401	0.319	0.356	0.360
A' Levels	0.102	0.113	0.074	0.097	0.140	0.096
HND / Teaching	0.138	0.150	0.087	0.093	0.158	0.125
Graduate	0.122	0.131	0.074	0.105	0.182	0.043
Firm tenure in years	5.486	5.452	5.606	5.354	5.539	5.671
Work experience: years 23-33	8.788	8.869	8.653	8.395	9.080	8.658
Trade union member	0.358	0.363	0.339	0.332	0.407	0.342
Work related training	0.348	0.371	0.303	0.316	0.435	0.247
Part-time employee	0.468	0.465	0.466	0.517	0.380	0.459
Poor health	0.012	0.009	0.022	0.007	0.003	0.037
Respondent white	0.981	0.985	0.989	0.962	0.982	0.990
Sociable (age 16)	0.261	0.285	0.142	0.255	0.307	0.214
Depression (age 23)	1.089	1.080	1.124	1.121	1.085	1.146
House mortgaged	0.737	0.768	0.656	0.670	0.741	0.621
Married	0.794	0.802	0.792	0.765	0.728	0.742
Partner left school age 17-18	0.160	0.166	0.135	0.143	0.156	0.116
Partner left school age 19 plus	0.174	0.186	0.145	0.143	0.269	0.084
Partner's net weekly pay	270.020	278.528	226.501	256.287	264.061	202.247
Number of children: 1	0.200	0.202	0.190	0.161	0.207	0.159
2	0.387	0.386	0.364	0.431	0.344	0.437
3+	0.141	0.137	0.171	0.146	0.126	0.173
Age of youngest child	4.651	4.546	5.430	5.412	4.011	5.827
Professional occupation	0.346	0.366	0.282	0.298	0.430	0.280
Service occupation	0.239	0.225	0.263	0.256	0.201	0.294
Clerical occupation	0.275	0.298	0.237	0.253	0.282	0.226
Craft occupation	0.019	0.018	0.034	0.032	0.013	0.034
Manual occupation	0.121	0.093	0.184	0.161	0.075	0.166
Sample size	3541	1998	275	294	334	303

Notes:

1. See notes to Table 1.

TABLE 3

Gender Distributions of Beauty: Attractiveness Categories at Age 11

by Attractiveness Categories at Age 7

	Age 11				
	Attractive	*Average*	*Unattractive*	*All*	*N*
Age 7					
Males:					
Attractive	53.8	40.6	5.6	51.4	2879
Average	36.7	54.1	9.7	41.8	2345
Unattractive	23.6	54.1	21.8	6.8	381
All	44.6	47.2	8.2	100.0	
N	2501	2644	460		5605
Females:					
Attractive	64.8	29.1	6.1	57.3	3322
Average	46.4	43.2	10.3	35.9	2079
Unattractive	33.2	44.8	21.9	6.8	397
All	56.0	35.3	8.7	100.0	
N	3250	2045	503		5798

TABLE 4

Mean Hourly Earnings by Occupation and Physical Appearance

	Total	*Attractive*	*Unattractive*	*Short (0-9%)*	*Tall (80-89%)*	*Tall (90-100%)*	*Obese (90-100%)*
Males:							
Professional	9.934	9.989	8.779	8.631	10.136	9.692	8.722
Service	7.353	7.709	6.372	5.976	7.990	7.762	7.097
Clerical	7.135	6.969	6.284	6.213	7.636	7.308	6.586
Craft	6.419	6.442	6.150	6.107	6.777	7.017	6.123
Manual	5.636	6.055	5.503	5.335	5.368	6.307	5.469
Females:							
Professional	7.772	7.783	7.588	7.139	8.022	7.601	7.103
Service	3.797	3.768	3.955	3.530	3.408	4.345	3.722
Clerical	5.302	5.388	4.539	4.946	5.363	5.792	4.578
Craft	4.120	4.194	3.717	3.496	4.775	2.800	3.755
Manual	3.516	3.522	3.455	3.208	3.668	3.927	3.568

TABLE 5

Physical Appearance And Economic Activity

	Total	*Attractive*	*Unattractive*	*Short (0-9%)*	*Tall (80-89%)*	*Tall (90-100%)*	*Obese (90-100%)*
Males:							
Economically Active	0.964	0.974	0.945	0.932	0.957	0.967	0.951
Self-employed	0.160	0.170	0.147	0.150	0.140	0.141	0.126
Employed	0.745	0.758	0.686	0.698	0.776	0.762	0.749
Unemployed	0.060	0.046	0.112	0.084	0.041	0.064	0.077
Females:							
Economically Active	0.700	0.706	0.649	0.664	0.724	0.719	0.699
Self-employed	0.067	0.075	0.066	0.052	0.083	0.074	0.057
Employed	0.613	0.617	0.551	0.592	0.625	0.617	0.616
Unemployed	0.020	0.014	0.032	0.020	0.016	0.028	0.026

TABLE 6

Physical Appearance and Earnings

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
Attractive (age 7 & 11)	0.112	0.006	0.005	0.064	0.006	-0.023
	(5.14)*	(0.25)	(0.23)	(2.63)*	(0.19)	(-0.88)
Attractive (age 11 only)	0.058	-0.017	-0.006	0.011	-0.027	-0.031
	(2.35)*	(-0.60)	(-0.21)	(0.42)	(-0.86)	(-1.08)
Attractive (age 7 only)	0.053	-0.017	-0.010	0.014	-0.013	-0.033
	(2.47)*	(-0.68)	(-0.42)	(0.52)	(-0.39)	(-1.08)
Unattractive (age 7&11)	-0.124	-0.193	-0.149	-0.171	-0.114	-0.109
	(-1.91)#	(-2.56)*	(-2.08)*	(-2.90)*	(-1.81)#	(-1.90)#
Unattractive (age 11 only)	-0.066	-0.063	-0.040	-0.026	0.002	0.016
	(-2.07)*	(-1.83)#	(-1.30)	(-0.71)	(0.05)	(0.44)
Unattractive (age 7 only)	-0.128	-0.089	-0.027	-0.074	-0.023	-0.049
	(-3.70)*	(-2.20)*	(-0.73)	(-2.18)*	(-0.60)	(-1.27)
Short 0-9%	-0.094	-0.058	-0.043	-0.073	-0.096	-0.051
	(-3.80)*	(-2.04)*	(-1.71)#	(-2.42)*	(-2.84)*	(-1.72)#
Short 10-19%	-0.057	-0.049	-0.038	-0.000	0.009	0.051
	(-2.09)*	(-1.61)	(-1.41)	(-0.01)	(0.30)	(1.79)#
Tall 80-89%	0.084	0.075	0.059	-0.001	-0.006	0.012
	(3.11)*	(2.47)*	(2.08)*	(-0.02)	(-0.19)	(0.44)
Tall 90-100%	0.062	0.052	0.017	0.066	0.024	-0.035
	(2.43)*	(1.71)#	(0.60)	(2.33)*	(0.73)	(-1.20)
Obese 80-89% (age 23)	-0.009	0.013	-0.002	-0.063	-0.048	-0.050
	(-0.32)	(0.45)	(-0.07)	(-2.07)*	(-1.41)	(-1.66)#
Obese 90-100% (age 23)	-0.084	-0.049	-0.009	-0.097	-0.076	-0.053
	(-3.53)*	(-1.70)#	(-0.32)	(-3.56)*	(-2.59)*	(-1.91)#
Sociable (age 16)		0.095	0.064		0.052	0.031
		(4.72)*	(3.52)*		(2.46)*	(1.62)
Ability (age 11)		0.039	0.010		0.040	0.010
		(16.09)*	(3.74)*		(14.17)*	(3.11)*

TABLE 6---continued

Physical Appearance and Earnings

	Males			*Females*		
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Social class dummies (4)	Yes	Yes	Yes	Yes	Yes	Yes
Poor Health	Yes	Yes	Yes	Yes	Yes	Yes
Race	Yes	Yes	Yes	Yes	Yes	Yes
Educational dummies (5)	No	No	Yes	No	No	Yes
Other individual characteristics	No	No	Yes	No	No	Yes
Firm size dummies (3)	No	No	Yes	No	No	Yes
Occupational dummies (4)	No	No	Yes	No	No	Yes
Industry dummies (15)	No	No	Yes	No	No	Yes
Regional dummies (11)	No	No	Yes	No	No	Yes
$\overline{R}^2$	0.093	0.198	0.426	0.247	0.330	0.581
N	2820	2002	1693	2421	1695	1271

Notes:

1. The dependent variable is log(hourly earnings) at age 33.

2. Controls included under 'other individual characteristics' are: part-time employee, firm tenure, work experience between age 23 and age 33, whether training received, trade union membership, and marital status.

3. T-statistics are in parentheses. * (#) represents significant at the 5% (10%) level.

4. The reference group for the reported coefficients is: attractiveness assessed as average at both age 7 and age 11, 20-79 percentile range for height and 0-79 percentile range for weight at age 23. In addition, in columns 2, 3, 5 and 6, the reference group includes not assessed as being relatively sociable at age 16.

TABLE 7

Physical Appearance, Occupation, and Earnings

	Males		Females	
	(1)	*(2)*	*(3)*	*(4)*
Attractive (age 11)	0.008	0.053	-0.006	-0.007
	(0.48)	(2.19)*	(-0.29)	(-0.36)
Unattractive (age 11)	-0.057	-0.111	0.006	0.052
	(-1.95)#	(3.20)*	(0.17)	(1.34)
Short 0-9%	-0.044	-0.047	-0.051	-0.055
	(-1.73)#	(-1.85)#	(-1.74)#	(-1.86)#
Tall 80-89%	0.060	0.081	0.014	0.012
	(2.10)*	(2.52)*	(0.51)	(0.435)
Obese 90-100% (age 23)	-0.009	-0.007	-0.054	-0.042
	(-0.33)	(-0.27)	(-1.94)#	(-1.49)
Prof/attractive		-0.061		
		(-1.75)#		
Craft/attractive		-0.089		
		(-2.18)#		
Manual/unattractive		0.213		
		(3.55)*		
Clerical/unattractive				-0.146
				(-2.30)*
Manual/tall 80-90%		-0.122		
		(-2.13)*		
Craft/obese 90-100%				-0.306
				(-2.93)*
$\overline{R}^2$	0.426	0.426	0.581	0.583
N	1693	1693	1271	1271

Notes:

1. See notes 1-3 for Table 6. Non-physical appearance controls are identical to those in Table 6, columns 3 and 6.
2. The reference group for the reported coefficients is: attractiveness assessed as average at age 11, 20-79 percentile range for height and 0-79 percentile range for weight at age 23.
3. Occupations are: professional, service, clerical, craft and manual.

TABLE 8

Occupational Choice, Unemployment and Physical Appearance: Predicted Probabilities

	Professional (1)	*Service* (2)	*Clerical* (3)	*Craft* (4)	*Manual* (5)	*Prob(Unemp)* (6)
Males:						
Average physical appearance	0.465	0.092	0.071	0.245	0.127	0.019
Attractive at age 11	0.448	0.097	0.071	0.245	0.139	0.019
Unattractive at age 11	0.437	0.096	0.104	0.233	0.130	0.038*
Short 0-9%	0.482	0.070	0.062	0.258	0.128	0.022
Short 10-20%	0.414#	0.094	0.058	0.274	0.160	0.017
Tall 80-90%	0.469	0.116	0.045	0.253	0.117	0.019
Tall 90-100%	0.454	0.116	0.056	0.253	0.121	0.037*
Obese 80-90% at age 23	0.513	0.118	0.032	0.232	0.105	0.023
Obese 90-100% at age 23	0.348*	0.112	0.045*	0.289#	0.206	0.027
Females:						
Average physical appearance	0.279	0.289	0.316	0.015	0.101	0.020
Attractive at age 11	0.302*	0.250#	0.362*	0.019#	0.067	0.009*
Unattractive at age 11	0.295	0.236	0.319	0.039*	0.111	0.019
Short 0-9%	0.246*	0.291#	0.284*	0.027	0.152	0.013
Short 10-20%	0.247	0.320	0.279	0.034#	0.120	0.014
Tall 80-90%	0.265	0.267	0.356	0.015	0.097	0.021
Tall 90-100%	0.272	0.321	0.285	0.022	0.100	0.012
Obese 80-90% at age 23	0.307	0.354	0.206*	0.010	0.123	0.008
Obese 90-100% at age 23	0.242	0.394	0.220*	0.014	0.130	0.038

Notes.

1. Given appearance characteristics, the probability of employment in each occupation, derived from a multinomial logit model of occupational status, is reported in columns 1-5. We calculate the probability of being employed in each occupational category for a representative individual. To construct our base we assign occupational mean values, calculated for individuals in our estimated sample, for all variables except appearance indicators which are set to zero. The independent effect of appearance on the probability of employment in each occupation is then computed. Controls in the multinomial logit equation include, father's social class, poor health, race, ability, educational qualifications, whether received training, part-time, sociable, and marital status. Manual occupation is the reference case.

2. The probability of unemployment, derived from a binary logit model, is presented in column 6. Controls in the binary logit equation include, father's social class, poor health, race, ability, educational qualifications, whether received training, sociability, marital status, number of dependent children, age of youngest child, whether house mortgaged, if partner present then partners years of education and partners pay, and regional dummies.

3. * (#) represents coefficient estimate significant at the 5% (10%) level in the original logit equation.

TABLE 9

Physical Appearance, Marriage and Partner's Income

	Females		Males	
	Prob (married)	*Ln (partner's pay)*	*Prob(married)*	*Ln (partner's pay)*
	(1)	(2)	(3)	(4)
Attractive (age 7 & 11)	0.037#	0.031 (0.80)	0.026	-0.061 (0.98)
Attractive (age 11 only)	0.002	0.018 (0.46)	0.011	-0.035 (0.53)
Attractive (age 7 only)	0.036	0.069 (1.59)	0.013	-0.019 (0.30)
Unattractive (age 7 & 11)	-0.029	0.049 (0.42)	-0.085#	0.037 (0.22)
Unattractive (age 11 only)	0.007	-0.020 (0.46)	-0.005	-0.097 (1.20)
Unattractive (age 7 only)	0.021	-0.063 (1.20)	-0.005	-0.094 (1.13)
Short 0-9%	-0.031	-0.031 (0.70)	-0.067*	0.046 (0.70)
Short 10-19%	-0.005	-0.072 (2.04)*	-0.026	0.029 (0.42)
Tall 80-89%	-0.037	-0.067 (1.54)	-0.014	0.057 (0.79)
Tall 90-100%	-0.052*	0.005 (0.12)	0.005	0.147 (2.25)*
Obese 80-89%	-0.001	-0.020 (0.55)	0.001	-0.140 (2.01)*
Obese 90-100%	-0.066*	-0.145 (4.61)*	0.010	-0.018 (0.26)
R^2 or *Pseudo* R^2	0.024	0.112	0.022	0.137
N	3117	1822	2918	1317

Notes:

1. The logit equations for marriage (columns 1 and 3) and the regressions for partner's earnings (columns 2 and 4) include the following controls; father's social class, race, ability, sociable, poor health, highest educational qualification obtained, and region of residence.
2. Numbers shown in all logit equations are derivatives evaluated at the sample mean and may be interpreted as percentage point differences in the relevant probability.
3. T-statistics are in parentheses . * (#) represents significant at the 5% (10%) level.

TABLE 10

Physical Appearance and Annual Income Differences

(£ at 1991 prices)

	Unattractive men	*Unattractive women*	*Tall Men (80-89%)*	*Short Men (0-9 %)*	*Obese women (90%+)*
Labour market	-2229	-1170	883	-643	-569
Marriage market	-621	+127	343	-347	-2,567
Total income differential	-2850	-1043	1,226	-990	-3,136
Total expected household income	23,763	22,614	23,763	23,763	22,614
% differential	-12.0%	-4.6%	5.1%	-4.2%	-13 .9%

Notes:

1. For the base case we assume that individuals work for 40 hours per week and 48 weeks per year. Males and females receive sample average full-time earnings for their gender.