

Male Crime and Rising Female Employment ¹

Kirstine Hansen

Contact Details:

Address: Centre for Longitudinal Studies
Institute of Education
University of London
20 Bedford Way
London
WC1H 0AL
Email: k.hansen@ioe.ac.uk
Tel: 020 76186997
Fax: 0207 6126880

Abstract: *It is generally believed that economic success is related to crime in such a way that a buoyant labour market is negatively associated with crime (in relatively prosperous times crime is lower), while a weaker labour market is positively associated with crime. However, a number of studies have found that rising female employment, which is generally thought of as a labour market improvement, is actually positively associated with crime. This paper examines a potential explanation for this: that the increased entry of women into employment increases the overall supply of workers and thus subsequently lowers wages. As low wages and crime are generally found to be related, by lowering wages rising female employment may increase crime. Moreover, because women tend to have less labour market experience than men, or because they are discriminated against, they tend to enter the job market lower down the earnings distribution, putting downward wage pressure on males in lower skilled jobs who are more likely to be on the margins of crime.*

JEL: J16, J21, K42

Keywords: Female Employment, Male Wages, Male Crime

1. Introduction

One of the most noticeable changes in the labour markets of many advanced economies in the last thirty or forty years has been the rapid rise of female employment. Estimates from the Labour Force Survey show that in Great Britain the employment rate of women aged between 16 and 59 rose from 56 per cent in 1971 to 73 per cent in 2004. In 1971 there were 9 million women over the age of 16 in work, by 2004 there were 13 million (www.statistics.gov.uk/STATBASE).

It is generally argued that economic success is related to crime in such a way that a buoyant labour market is negatively associated with crime (in relatively prosperous times crime is lower), while a weaker labour market is positively associated with crime.² Yet a number of researchers both in the UK and elsewhere (see Braithwaite et al. 1992; Hale 1999; Hansen 2003; Kapuscinski et al. 1998; Witt and Witte 1998) have found that rising female employment, which is thought of as a labour market improvement (and intuitively we would expect this to be associated with a reduction in crime), is actually positively associated with crime. In other words as female employment goes up so too does crime.

There has been a great deal of work done both empirically and theoretically to explain why improvements in the female labour market may be positively associated with female crime (see for example Adler 1975; Hagan 1990; Simon 1975; Singer and Levine 1988). Yet there is little information on why improvements in the female labour market may also be positively associated with male crime which still accounts for the majority of crimes carried out in the England and Wales.³ This paper offers a potential explanation: that the increased entry of women into employment increases the overall supply of workers and thus subsequently job competition lowers male wages.⁴ Low wages and crime are generally found to be related (see Gould, Weinburg

and Mustard 2002; Hansen and Machin 2001, 2002; Machin and Meghir 2004), thus, by lowering wages increased female employment may increase crime. Moreover, because women tend to have less labour market experience than men, or because they are discriminated against, they tend to enter the job market lower down the earnings distribution, putting downward wage pressure on males in lower skilled jobs who are more likely to be on the margins of crime.

2. How Increasing Female Employment can put Downward Pressure on Wages

Historically, women's involvement in employment was confined to a relatively small number of women working in a limited number of female dominated occupations (for example typists, nurses and primary school teachers) (see Blau and Kahn 2000). Women were paid less than men and were less likely to achieve promotion. As technologies were developed in the home, women's time became freer and more women began to enter employment (Goldin 1990). Anti-discriminatory legislation that was set in place,⁵ coupled with improvements in the education system, encouraged more and more women to train and enter traditionally male jobs in a wider range of occupations (Blau and Kahn 1997, 2000; Dench et al 2002; Goldin 1990; Hakim 1992, 1996, 1998; Manning and Petrongolo 2004; Tienda et al. 1987).

At the same time, economic restructuring⁶ shifted the focus of the economy away from manufacturing and toward the service sector where demand for physical strength was reduced and demand for less gendered skills, such as computing, greatly increased (Krueger 1993). Such changes contributed to a large increase in the demand for female labour (Blumberg 1978; Hakim 1992, 1998; Huber 1990; Oppenheimer 1970, 1973).

These labour market shifts have, over the years, encouraged women into employment. While at the same time the labour market opportunities for less skilled males was declining. The movement away from manufacturing forced a number of men to seek employment in the service sector. Here they had to compete with women, sometimes for jobs that were traditionally thought of a female, such as check out operators in supermarkets (Hakim 1998) and office staff. This is likely to have increased the supply of males to these kinds of low wage occupations and dampened down male wages.

Theoretically, if male and female labour markets are independent of one another then rising female employment may not affect the male labour market. If the two labour markets are not independent, but are in fact related, which is increasingly the case as the example above illustrates, by entering employment women may increase the overall supply of workers. Employers then will have a larger pool of potential workers from whom they can choose.

We would usually think that, *ceteris paribus*, an increased supply of workers would lead to relative declines in wages. In this case, the situation is even more complex due to the possibility that demand for male and female employees may not be equal and men and women with comparable skills may be treated differently in the labour market. For example, if men and women are both capable of doing a job as well as one another, an employer can hire either a man or a woman to do a job. In this way men and women are substitutable inputs into the production process. However, there may be advantages and disadvantages associated with hiring a male over a female or a female over a male.

For many jobs men are more likely to be employed since, on average, they have more labour market experience as they are less likely to take time out of the

labour market than women, who may do so for child birth. On the other hand because females tend to have less labour market experience they are likely to receive lower wages. If low wages more than compensated for less experience females may be employed to do the job. Alternatively, if females are discriminated against in the labour market, they will receive lower wages than similar males. This means that an employer can hire a more productive female for the same wage as a less productive male. Again, a non-discriminating employer may opt for employing the more productive female in preference to the less productive male.

In these cases, females and males are less good substitutes. To re-address the balance at an individual level and allow men and women to compete for jobs more equally (making them better substitutes), males may have to take a job at a lower wage. This may mean that in the wider economy, in occupations, industries and areas where there has been a large increase in the share of female employment, we would expect to see a relative fall in male wages. This is a particular concern because a large proportion of female entrants to the labour market enter towards the bottom of the wage distribution. As such they will effectively be placing wage pressure on the less skilled men who have the weakest labour market positions and who are most likely to be on the margins of crime.

3. The Relationship between Low Wages and Crime

Theoretically there are a number of reasons for thinking that a mechanism which reduces wages should be positively associated with crime. Firstly, simple choice theoretic models of crime (e.g. Becker 1968 or Ehrlich 1973) propose that individuals have a choice between crime and work, or more generally they choose to allocate their time across crime-work space. These decisions are a function of a

number of factors, including expected earnings from crime, expected earnings from the labour market, estimated probabilities of being caught and perceptions of the severity of the punishment if one gets caught. A decrease in legal wages for whatever reason should increase the incentive to participate in illegal activities, thus pushing the crime rate up. Also with lower wages workers now have less to lose by getting caught, which should encourage criminal activity and increase crime.⁷

While such choice based models of crime do make relatively simplistic assumptions about criminal behaviour, other theoretical approaches within the criminology literature also generate a relation between crime and low wages. For example, anomie and strain theory (Merton 1957) predict that people with low wages are likely to suffer financial hardship. This financial hardship means that while low paid individuals are encouraged by society to strive for culturally approved goals such as material success they are unable to achieve these goals because of their weak labour market position. This disjunction between what Young (1999) referred to as ‘cultural inclusion’ but ‘structural exclusion’, (i.e. the difference between the desire and the ability to achieve goals), causes anomie, normlessness or strain. This may well encourage individuals to commit acquisitive crimes either for themselves or to sell for cash in order to obtain the goods they cannot afford. Thus, we would expect a relative decline in wages to be associated with increasing rates of crime.

Also, as employment is one of the major institutions through which social bonds are formed between individuals and society, social control theory predicts that employees with declining relative wages may be less attached to society (Hirshi 1969). Thus, crime rates may be higher amongst those groups most affected by falling relative wages as this may act as a mechanism for weakening the social bonds

between them and society. Less tied to society and therefore less constrained by social controls this group will be more likely to commit crimes.

There are, therefore, a number of potential explanations as to why downward pressure on wages may influence crime. Additionally, there is a body of empirical research which supports the theoretical prediction of a link between crime and low wages. Gould et al (2002) look at the relationship between changes in crime and changes in wages across areas in the US between 1979 and 1995 and report that the falling wages of unskilled men in this period led to a rise in burglary of nearly 14 per cent, a rise in larceny/theft of around 7 per cent, a 9 per cent increase in aggravated assault and an 18 per cent rise in robbery. Grogger (1998) uses data from the US National Longitudinal Survey of Youth to look at the relationship between wages and property crimes for young people. He reports results which show falling real wages not only offer an explanation of the rise in youth crime in the 1970s and 1980s but also of the differences in criminal involvement between age and ethnic groups.

In the UK Machin and Meghir (2004) use data on the police force areas of England and Wales between the mid-1970s and mid-1990s to examine cross-area changes in crime in relation to changes in the 25th percentile of the area wage distribution. They find a negative correlation between particular types of crime (theft and handling, burglary, vehicle crime and total property crime) and wages at the bottom end of the distribution, even after controlling for other variables such as measures of demographic change and measures of deterrence. Also in the UK Hansen and Machin (2001, 2002) examine what happened to crime rates in the police force areas of England and Wales before and after the Minimum Wage was introduced in April 1999. Changes in various crime rates before and after Minimum Wage introduction were related to the initial proportion of low wage workers (i.e. those paid

less than the Minimum Wage prior to its introduction) in those areas. Identification of the Minimum Wage effect comes from the fact that there are more low wage workers in some areas than in others and therefore, the Minimum Wage should be thought of having more of an effect in areas with more low wage workers than in areas where there are fewer low wage employees. The results uncover a statistically significant negative relationship, showing relative crime reductions in areas that initially had more low wage workers.

These findings clearly suggest that wages, especially of workers towards the lower end of the wage distribution, are important for crime. It is with reference to these ideas and evidence that this paper sets out to address the following questions:

- (1) Is the increasing share of female employment associated with male crime?
- (2) Is the increasing share of female employment associated with male wages?
- (3) Are shifts in male wages associated with male crime?
- (4) Is the relationship stronger for those men at the bottom of the employment structure?

4. Data

This paper uses a variety of data to test these hypotheses. The descriptive labour market statistics come from individual data from the New Earnings Survey (NES) (figure 1); the Labour Force Survey (LFS) (table 1); and the General Household Survey (GHS) (figures 3-6). The NES is a one per cent sample of employees in employment who are members of Pay-As-You-Earn (PAYE) income tax schemes. Individuals are sampled according to the last two digits of their National Insurance number, which produces a random sample of around 160,000 individuals per year. The LFS is a quarterly survey of around 60,000 households and the GHS is

an annual survey of around 16,000 households. The data have different strengths and weaknesses. As the NES only contains information on wages from employers who pay National Insurance contributions, it under-samples those with low paid or part-time positions, many of whom will be women. On the other hand, the LFS and GHS contain self-reported information from everyone sampled. Thus, they may include a wider range of earners, but because information is self-reported, they may contain measurement error.

Unfortunately, in the UK at least, there are no corresponding crime data at the individual level with which to examine the effect of the female share of jobs on crime. Instead, official data at police force area level are matched to individual level labour market, socio-economic and demographic data aggregated to police force level.

There are 43 police force areas in England and Wales, which roughly correspond to counties (e.g. Essex or Kent) or an amalgamation of counties (e.g. Avon and Somerset). However, for the purposes of this research these are aggregated to form 41 areas. This is for two separate reasons. Firstly, the City of London and Metropolitan police force areas are joined to a single London aggregate because the crime rate is artificially high in the City of London (due to its low population).⁸ Secondly because of a boundary change that occurred in Gwent and South Wales in the mid-1990s these two Welsh police forces are examined together as well.

The official crime data used are sex-specific convictions data. It is true that convictions data do not accurately reflect the level of crime in society. They not only depend on the accuracy with which crimes are reported to and recorded by the police, but also on processing by the criminal justice system and on the court's ability to find individuals guilty. However, convictions data do allow the examination of the differential participation in crime by gender.⁹

The crime data used are sex specific property crime convictions (i.e. those convicted of theft and handling, burglary, fraud and forgery in Crown Court and Magistrates Courts) as a proportion of the (sex specific) population. An alternative measure considered is total recorded property crimes (which it could be argued are less influenced by human action) under the assumption that although we do not know who carried them out evidence from both official statistics and self-report studies suggest that the majority will have been carried out by males. When the results are presented later in the paper both measures of crime produce reassuring similar results.

The focus on property crime in this paper relates back to theoretical and empirical evidence that suggest links between crime and wages. As mentioned previously it is generally thought that monetary incentives are unlikely to alter the behaviour of those involved in violent crime. Equally unlikely is the possibility that the increasing share of female employment will be associated with white collar crime because, as we will go onto see, women have been entering jobs at the bottom end of the distribution more than the top end which is generally thought as providing the opportunities for white collar crime. Moreover, it is the wages of those at the bottom end of the distribution that have been found to be associated with crime.

The proportion of police officers in an area is also included as a measure of deterrence. This inclusion is based on the idea that deterrence works through perception – if there are more police visible then the perception of the likelihood of apprehension should increase and crime should decrease as individuals are deterred from offending. In reality though the deterrent effect of more police will depend on other factors such as how police are deployed (Nagin 1998). There may also be concerns about endogeneity which are discussed later in the paper.

All these data are compiled at police force area level between 1975 and 1998 providing an aggregated data set of 41 areas over a 24 year period. To these are matched a range of labour market, demographic and socio-economic data from the NES. The measure of the female share of jobs is defined as the proportion of employees who are women. In addition to labour market information, the NES contains a number of demographic and socio-economic variables that make it possible to control for shifts in factors that may influence the relationship between the share of female employment and crime. These controls include: the proportion of the population under the age of 25, the proportion of part-time jobs, the proportion of manufacturing jobs and the proportion of service sector jobs.

The regressions are all population weighted which controls for the fact that some police force areas have higher populations than others. Moreover, because areas vary in size and the amount of crime they experience, were we to look at changes across time, we would see the largest increases in the biggest area, so London would always have a much larger rise than Surrey for example. Instead this paper looks at the proportionate change, by taking the natural log of each variable.

5. Descriptive Statistics

Table 1 shows clearly how female employment has increased in recent years. Comparing trends in male and female employment rates (for those aged between 16 and 64) over time¹⁰ the Table shows that in the UK the female employment rate rose from 61 per cent in 1977 to 72 per cent in 2000. On the other hand, the male employment rate actually declined by about 9 percentage points over the same period. This evidence is in line with the suggestion that, in more recent times, employers may be favouring women over men leading to a rise in female employment rates relative to

those of males, as the rise in female employment is not just supplementing male labour supply.

The lower panels of the Table break male and female employment rates down by education level. This is important if we believe that education is a proxy for labour market skill, as it allows us to see in which part of the labour market employment gains and losses have been made. Thus, the middle rows of Table 1 show male and female employment rates for those without any educational qualifications, while the lower rows show the employment rates of those educated to degree level or above.

It is clear that the largest decline in employment has been among the least skilled males. In 1977, the employment rate for males with no qualifications was 88 per cent. By 2000, it had declined to 60 per cent, a fall of 28 percentage points. The employment rate for unskilled females with no qualifications also declined over this period, but the fall (of less than 9 percentage points) was nowhere near as marked as for males. This means that for those with no qualifications the gender gap in employment rates has narrowed.

The Table also shows that the employment rate of the most skilled men has fallen, but again by a fairly small amount compared to unskilled males. In 1977, the employment rate of males educated to degree level or above was 96 per cent. By 2000, this had fallen to 91 per cent. On the other hand, female employment at this educational level rose from 72 per cent in 1977 to 87 per cent in 2000. These employment shifts over time for those with a degree mean that by 2000, the employment rate for females was only slightly lower than for males.

These results reflect occupational shifts that favour a more highly skilled workforce and reward female type skills. It is clear that employment gains have been

made by women, and, at least to some extent, these have been at the cost of male employment, particularly unskilled male employment.¹¹

TABLE 1 HERE

Figure 1 further examines the extent to which females have made employment gains at the expense of males by using the NES to look at patterns in the share of female employees over time. The Figure clearly shows an increase in the percentage of employees who are female between 1975 to 2000, from just over 35 per cent to just under 50 per cent.¹²

FIGURE 1 HERE

Figure 2 shows the trends in notifiable offences reported to and recorded by the police between 1970 and 2000. Despite the break in the time series¹³ the graph shows a clear upward trend, peaking in 1992 before subsequently declining. Examining the convictions data informs us that over this period the proportion of those found guilty of crimes at Crown and Magistrates Courts who are women has remained remarkably constant. In 1975 women constituted 17.6 per cent of those found guilty. In 2000 the equivalent figure was 17.3 per cent.

FIGURE 2 HERE

6. Regression Results

This section uses regression models to address the four hypotheses set out earlier in the paper. As the data are measured over time and across the same police force areas the regression models utilized in this paper are fixed effects models. By adding annual time- and police force area dummies to equations these models allow us to look at changes in the variables of interest over time while controlling for factors that are constant across areas but vary over time and factors that vary over time but are constant across areas, that may not be measurable in other ways. An example of

the former would be macro-economic shocks that hit the economy as a whole, while the latter may include factors specific to areas such as those related to geography.

Looking at the relationship in changes makes it possible to address the intuitively appealing question of what happens to crime when a hypothesized determinant shifts? In this case what happens to crime when the share of female employment increases?

Hypothesis One: “The rising share of female employment is associated with male crime”

The first hypothesis can be tested by regressing the crime rate on the share of female employment. The results of this model are shown in Table 2. There are three different model specifications. The first (1) is a simple regression of the male property crime rate on the female share of employment with area and time fixed effects. The second (2) additionally controls for the demographic structure of areas; while the third (3) includes the number of police officers in an area as a measure of deterrence. The final column (4) reproduces the preferred specification in column (3) this time using the notifiable property crime rate rather than the male conviction rate.

It is clear that the basic convictions model uncovers a positive coefficient on the share of female employment. This is statistically significant at a greater than 1 per cent level. The inclusion of controls for area demographics (model (2)) causes the magnitude of the coefficient on the share of female employment to increase slightly but it remains statistically significant at the same level as previously. Additionally controlling for deterrence by including the number of police officers in the model (in (3)), again slightly shifts the coefficient of interest but it remains statistically significant at a greater than 1 per cent level. These results are confirmed in model (4) which replaces the male conviction rate with the rate of notifiable offences. Indeed,

the similarity of the coefficients across the two definitions not only provides corroborating indication that areas where the share of female employment rose by greater amounts saw higher increases in male property crime, but also confirms the earlier suggestion that most notifiable offences appear to be committed by men.

A finding of secondary interest is the negative association between the number of police officers and the rate of notifiable offences. This contrasts to the lack of association between police and the male conviction rate. The former finding is consistent with the more recent literature on crime and policing which addresses questions around the direction of causation (Levitt 1997; Machin and Marie 2005). In earlier, purely cross sectional work, a negative association was often hard to uncover (Eck and Maguire 2000).

TABLE 2 HERE

Hypothesis Two: “The rising share of female employment exerts a downward pressure on male wages”

The second hypothesis can be tested in a similar way to the first, this time though male wages are regressed on the share of female employment.¹⁴ Table 3 reports three specifications that examine the second hypothesis. The first is the basic area and time fixed effects model (1). The second (2) additionally controls for the demographic make-up of an area and the third (3) also controls for the labour market characteristics that may affect wages. In the first specification, the results show a negative relationship between female employment and male wages (-0.405) which is statistically significant at a greater than the 1 per cent level. Additionally controlling for the demographic structure of an area (in model (2)) and the labour market factors (in model (3)) shifts the coefficient slightly, but it remains statistically significant at a greater than 1 per cent level. These results strongly indicate that areas where female

employment has risen most have also seen the greatest relative falls in average male wages.¹⁵

TABLE 3 HERE

Hypothesis Three: “Downward shifts in male wages are associated with increased male crime.”

The results so far indicate that rising female employment is associated with male crime. Moreover, the findings suggest that wages could be the mechanism through which this relationship may work. Male wages are reduced where female employment has risen. As noted earlier, a number of empirical studies have, in the past, found a relationship between low wages and crime (see Gould, Weinburg and Mustard 2002; Hansen and Machin 2001, 2002; Machin and Meghir 2004 for example). However, we need to demonstrate that the relationship between low wages and crime is evident in the data presented here. If low male wages and male crime are not associated this would mean the relationships discovered between the increasing share of female employment and male crime, and; the increasing share of female employment and male wages would be two interesting, but unrelated, facts.

To ensure this is not the case, Table 4 reports the relationship between male wages and crime. The first three specifications examine the relationship between changes in the average male wage in an area and male property crime rates. In addition, the last three specifications focus on the wages of males at the bottom end of the wage distribution (the bottom 25 per cent), as we may well think that these individuals are the most likely to be on the margins of crime.¹⁶ In each case the first specification ((1) and (5)) is a simple regression of the measure of male wages on male crime, controlling only for area and year fixed effects. The second models ((2) and (6)) additionally control for demographic shifts that may be occurring at the same

time, while the third models ((3) and (7)) also control for deterrence effects. The final models ((4) and (8)) reproduce the preferred models, in (3) and (7), this time using the rate of notifiable offences.

The results show that in all specifications there is a negative relationship between changes in male wages and changes in male crime. This means that areas in which male wages saw a relative decline were also areas where male crime increased. This is true in all model specifications and for both measures of the male wage. The results of the preferred models, using the different measures of the crime rate, again produce similar results. The difference is larger for the mean wage rather than the 25th percentile measure, but even here the coefficients are within two standard deviations.¹⁷

The magnitude of the effect is larger when the male wage is measured for those at the bottom of the distribution supporting the idea that these are the men most likely to be on the margins of crime. Rather reassuringly, whether male wages are measured at the average or for those males in the bottom 25 per cent of the male wage distribution, the picture is the same. Areas which saw relative falls in male wages also saw relative increases in male crime.

TABLE 4 HERE

Hypothesis Four: “The relationship is strongest for those men most on the margins of crime.”

So far the evidence suggests that areas where average rises in the share of female employment were greater were also the areas with below average growth in male wages and above average rises in male crime. However, as mentioned previously, it may well be the case that it is males in the low paid and low skilled sectors who are more likely to engage in crime (Farrington 1986). If this is the case,

the increasing share of female employment should have a greater effect on crime in these low skilled occupations than in other occupations.

This analysis becomes more important if, as a number of researchers argue, more educated women substitute for less skilled men since the women tend to have less labour market experience than their male counterparts (or because they face labour market discrimination) (Borjas 1986; Grant and Hamermesh 1981; Topel 1997). If this is the case, increases in the share of female employment are likely to lead to increased competition for jobs performed by less skilled males. Where women are competing for jobs with less educated men employers may favour the women, particularly given that the women may accept lower wages either as a result of having less labour market experience or on account of discrimination. For men to compete favourably with the women, they may have to accept lower wages. In this way, the increase in the share of female employment may have a disproportionate effect on men at the bottom end of the labour market, who are already more likely to be on the margins of crime.

Table 5 therefore replaces the original measure of the female share of employment with the proportion of females in occupations where the male wage in the initial time period (1975) was below the 25th percentile of the male wage distribution.^{18,19}

As wages tend to be lower in female dominated occupations (Anderson et al 2001; Goldin 1990; Joshi and Paci 1998; Millward and Woodland 1995) this measure, which identifies low paid males, is likely to include a number of males working in traditionally female dominated occupations. It is important to consider the labour market opportunities of males in these jobs because as Hakim points out they are likely to include a high proportion of males under the age of 25, the age group we are

particularly concerned about being involved in crime. Indeed, at the start of the 1990s, the trend towards younger men doing such jobs is confirmed by Hakim who finds that a quarter of males aged between 16 and 25 start out in female dominated jobs: this is twice the national average (Hakim 1998).

The first specification (1) in Table 5 is simply the fixed effects regression of male property crime on the share of female employment in these occupations, controlling only for time and area effects. The second specification (2) additionally controls for the demographic structure of the area, while the third (3) takes account of the labour market factors that may influence the relationship of primary interest. This is an important test as low wage occupations may well differ from other occupations in terms of a wide range of labour market factors. The fourth (4) model specification adds in the number of police officers to control for changes in deterrence. And the fifth model reproduces the preferred model using the rate of notifiable offences rather than the rate of male convictions.

As with the original measure of the share of female employment (in Table 2), the basic specification produces a positive relationship between the share of female employment in low skilled occupations and property crime. In this case, the coefficient is larger in magnitude and is statistically significant at a greater than 1 per cent level. This supports the hypothesis that it is the males at the bottom of the earnings distribution who are most affected by the increase in female employment.

When the model additionally controls for demographic, labour market and deterrence measures the coefficient decreases in magnitude, but remains statistically significant at a greater than 1 per cent level. As with the previous models there is reassuringly very little difference between the two final specifications in the coefficient of interest.²⁰

TABLE 5 HERE

7. Discussion

These results support the view that the substitution of women into the low wage male labour market is a mechanism through which increasing female employment is associated with male crime. But, while a positive relationship between the female share of employment and crime has been shown, this does not mean that rising female employment necessarily produces these unfortunate outcomes. The results suggest that the real issue may be where females entering the labour market are substituting for low skilled males. It is likely that as females continue to improve their educational qualifications and accumulate labour market experience, they will compete for jobs with males who are further up the employment ladder and who are therefore less likely to be on the margins of crime. In this way as women substitute for males higher up the employment ladder the effect of increasing female employment on crime will become weaker. We can examine the likelihood of this happening by looking at the position of female entrants to the labour market relative to males.

One way to do this is to examine the position of female labour market entrants²¹ in the male earnings distribution and examine its evolution over time. Thus, Figure 3 plots the male wage deciles along the x-axis and the percentage of female entrants in each decile along the y-axis, using hourly wage data from the GHS, for the years 1978, 1988 and 1998. The Figure shows that in 1978 female entrants were heavily concentrated in the bottom of the male wage distribution. Indeed, around 60 per cent of female entrants received wages that would locate them in the bottom 10 per cent of male earners. A massive 80 per cent of female entrants lay in the bottom

20 per cent of the male wage distribution. By 1988, the position of female entrants had improved, 45 per cent of entrants were now in the bottom decile of the male wage distribution and 70 per cent in the bottom two deciles. 1998 saw additional improvements for female entrants. The proportion in the bottom decile had now been reduced to 38 per cent. However, 60 per cent still remained in the bottom 20 per cent of the male wage distribution.

This evidence suggests that while there is still some way to go, the relative position of females entering employment over time has improved. Continued improvement is likely to effect the relationship between female employment and crime highlighted in this paper. The fewer female entrants who lie at the bottom of the male wage distribution, the less pressure there will be on the low skilled males who are already likely to be on the margins of crime.

FIGURE 3 HERE

Another way to look at the position of female entrants to employment relative to males is to locate the average female entrant in the percentile ranking of the male wage distribution and see how this has changed over time. Figure 4 plots the location of the mean female entry wage in the male centile ranking and shows a clear improvement in the average female entry wage relative to males. In 1975 the mean female entry wage was around the 12th centile of the male wage distribution, by 1998 the female wage increased to the 23rd centile. These results very much confirm the earlier picture; while there is still room for improvement, female entrants have made clear gains over time. Continued improvement is likely to exert reduced pressure on those males at the bottom of the earnings distribution.

FIGURE 4 HERE

However, it is not the case that all new entrants are the same or attract similar wages. A female graduate for example is likely to receive higher wages when she enters a job than a female without a degree. Female graduates entering employment are unlikely to put pressure on the males at the bottom of the employment ladder. Thus, Figure 5 shows female graduate entry wages compared to female non-graduates. The first thing to note from these statistics is that the mean wage of a female non-graduate entrant lies towards the bottom of the male wage distribution. In 1975 the mean wage was at the 10th centile of the male distribution. By 1998 it had risen, but was still in the bottom 20 per cent of the male distribution. This supports the idea that these lower qualified female entrants are the ones putting pressure on the males at the bottom of the employment ladder. The position of these women has improved over time, going from the 10th centile of the male wage distribution to the 18th between 1975 and 1998. The higher up these less qualified female entrants are in the male wage distribution the less pressure there will be on the wages of low skilled jobs. Therefore the men likely to fill such jobs will be under less pressure to commit crimes.

This idea is supported by examining the location of graduate female entrants in the male wage distribution. Figure 5 shows that female graduate entrants are located relatively high up the male wage distribution. Indeed, their wages are around the median male wage. As graduates have much steeper earnings curves than non-graduates these women are likely to increase further their position in the male wage distribution as their job tenure increases. It is very unlikely that entering employment as high up as the median male wage will have any effect on crime, since as evidence shows, it is the wages at the bottom of the distribution (the 25th percentile and beneath) that are most associated with crime. In fact, increased competition higher up

the labour market may actually have a beneficial effect on crime by reducing inequality.²² As women continue to make improvements in education and more women gain degrees, greater proportions of female entrants will enter employment higher up the male wage distribution. This can be seen in Figure 6, which shows that the proportion of female graduate entrants to employment has been increasing slowly over time, rising from only 3 per cent of female entrants in 1975 to over 15 per cent in 1998.

FIGURES 5 AND 6 HERE

8. Concluding Remarks

Using sex specific convictions data measured across police force areas between 1975 and 1998 this paper examines the effect of increasing female employment on male crime in England and Wales by assessing the impact it has on wages in the male labour market, particularly at the lower end of the distribution, where men are particularly vulnerable and may already be on the margins of crime.

The results show that areas where the share of female employment rose by more also saw above average increases in male property crimes. Findings suggest that a mechanism through which this positive relationship between changes in female employment and changes in male crime are produced may be the depressing effect that the increasing share of female employment has on male wages. Indeed, the results show that areas where female employment rose by greater amounts are the areas which saw the greatest declines in male wages.

This positive relationship between rising female employment and male crime is shown to be strongest for those males at the bottom of the labour market working in low paid and low skilled occupations. This is very much in line with other research

which finds that males at the lower end of the employment structure are the most vulnerable to crime.

While a positive relationship between female employment and crime is uncovered, this does not mean that female employment necessarily produces bad outcomes. The results suggest that the issue may lie with the fact that females entering employment are substituting for the low skilled males. It is likely that as females continue to improve their educational qualifications and accumulate labour market experience they will compete for jobs with males further up the employment ladder who are less likely to be on the margins of crime. As women substitute for males higher up the employment ladder, the effect of increasing female employment on crime will become weaker.

This paper has shown that by lowering male wages, particularly the wages of those at the bottom of the employment structure, the increasing share of female employment is positively associated with male crime. However, more work needs to be done to explore this finding, and the implications of it, in greater detail. Moreover, this is not the only mechanism through which female employment may be associated with male crime. Other potential explanations include the decreased guardianship of goods, property and children that accompany the growth in dual earner households, where much of the rise in female employment has been located.

A second explanation, which is entirely consistent with the results observed in this paper, is that increasing male crime is an attempt by men to reassert their masculinity, to reclaim their status and power and reaffirm their role as breadwinner and provider. This was once achieved in the workplace but is now challenged by the rising number of females entering employment.

Unfortunately the data used here are not appropriate to elaborate on the potential link between rising female employment, male crime and issues of masculinity. But work in other areas clearly indicate associations between masculinities and changing female employment patterns (Hearn 1999) and between masculinities and crime (Newburn and Stanko 1994). Some work has even found a relationship between female employment, masculinity and violent crimes (Bourgois 1996; Kapuscinski et al. 1998; Macmillan and Gartner 1999). An interesting question for both qualitative and quantitative research is whether masculinity offers a potential mechanism through which the inter-relationship between the increasing share of female employment, decreasing male wages and increases in male property crime, as highlighted in this paper, could be explained.

References

- Alder, F. (1975) Sisters in Crime, New York: McGraw-Hill.
- Anderson, T., J. Forth, H. Metcalf and S. Kirby (2001) "The Gender Pay Gap", Women and Equality Unit.
- Becker, G. (1968) "Crime and Punishment: An Economic Approach", Journal of Political Economy, 76:175-209.
- Bergmann, B. (1974) "Occupational Segregation, Wages and Profits when Employers Discriminate by Sex or Race", Eastern Economic Journal, 1:103-110.
- Berman, E, J. Bound and S. Machin (1998) "Implications of Skill Biased Technological Change: International Evidence", Quarterly Journal of Economics, 113:1245-1279.
- Blau, F. and L. Kahn (1997) "Swimming Upstream: Trends in the Gender Wage Differential in the 1980s", Journal of Labor Economics, 15:1-42.
- _____ (2000) "Gender Differences in Pay", Journal of Economic Perspectives, 14:79-99.
- Blumberg, R. (1978) Stratification: Socio-economic and Sexual Inequality, Iowa: William C. Brown.
- Borjas, G. (1986) "The Demographic Determinants of Demand for Black Labor", in R.B. Freeman and H.J. Holzer (eds) The Black Youth Employment Crisis, Chicago: University of Chicago Press.
- Bourgois, P. (1996) "In Search of Masculinity. Violence, Respect and Sexuality Among Puerto Rican Crack Dealers in East Harlem", British Journal of Criminology, 36: 412-427.
- Box, S. (1987) Recession, Crime and Punishment, London: Macmillan.
- Box, S. and C. Hale (1983) "Liberation and Female Criminality in England and Wales", British Journal of Criminology, 23: 35-49.
- _____ (1984) "Liberation/Emancipation, Economic Marginalisation or Less Chivalry?" Criminology, 22:473-497.
- Braithwaite, J., B. Chapman and C. Kapuscinski (1992) "Unemployment and Crime: Resolving the Paradox", American Bar Foundation Working Paper No. 9201.
- Cantor, D. and K.C. Land (1985) "Unemployment and Crime Rates in Post-World War II United States: A Theoretical and Empirical Analysis", American Sociological Review, 50:317-332.
- Dench S., J. Aston, C. Evans, N. Meager, M. Williams and R. Willison (2002)

- “Key Indicators of Women’s Position in Britain”, Women and Equality unit.
- Juhn, C. and K. Dae (1999) “The Effects of Rising Female Labor Supply on Male Wages”, Journal of Labor Economics, 17:23-49.
- Eck, J. and E. Maguire (2000) “Have Changes in Policing Reduced Violent Crime: An Assessment of the Evidence”, in A. Blumstein and J. Wallman (eds.) The Crime Drop in America, Cambridge University Press: New York
- Ehrlich, I. (1973) “Participation in Illegitimate Activities: A Theoretical and Empirical Investigation”, Journal of Political Economy, 81: 521-563.
- Farrington, D. (1986) Understanding and Controlling crime: A New Strategy, New York: Springer-Verlag.
- Felson, M. (1994) Crime and Everyday Life, Thousand Oaks, California: Pine Forge Press.
- Freeman, R. (1992) “Is Declining Unionisation in the US Good, Bad or Irrelevant?” in M. Lawrence and P.B. Voos (eds) Unions and Economic Competitiveness, Armonk, NY:ME Sharpe.
- Goldin, C. (1990) Understanding the Gender Gap: An Economic History of American Women, New York: Oxford University Press.
- Gould, E., B. Weinberg and D. Mustard (2002) “Crime Rates and Local Labor Market Opportunities in the United States: 1979-1995”, Review of Economics and Statistics, 84: 45-61.
- Grant, J. and D. Hamermesh (1981) “Labor Market Competition Among Youth, White Women and Others”, Review of Economics and Statistics, 63:345-360.
- Gregg, P., K. Hansen and J. Wadsworth (1999) “Workless Households” in The State of Working Britain, Paul Gregg and Jonathan Wadsworth (eds.), Manchester University Press.
- Grogger, J. (1998) “Market Wages and Youth Crime”, Journal of Labor Economics 16: 756-91.
- Hagan, J. (1990) “The Structuration of Gender and Deviance: A Power Control Theory of Vulnerability to Crime and the Search for Deviant Role Exits”, Canadian Review of Sociology and Anthropology, 27:137-156.
- Hakim, C. (1992) “Explaining Trends in Occupational Segregation: the Measure, Causes and Consequences of the Sexual Division of Labour”, European Sociological Review, 8:127-152.
- ____ (1996) Key Issues in Women’s Work: Female Heterogeneity and the Polarisation of Women’s Employment, London: Athlone.
- ____ (1998) Social Change and Innovation in the Labour Market, Oxford: Oxford University Press.

- Hale, C. (1999) "The Labour Market and Post-war Crime Trends in England and Wales", in P. Carlen and R. Morgan (eds) Crime Unlimited? Questions for the 21st Century, Hampshire: Palgrave.
- Hamermesh, D. (1993) Labor Demand, Princeton: Princeton University Press.
- Hansen, K. (2003) A Quantitative Analysis of Crime and the Labour Market. PhD Thesis, London School of Economics.
- Hansen, K. and S. Machin (2001) "Crime and the Minimum Wage" forthcoming, Quantitative Journal of Criminology.
- _____ (2002) "Spatial Crime Patterns and the Introduction of the UK Minimum Wage", Oxford Bulletin of Economics and Statistics, 64:677-697.
- Hearn, J. (1999) "A Crisis of Masculinity or New Agendas for Men?" in S. Walby (Ed) New Agendas for Women, London: Macmillan.
- Hirshi, T. (1969) Causes of Delinquency, Berkeley, California: University of California Press.
- Huber, J. (1990) "Macro-Micro Links in Gender Stratification." American Sociological Review, 55:1-10.
- Joshi, H. and P. Paci (1998) Unequal Pay for Men and Women, Boston: MIT University Press.
- Juhn, C. and D. Kim (1999) "The Effects of Rising Female Labor Supply on Male Wages", Journal of Labor Economics, 17:23-48.
- Kapuscinski, C.A., J. Braithwaite and B. Chapman (1998) "Unemployment and Crime: Towards Resolving the Paradox", Journal of Quantitative Criminology, 14: 215-243.
- Krueger, A. (1993) "How Computers have Changed the Wage Structure: Evidence from Microdata, 1984-1989", Quarterly Journal of Economics, 108:33-61.
- Levitt, S. (1997) "Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime", American Economic Review, 87: 270-290.
- Machin, S. and O. Marie (2005) "Crime and Police Resources: The Street Crime Initiative", Centre for Economic Performance Discussion Paper N680.
- Machin, S. and C. Meghir (2004) "Crime and Economic Incentives", Journal of Human Resources, 39, 958-79.
- Macmillan, R. and R. Gartner (1999) "When she Brings Home the Bacon: Labour Force Participation and Risk of Spousal Violence Against Women", Journal of Marriage and the Family, 61: 947-958.

Manning, A. and B. Petrongolo (2004) "The Part-Time Pay Penalty", Women and Equality Unit, Department of Trade and Industry.

Millward, N. and S. Woodland (1995) "Gender Segregation and Male/Female Wage Differences" in J. Humphries and J. Rubbery (Eds) The Economics of Equal Opportunities, Manchester: The Equal opportunities Commission.

Nagel, I. and J. Hagan (1983) "Gender and Crime: Offence Patterns and Criminal Court Sanctions", Crime and Justice, 4:91-144.

Nagin, D. (1998) "Criminal Deterrence Research at the Outset of the Twenty-First Century", Crime and Justice, 23:1-42.

Newburn, T. and B. Stanko (Eds) (1994) Just Boys doing Business: Men, Masculinities and Crime. London: Routledge.

Oppenheimer, V. (1970) The Female Labor Force in the United States. Berkeley: University of California Press.

_____ (1973) "Demographic Influence of Female Employment and the Status of Women.", American Journal of Sociology, 78:184-199.

Pollack, O. (1950) The Criminology of Women, Philadelphia: University of Pennsylvania Press.

Singer, S. and M. Levine (1988) "Power Control Theory, Gender and Delinquency", Criminology, 26:627-648.

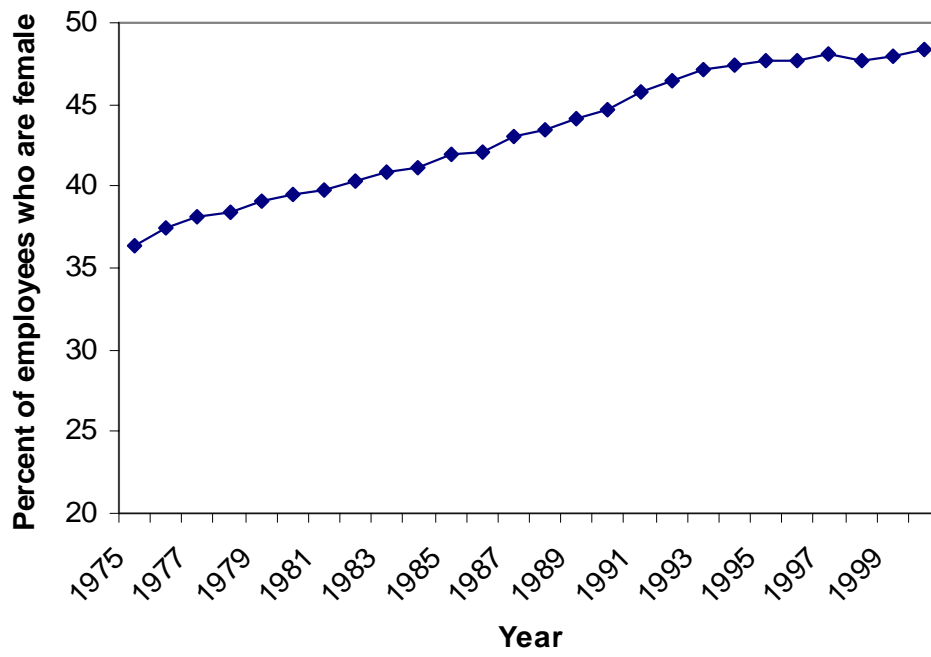
Tienda, M., S. Smith and V. Ortiz (1987) "Industrial Restructuring, Gender Segregation and Sex Differences in Earnings", American Sociological Review, 52:195-210.

Topel, R. (1997) "Factor Proportions and Relative Wages: The Supply side Determinants of Wage Inequality", Journal of Economic Perspectives, 11:55-74.

Witt, R. and A. Witte (1998) "Crime, Imprisonment and Female Labor Force Participation: A Time Series Approach", National Bureau of Economic Research Working Paper Number W6786.

Young, J. (1999) The Exclusive Society, London: Sage.

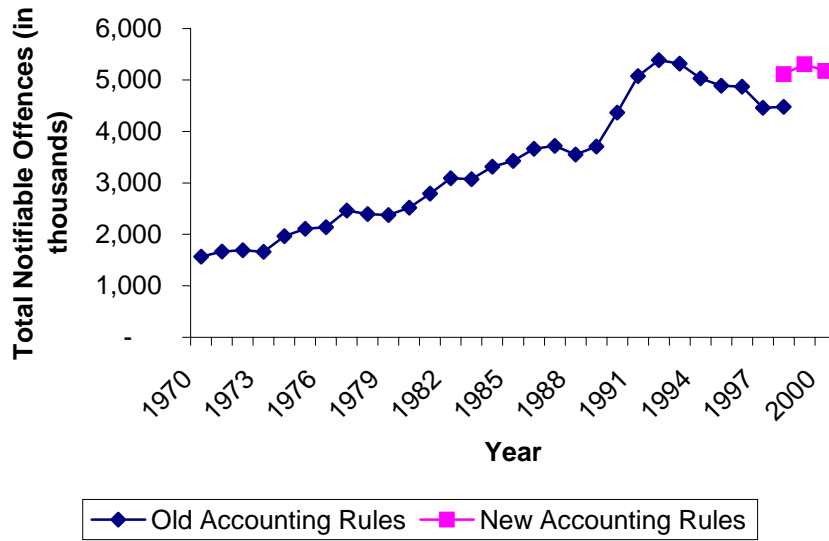
Figure 1. Percentage of employees who are female between 1975 and 2000



Source: NES

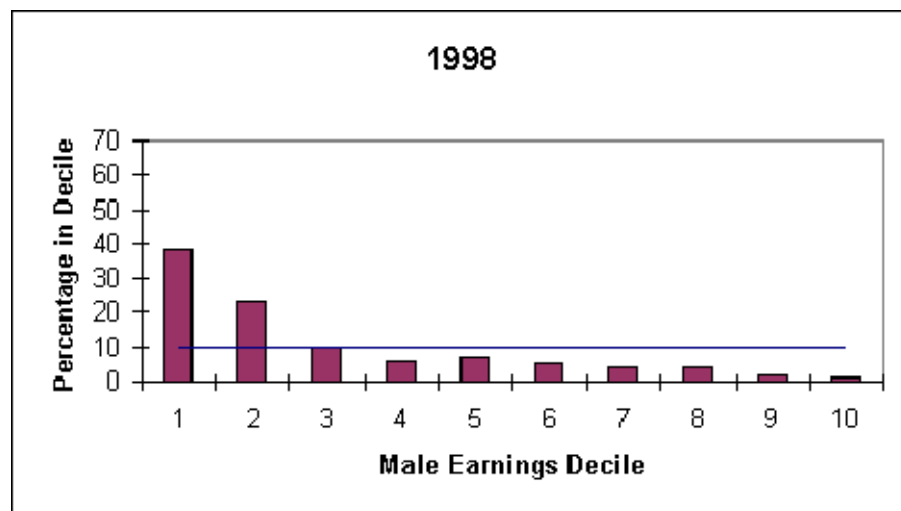
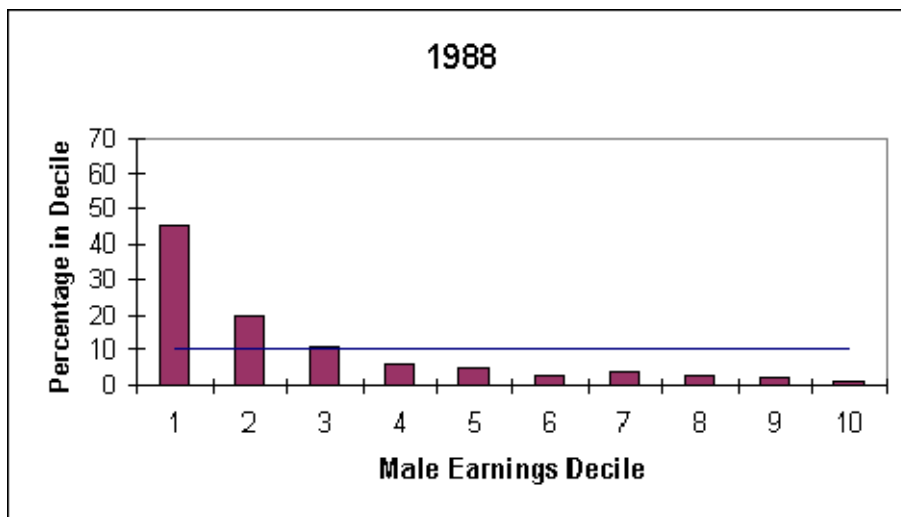
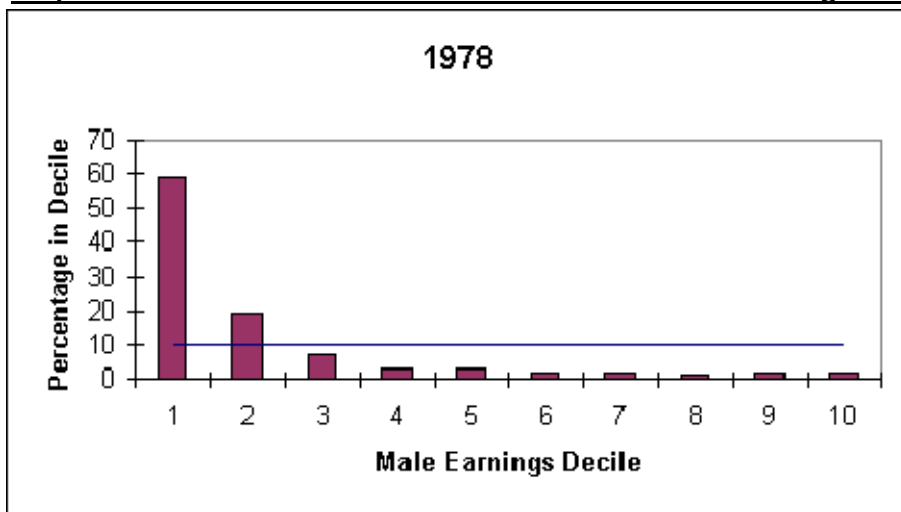
Notes: Working age population 16-65, employees only.

Figure 2. Trends in Notifiable Offences in England and Wales between 1970 and 2000



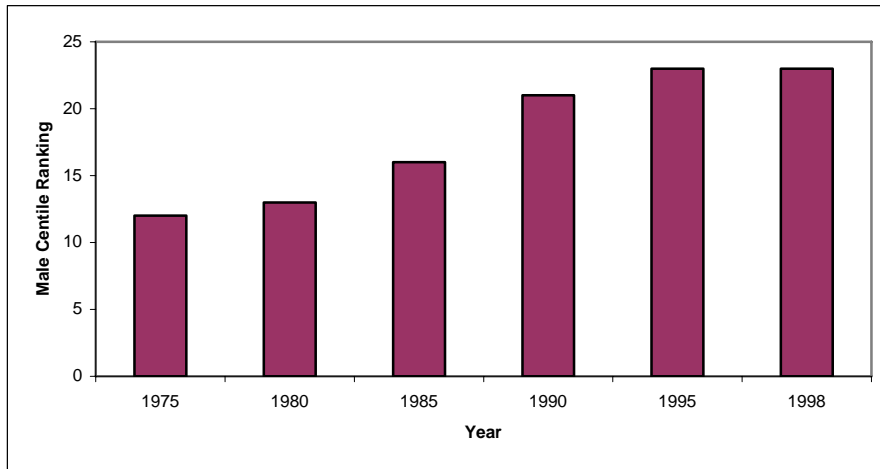
Source: Home Office

Figure 3. Proportion of Female Entrants at Each Decile of the Male Earnings Distribution



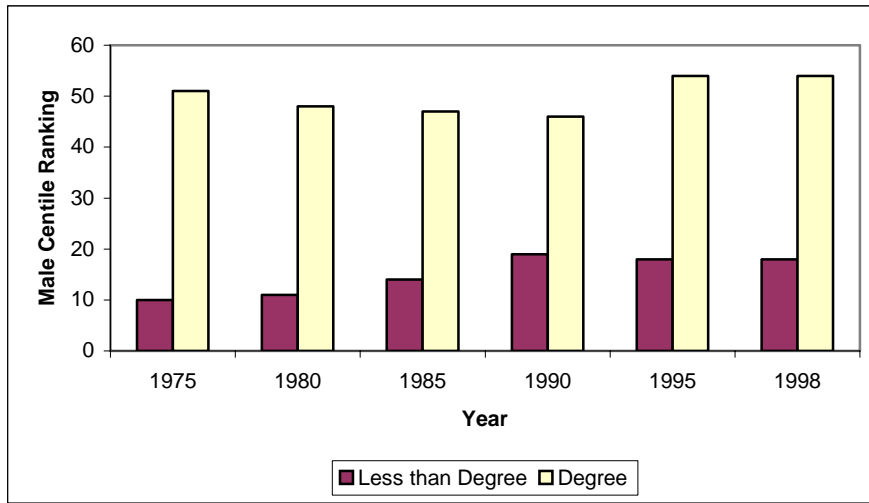
Source: General Household Survey

Figure 4. Location of the Average Female Entrant in the Male Wage Distribution



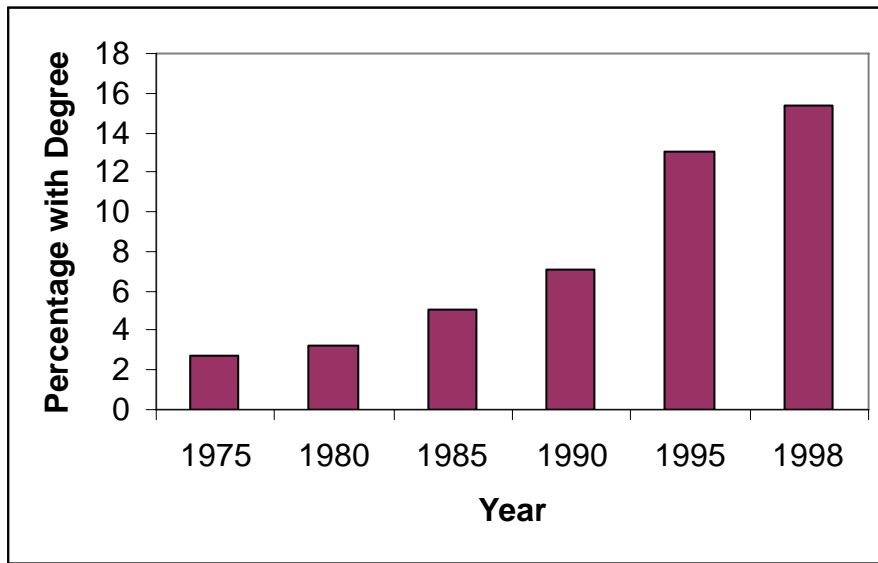
Source: General Household Survey

Figure 5. Average Female Entrant in Male Earnings Distribution by Qualification



Source: General Household Survey

Figure 6. Percentage of Female Entrants with a Degree



Source: General Household Survey

Table 1. Male and Female Employment Rates 1977-2000

	1977	1981	1985	1990	1995	2000	Percentage Point Change
All							
Male	91.2	87.5	80.7	84.5	79.1	82.3	-8.9
Female	60.6	60.1	60.1	67.7	67.4	71.7	11.1
No Qualifications							
Male	87.9	81.1	68.4	72.1	60.5	59.9	-28.0
Female	56.8	53.9	50.0	56.1	50.1	48.2	-8.6
Degree Level							
Male	96.0	96.1	92.7	93.4	89.4	91.0	-5.0
Female	71.5	72.5	74.5	81.9	84.8	86.5	15.0

Source: Labour Force Survey

Notes: Working age population 16-64, includes the self-employed.

Table 2. Changes in Property Crime Rates and Female Employment between 1975 and 1998

	Male Convictions			Notifiable offences
	(1)	(2)	(3)	(4)
Female Share of Employment	.235*** (.095)	.237*** (.095)	.238*** (.095)	.247*** (.132)
No. of Police Officers			-.002 (.015)	-.057*** (.018)
Controls for Demographics	No	Yes	Yes	Yes
Time Controls	Yes	Yes	Yes	Yes
Area Fixed Effects	Yes	Yes	Yes	Yes
R Squared	.961	.961	.961	.960
Observations	943	943	943	943

Demographic control: proportion of males less than 25 years old

Robust standard errors in parenthesis

*** significant at 1%, ** 5%, * 10%

Table 3. Changes in Male Mean Wages and Female Employment between 1975 and 1998

	(1)	(2)	(3)
Female Share of Employment	-.405*** (.079)	-.368*** (.072)	-.406*** (.070)
Controls for Demographics	N	Y	Y
Controls for Labour Market Factors	N	N	Y
Time Controls	Y	Y	Y
Area Fixed Effects	Y	Y	Y
R Squared	.996	.996	.966
Observations	943	943	943

Demographic control: proportion of males less than 25 years old. Labour market controls: proportion part-time, proportion of manufacturing jobs, proportion of service sector jobs.

Robust standard errors in parenthesis

*** significant at 1%, ** 5%, * 10%

Table 4. Changes in Male Wages and Property Crime Rates between 1975 and 1998

	Mean Wage				25 th Percentile Wage			
	Male Convictions			Notifiable offences	Male Convictions			Notifiable offences
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Male Wage Measure	-.584*** (.083)	-.585*** (.083)	-.588*** (.083)	-.793*** (.123)	-.696*** (.108)	-.698*** (.108)	-.700*** (.108)	-.795*** (.156)
No. of Police Officers			-.001 (.014)	-.056*** (.018)			-.004 (.014)	-.059*** (.018)
Controls for Demographics	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Time Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R Squared	.964	.964	.964	.963	.963	.963	.963	.961
Observations	943	943	943	943	943	943	943	943

Demographic control: proportion of males less than 25 years old

Robust standard errors in parenthesis

*** significant at 1%, ** 5%, * 10%

Table 5. Changes in Property Crime and Female Employment Between 1975 and 1998 in Occupations Where the Male Wage in 1975 was Below the 25th Percentile of the Male Wage Distribution

	Male Convictions				Notifiable offences
	(1)	(2)	(3)	(4)	(5)
Female Share of Employment in Low Skill Occupations	.479*** (.103)	.482*** (.104)	.370*** (.104)	.376*** (.104)	.371*** (.105)
No. of Police Officers				.016 (.015)	-.035** (018)
Controls for Demographics	No	Yes	Yes	Yes	Yes
Controls for Labour Market Variables	No	No	Yes	Yes	Yes
Time Controls	Yes	Yes	Yes	Yes	Yes
Area Fixed Effects	Yes	Yes	Yes	Yes	Yes
R Squared	.962	.962	.964	.964	.961
Observations	943	943	943	943	943

See notes for Table 3 and Endnote 18.

Notes:

¹ I would like to thank Shirley Dex, David Downes, Steve Gibbons, Paul Gregg, Chris Hale, Heather Joshi, Stephen Machin, Tim Newburn and Robert Witt for helpful comments and suggestions on earlier drafts of this paper.

² Although see Cantor and Land (1985) for a discussion of how economic prosperity may be positively associated with crime by increasing the supply of potential targets.

³ Over 80 per cent of those found guilty of property offences in Crown and Magistrates Courts are males.

⁴ There is a big literature on wage responses to changes in the demand for labour (see Hamermesh 1993) which shows that employers will pick and choose from workers supplying their labour to hire higher quality workers. This is a well established literature in labour market studies that considers patterns of change in employment.

⁵ The Equal Pay Act (1970) implemented along with the Sex Discrimination Act (1975).

⁶ There are debates to the main cause of this restructuring. It is widely believed that technological change was the driving factor behind the movement (see Berman et al 1998), other explanations include the reduction of international trade barriers, or institutional changes such as de-unionisation (Freeman 1992).

⁷ It is something of an unanswered question as to whether the economic model is only relevant to non-violent crimes for which monetary incentives may alter behaviour or whether it can also be extended to the case of violent crime. Various researchers have taken different stances upon this (though see Grogger 1998 for an interesting attempt to apply the economic model to violent crime).

⁸ The crime rate is defined as crimes convictions as a proportion of the population – in this case the population (or the denominator) is artificially low.

⁹ Arrest rates are often used in the US, because these do not rely on court processes. In the UK however, arrest statistics are not available for the time period under examination.

¹⁰ This is only possible to do since 1977.

¹¹ It may be thought that because many women work part-time and move between part-time and full-time employment looking only at the number of women in the labour market or the female employment rate is not a true reflection of the extent of female employment. If true, a better measure may be provided by looking at the changes in the total hours worked by women (Hakim 1996) or the share of the total hours worked by women. When this was done a similar picture emerged, the share of total hours worked by women increased from around 30% in the 1970s to 41% in 2000.

¹² This increase is larger than implied by the employment rates. This is due to the fact that the employment rate includes the self-employed, who are more likely to be male than female.

¹³ Due to changes in the accounting rules in 1998.

¹⁴ This is important because we want to establish that the share of female employment is positively related to crime because it lowers male wages. There are other ways the rising share of female employment may increase crime by simply increasing the stock of goods or reducing the guardianship of property for example (see routine activity theory (Felson 1994)).

¹⁵ It may be thought that there are inherent problems in trying to make causal statements about the relationship between female employment and male wages. While the rise in female employment may reduce male wages the relationship may also work the other way around – so that declining male wages act to induce women into the labour market. While this may be the case evidence that supports the causal link as presented in this paper and suggests female labour supply is not rising where men are losing work include Gregg et al 1999 for UK and Juhn and Dae 1999 for US evidence.

¹⁶ It is wages at this bottom end of the distribution that have been found in other studies to be most associated with crime (see for example Machin and Meghir 2004).

¹⁷ Again the main difference between the two data sources is that in the model for notifiable offences the coefficient on the number of police attracts a statistically significant negative coefficient. While with the convictions the police coefficient attracts a negative sign but remains statistically no different from zero.

¹⁸ Low skilled occupations were defined as those occupations where the average male wage was beneath the 25th percentile of the male wage distribution for all occupations in the year. This measure was calculated using occupation and earnings data from the NES. The share of females in these occupations was calculated simply as the number of women in these occupations over all the people in the occupations. Due to changes in the way occupations were recorded in the NES from 1991 onwards, it was not always possible to match exactly the occupations identified as the low skilled in 1975 all the way through to 1998. Where exact matches were not possible low skilled occupations were matched

with similar occupations in later years to make consistent comparisons possible. Where this was not possible occupations identified as low skilled in the initial period, which could not be matched to the same or similar occupations in the later periods, were dropped from the initial low skilled group.

¹⁹ As with table 3, there is a significant negative relationship between male wages and this measure of the share of female employment in occupations where the male wage in the initial period was below the 25th percentile of the male wage distribution.

²⁰ As with previous models the coefficient on the deterrence measure is negative with both crime measures but only statistically significant with the rate of notifiable offences, not the male conviction rate.

²¹ Proxied here as new hires, defined as those with job tenure of less than 12 months. For similar methodology see Gregg and Wadsworth (2002).

²² If competition for jobs higher up the employment ladder reduces wages at the top overall inequality will be reduced.