Does Divorce Risk in Sweden depend on Spouses' Relative Income? A Study of Marriages from 1981 to 1998

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Abstract

The relationship between increasing women's earnings and rising divorce rates frequently has been explained by the so-called *independence effect*: If a wife enjoys a higher earning than her husband does, she gains less from marriage. It has also been argued that in a society with egalitarian gender attitudes this effect is less important. In this paper, we test if the independence effect applies to Sweden, a country in which egalitarian gender views dominate and female labour-force participation and divorce rates are high. Our analysis is based on a large register data set and intensity regression models. We found support for the 'independence effect': The relationship between the share of a wife's income and the divorce risk is positive regardless of the couple's total income and the wife's education level.

Key Words: divorce, gender equity, relative income, Sweden

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Résumé

La relation entre l'augmentation des salaires des femmes et le taux de divorce a souvent été expliqué par le soi disant « effet de revenu » : Si une femme gagne un salaire plus élevé que celui de son mari, le mariage lui apporte moins d'avantages . Il a aussi été argumenté que cet effet est moins prononcé dans une société qui prône des attitudes égalitaires entre les sexes. Dans cet article, nous avons testé si l'effet de revenu s'applique à la Suède, un pays où l'égalité des sexes prédomine, où le nombre des femmes qui participent à la main d'oeuvre et le taux de divorce sont élevés. Notre analyse se base sur un grand registre de données et sur des modèles de regression d'intensité. Nous avons trouvé que la théorie de « l'effet de revenu » a du mérite. La relation entre la part de salaire de la femme et le risque de divorce est positive et cela, indépendément du salaire total du couple ou du niveau d'éducation de la femme.

Mots-clés : divorce, égalité des sexes, revenu relatif, la Suède

Introduction

Women's participation in the labour force and divorce rate has been increasing in parallel in recent decades. The rise in divorce rates accelerated in the second half of the 1960s and in the 1970s throughout the western world. The past decades have also witnessed a marked flow of women into the labour market. Sociological and economic theories (Parsons, 1949; Becker, 1981) have suggested a causal relationship between the changing economic roles of women and the rise in divorce, and a large body of literature on this topic has emerged over the last couple of decades. More recently, empirical studies based on micro-level survey data on both spouses have brought much more insight into this topic, however, they have not lead to a clear-cut overall conclusion (for recent literature reviews, see Sayer & Bianchi 2000, Rogers 2004).

The ample literature on the relationship between wives' labour-force attachment and marital stability has been dominated by studies based on data from the United States, and framed by the micro-economic and sociological family theories, in the context of the mid-20th century U.S., as the starting point. In this article, we also begin with these theoretical arguments; however, empirically, the relationship between spouses' income and marital stability in Sweden is examined, a country that differs from the U.S. in many pertinent ways. In particular, the differences concern the domination of egalitarian gender views,

high female labour-force participation rates and the strong ideational and policy support to the dual earner family in Sweden where divorce rates are about as high as in the U.S. Assuming the trends towards gender equity, and while women's higher labour force attachment and higher divorce rates continue in other countries, the Swedish context can be seen as describing these aspects of the future in other developed countries.

Results from earlier studies from developed countries vary in a number of aspects, and the way and extent to which the wife's income is related to the divorce risk is not clear. On the one hand, and given the more egalitarian gender views today, equal incomes would not have a destabilizing effect on marriage. On the other hand, it would be easier for either of the spouses to exit an unhappy marriage if one spouse did not depend on the income of the other. In addition, one needs to consider the level of the combined income of both spouses. Research has found that wives' contributions to family income lowered the risk of divorce by alleviating economic distress (Conger, et al., 1990). Hence, in what way and to what extent does the wife's income, and in particular its ratio to the income of the husband, influence the risk of divorce? Educational attainment could also mediate the effect of wives' relative income on divorce because education could be a proxy variable for the earning potential. The existing studies ignore these elements. In this paper, these questions are addressed by applying them to Sweden, one of the countries with the least traditional system of gender relations and ideology.

In our empirical investigation, a particularly large nation-wide individual-level data set is used constructed by linking data from different administrative registers, which alleviates some concerns typical to survey data, such as sample representivity, statistical power, and reliability of self-reported income.

Background and Hypotheses

Wife's Economic Independence

The relationship between increasing women's earnings and rising divorce rates has been often explained by the *independence effect:* when a woman makes an income that allows her to be financially self-supporting, she would find it relatively easy to exit a marriage should she wish to do so. More generally, if a wife earns more money than her husband does, her gains are less from marriage than a wife's whose earnings are lower (Becker, Lands & Michael, 1977). This effect rests on the assumption from economic theory that the division of breadwinning and domestic work along gender lines is beneficial to the family, and the mutual dependence of spouses is a major gain to being married (Becker, 1981). Sociological theory of the family has also emphasized the specialized

division of labour as a functional necessity for the institution of marriage (Parsons, 1949). Departure from this model would reduce benefits from marriage and increase the likelihood of divorce. A frequently presented argument is that a higher income of the wife would destabilize the relationship between her and her husband (Ross & Sawhill, 1975; Moore & Waite, 1981; Spitze & South, 1985).

These theoretical approaches are anchored on the sole-earner family model that was prevalent in the 1950s and 1960s. This context no longer dominates in developed countries, such as the U.S., and is quite distant from the context of our empirical investigation, as shown in Section 2.5. Oppenheimer (1997) argues that, theoretically, the clear division of household work along gender lines is no longer the best rational choice in a contemporary society because of the risks that a nuclear family entails if one of its adult members cannot perform his or her function. She points out that support for the independence effect hypothesis was found only in cross-sectional aggregate-level studies that use data from the 1950s and 1960s, i.e. when the different family and labour market roles of men and women were still a dominating social norm. In this connection, the opposite direction of causality, namely, that women increase labour force attachment in response to marital discord, may have an important role. Based on analyses of panel data in the U.S., Rogers (1999) suggests this as being the dominating causal link between women's income and divorce risk.

Oppenheimer (1997) also distinguished the independence effect from the *income effect*. Focusing only on the ratio of a wife's income to that of her husband, and ignoring its interaction with the absolute income level of the family, "tends to distract attention from the underlying causes of these ratios and their structure determinants" (Oppenheimer, 1997, p. 431). The independence effect hypothesis predicts a linear increase in divorce risk by the wife's income, measured either in absolute or relative terms. Sørensen & McLanahan (1987) argue that relative income of wives is a valid measure of economic dependency at all income levels, including that of families with high incomes. Here, the wife may be able to earn money at a level that would allow her to support herself financially. Even then, if the husband has higher earnings, she would be dependent on him for maintaining her current living standard and possibly her social status.

Nevertheless, total income of couples could be an important factor to mediate the effect of relative income of wives on divorce. In low-income families, higher income of wives helps to reduce the family's economic hardship and does not be a disruptive factor for marital stability. In those families, a higher share of wives' income does not mean that wives are economically independent from their husbands, either. White & Rogers (2000) conclude that evidence on the effect of the success of wives as co-providers on divorce risk is inconsistent, whereas problems arise when wives' earnings are substantially greater than their husbands.

Educational attainment could serve as a measure of earning ability, measure of skills of bargaining and solving disputation within marriages. Although education correlates positively with earnings, women with higher education have been found to have lower divorce risks (e.g., Ono, 1998; South, 2001). This negative effect of education on divorce casts has been linked to greater (inter)personal skills among the better educated (Ono, 1998). Interestingly, Kalmijn, de Graaf & Portman (2004) find a positive effect of wife's education on divorce in the Netherlands. This warrants controlling for the effect of education level of both partners and checking its interactions with the income measure in our analysis.

Based on these considerations, the following hypotheses are proposed:

> Hypothesis 1 – *independence effect:* divorce risk increases in an approximately linear relationship with the wife's relative income.

> Hypothesis 1a - *mediating effect of total income*: at low levels of total income, the independence effect does not hold.

Equal Dependence of Spouses

Several recent studies that use individual level data and advanced statistical methods have challenged the understanding of a linear relationship between the wife's relative income and divorce risk. Nock (2001) has introduced the concept of *marriages of equally dependent spouses* (MEDS), as unions in which either of the spouses generates between 40 to 60% of the couple's total income. He showed that in such marriages, the wife's commitment to the marriage is lower than in other marriages. The husband's commitment, by contrast, does not depend on earnings. The wife's commitment also decreased with the amount of time she spent in paid work. In sum, Nock (2001) argues that MEDS lead to higher divorce risks mainly because the wife gains less from the partnership, and because the threshold to leave the marriage is relatively low. These arguments are in similar vein to those concerning the independence effect. However, in addition to the economic independence thesis, he argues that the relationship quality suffers because of the wife's perception that the household tasks are unfairly distributed to her disadvantage. This is because men's attitudes to housework have not matched the increase in women's labour-force participation. This is to say, it may be only the wife who perceives the relationship quality to be suffering. As Sayer & Bianchi (2000) have shown, the wife's satisfaction and happiness with the relationship is a predictor of its divorce, whereas this does not apply to the husband. These arguments lead us to propose:

> Hypothesis 2 – *effect of equal dependency:* the divorce rates in which either of the spouses generates between 40 to 60% of

the total income are higher than that of couples where the wife earns less than 40% of the income.

Heckert, Nowak & Snyder (1998) found an inverted U-shape relationship between the relative income of wives and divorce risk of the family: traditional couples where the wife depended financially on her husband and the "reverse traditional couples" that the wife's income accounted for 75% or more of the total incomes, were less likely to divorce.

> Hypothesis 2a – *reverse traditional couples:* at the level of above 75% of the couple's earnings, the wife's relative earnings do not increase the divorce risk.

Expectations on Gender Relations

Many analysts argue that gender ideology mediates the effect of women's relative income on divorce risks (Greenstein, 1995; Oppenheimer, 1997; Sayer & Bianchi, 2000; Brennan et al., 2001). They claim that the independence effect hypothesis is based on traditional gender ideology: when men are mainly engaged in labour-market activity and women are not, women are economically dependent on men. Woman's employment thus does not meet the traditional norm and therefore destabilizes the marriage, so the argument goes. However, in a modern western society, the labour market roles of both sexes have become increasingly similar. This is reflected in a gender ideology that has become increasingly egalitarian. In this context, then, equal income of both partners stabilizes rather than destabilizes marriage. Ono (1998) and Rogers (2004) suggest a U-shape relationship in which the risk of divorce is lowest when wife and husband contribute a similar share of total family income. As Sayer & Bianchi (2000) have shown, the wife's satisfaction and happiness with the relationship is a predictor of its divorce, whereas this does not apply to the husband.

An alternative theory explaining the effect of relative income of wives on marital instability is the bargaining model (Nash 1950; Lundberg & Pollak 1996). Wives with higher income have bargaining power with their husbands. They have higher expectations of greater equity in marital power and division of household work (Risman & Johnson-Sumerford, 1998). The theory explains that wives were more likely to dissolve their marriages if they could not reach a point as a result of bargaining with their husbands with lower earning ability.

> Hypothesis 3 – *effect of egalitarian gender attitudes:* couples where each spouse contributes about 40-60% of the total income have the economic power structure that conforms to the egalitarian gender ideology that prevails in Sweden. This leads to lower divorce risks of such couples.

Income Effect

The income effect implies when a higher total income of the family improves the quality of family life and thereby enhances marital stability. From this perspective, higher income of wives should have a stabilizing influence on the marriage as it increases the total family income. On the other hand, a husband's poor performance in the labour market increases divorce risk not only through the economic difficulties this may cause to the family, but also through the strain caused by not fulfilling the wife's expectations. So far, only a few studies have distinguished between the independence and income effect. They found the income effect to be weak or non-existent (Greenstein, 1990, 1995).

> Hypothesis 4 – *income effect:* a higher combined income earned from employment improves the couple's quality of life and in this way enhances marriage stability. It follows that divorce risks decrease with the couple's total income rising.

Swedish Context

Sweden is well known for its high female participation rate in the labour force. There has been a political commitment to sustaining equality between men and women in family and society (Hirdman, 1998). During the 1960s and 1970s, a series of social policies were introduced that aimed at ensuring equal status between the sexes. In 1974, a parental leave program was established according to which employed women/men with young children received 90% of their income if they stayed at home during the first six months of the child's life (this was later extended to 12 months). Full job security for that period was provided. The entitlement period was later prolonged to 15 months, of which at least one month has to be taken by the other parent (see Sundström & Duvander, 1999). The benefit level stood at 80% of the claimant's average earnings during the 240 days preceding birth. More than half of the fathers take at least some parental leave after the birth of their first child and 11% take three or more months (Oláh, 2001). These policies stimulated the rate of women's labour force participation in Sweden to reach a very high level: it increased from 53% in 1963 to 86% in 1990 (Hirdman, 1998), in 1991 the level stood at 78%, and in 2000 at 71% (European Commission, 2002). Female earnings, relative to men's, increased too (Henz & Sundström, 2001).

Sweden is also well known as the forerunner of many of the recent demographic trends that Europe has been witnessing, such as an increase in consensual union formation and non-marital childbearing. Less than 10% of all unions in Sweden start as non-marital unions (Statistics Sweden, 1995) and 55% of all children are born out of wedlock (Council of Europe, 2003). About half of all Swedish women and nearly as much of all men have a non-marital partnership at age 26

(Bernhardt, 2002). The 'no fault' rule applied in legal proceedings makes divorce relatively easy to obtain. The rise of divorce rates throughout Europe accelerated in the second half of the 1960s. In Sweden, this increase has continued over recent decades. The 1990s level of the total divorce rate is among the highest in Europe: it ranges from 0.44 to 0.55 (Council of Europe, 2003). Sweden has one of the highest union disruption levels in Europe (Andersson, 2003) considering the high prevalence of non-marital unions, which are after all less stable than marriages.

Studies of Swedish divorce trends have highlighted that in the 1980s and 1990s divorce risks increased in particular among couples with children. At the same time, the number of childless couples and unions with pre-marital children increased – both of these groups have displayed a higher than average risk (Andersson, 1995). Andersson (1997) demonstrates that Swedish divorce risks vary by parity and the age of the youngest child. Liu (2002) shows that stepchildren have a detrimental effect on marital stability. The results of both studies were considered when selecting and defining the control variables for the regression models in our paper.

Jalovaara (2001, 2003) analyzes the association between socioeconomic positions and divorce risk in Finland, a country adjacent to Sweden that shares many of the features in social structure, the Nordic model of the welfare state, and cultural aspects with its neighbour. Both the high level of female labour force participation and the egalitarian gender ideology particularly enhance the comparability of results from these two countries. Furthermore, the system of registers in both countries allows analyzing the effect of socioeconomic characteristics of both spouses on divorce. The Finnish studies confirmed the relationship between the socioeconomic status and divorce as an inverse one. In a study on the interactive effects of spouses' socioeconomic positions, Jalovaara (2003) found that couples where the wife had a higher income than her husband were somewhat more prone to divorce.

Data and Method

Data

We use a set of Swedish register data that contains records of all women born in Sweden between 1945 and 1981. Statistics Sweden prepared it by linking individual-level information on demographic, social, and economic variables from different registers. In our study, women who married between January 1981 and December 1998 were included, and the divorce risks of these marriages were analyzed. Our analysis is limited to marriages between spouses born in Sweden to eliminate any influence that the cultural origin or cultural

heterogeneity of spouses would have on our results. Furthermore, both early (before age 20) and late first marriages (after age 35) were excluded to avoid distortion of our results by sub-groups whose divorce risk is known to be substantially different. In all, 446,145 marriages are included in this analysis, 77,593 of which ended in divorce during the observation period. The follow-up covers 3,892,005 marriage-years.

The social and economic variables pertain either to the status at the end of a calendar year or income received during the year. Demographic events – marriage, divorce, and birth of children – are recorded to the precision of a month. The individual records of husbands are linked to the records of their wives. This enables us to study the association of the combined socio-economic characteristics of both spouses with marital stability.

Study Variables

Our dependent variable is the event of divorce measured at a month's precision. The explanatory variables used to test our hypotheses are *relative income*, *total income*, *wife's level of education*, and *relative level of education*.

For both income variables, the total income from employment and social security benefits (unemployment insurance, parental leave, student allowances) are used in this study. The reason is that in Sweden, transfer money is an important part of couples' income. Take parental leave benefit as an example. Either spouse on parental leave receives 80% of her or his salary 240 days before the new baby is born. She or he can receive this amount of money for 15 months in total. Since this information is applied to explain divorce risks, we specify our models so that income received during year *t* is used to explain the divorce risks during year *t+1*. *Relative income* is defined as the wife's contribution in percentage to the total income of both spouses. The variable is represented in five categories, using cut-points at every 20th percentile (Table 1). *Total income* is the sum of both spouses' income adjusted for inflation and expressed in Swedish crowns (SEK) of the 1998 value. This variable is listed in four categories that we obtained by using quartile cut-off points in the distribution of married couples by total income. Both of these variables are time-varying covariates, the values of which are updated at the end of each calendar year.

Table 1
Number of Divorces and Couple-Months Observed in Marriages
by the Study Variables for Sweden: 1981-1998

Variable name	Category	Divorces		Couple-months observed in marriages	
		Number	%	Number	%
Wife's Share in	0–20%	4,046	6	253,928	7
Couple's Total Income	20–40%	23,452	35	1,329,407	38
	40–60%	32,931	49	1,682,854	48
	60–80%	4,779	7	184,292	5
	80%+	2,265	3	67,297	2
Couple's Total Income	0–25.2	22,455	33	985,049	28
(10,000 SEK in 1998 value)	25.2–40.3	28,865	43	1,498,054	43
	40.3–55.5	13,026	19	800,890	23
	>55.5	3,127	5	233,786	7
Husband's Education Level	pre–gymnasium	14,403	21	617,654	18
	gymnasium	35,772	53	2,040,000	58
	post–gymnasium	5,057	8	497,415	14
	unknown	12,241	18	362,710	10
Wife's Education Level	pre–gymnasium	14,672	22	457,454	13
	gymnasium	46,140	68	2,545,498	72
	post–gymnasium	5,057	7	436,761	12
	unknown	1,604	2	78,066	2
Couple's Relative	husband higher than the wife	10,226	15	505,113	14
Education Level	equal	32,772	49	1,986,376	56
	wife higher than the husband	11,025	16	598,241	17
	either education level unknown	13,450	20	428,051	12
Couple's Age Difference	husband 6 or more years older	14,524	22	579,379	16
	husband 3–5 years older	16,649	25	890,912	25
	husband 1–2 years older	16,098	24	946,025	27
	age difference smaller than 1 year	11,819	18	717,782	20
	wife 1–2 years older	5,073	8	253,519	7
	wife 3 or more years older	3,310	5	130,163	4
Wife's Age at Marriage	20–23	21,328	32	766,177	22
	24–25	29,525	44	1,638,627	47
	29–35	16,620	25	1,112,975	32
Number of Wife's	0	57,942	86	3,289,566	94
Children from Previous	1	7,177	11	180,797	5
Partnerships	2+	2,354	3	47,415	1
Number of Husband's	0	57,153	85	3,206,953	91
Children from Previous	1	6,103	9	189,794	5
Partnerships	2+	4,217	6	121,032	3
Age of Youngest	no child	15,575	23	460,102	13
Shared Child	woman pregnant	319	0	276,114	8
	under 1 year	885	1	503,797	14
	1–2 years	11,776	17	822,153	23
	3–5 years	21,846	32	733,619	21
	6–8 years	10,284	15	404,091	11
	9 years or older	6,787	10	317,903	9
Husband's	first	61,550	91	3,317,934	94
Order of Marriage	second or higher	5,923	9	199,846	6

Age difference is calculated using the spouses' exact dates of birth. *Education attainment* refers to the highest level of education obtained. It is defined as a time-varying covariate that is updated each time the person completes a higher level of education than he/she previously had. In this study, the education level is categorized as (a) *pre-gymnasium*, including pre-school education and nine years of compulsory basic education; (b) *gymnasium*, including upper secondary school (usually three years) and adult education; (c) *post-gymnasium*, including college and university. The *relative level of education* reflects the ratio of the spouses' education level according to these three categories. Hoem (1997a) has shown the emergence and increase of a negative correlation between a wife's education level and divorce risk in Sweden in the 1980s; a negative correlation has also been found in the United States (Lillard & Waite, 1993).

In addition, we use in our models a number of control variables that are known to influence divorce risk. *Wife's age at marriage* is one of them: it is found to have a powerful impact on marital breakdown, even more so than socio-economic status variables such as social class (Murphy, 1985).

Many studies, including those using Swedish data (Andersson, 1995, 1997; Hoem, 1997b), have shown that divorce risk varies by shared children, childless couples usually having a higher divorce risk than couples with children, and couples with small children or when the wife is pregnant having the lowest divorce risk. For our analysis, the variable *age of youngest shared child* is defined as a time-varying covariate that has the following categories: no shared children, wife currently pregnant, youngest child younger than one year, age of youngest child from one to two, three to five, six to eight, and nine or more years.

It has been shown by Becker, Lands and Michael (1977) and Cherlin (1978) for the United States and by Hoem (1997a) and Liu (2002) for Sweden that, in addition to the variation of the divorce risk by the couple's shared children, the presence of premarital children increases the risk of divorce. Based on these results, separate control variables are included for the number of the *wife's children from previous unions* and *husband's children from previous unions*. These variables include all children before the current marriage whose other parent is not the current husband or wife. Marriages of second and of higher order are more prone to dissolve than first marriages, which have also been attributed to the notion that relationships in stepfamilies generally are less harmonious and gratifying (see Furstenberg, 1990). This is because family norms are usually ambiguous and bonds between stepparents and their children are weaker and sometimes fraught with conflict. Erlangsen and Andersson (2001) have recently shown that divorce risks in Sweden also rise with the order of marriage. The *order of the current marriage* is included to control for this.

Statistical Procedure

Estimated hazard regression models of the divorce risks are defined as:

$$\ln \mu_i(t) = y(t) + \sum_j \alpha_j x_{ij} + \sum_l \beta_l w_{il}(t)$$

where t denotes marriage duration, $\mu_i(t)$ represents the intensity of divorce at duration t for individual i, $y(t)$ is the logarithm of the baseline intensity, x_{ij} stands for fixed covariates, α_j for coefficients for fixed covariates, w_{ij} for time-varying covariates, and β_i for coefficients of time-varying covariates.

The baseline time parameter of the divorce risk is the duration of marriage, which is specified as a linear spline with nodes at 1, 2, 3, 5, 7, and 11 years, until observations are censored at 15 years of marriage. Observations are also censored at the emigration or death of either spouse and at the end of the year 1998, whichever occurs first. The regression coefficients of spline functions – spline gradients – express the change in the logarithm of the divorce risk between two consecutive nodes per unit of measurement.

Due to the large size of the data set, statistical significance is not used as a criterion for model building or for the assessment of the results: even very small coefficients render statistical significance. Our selection of control variables into the models is inspired by results of earlier studies. The rare occasions where a coefficient is not significant according to the likelihood ratio test at the five-percent level are marked in the tables.

Results are reported from the models listed below:

Model 1 = control variables + total income + relative income

Model 1a = Model 1 + total income * relative income

Model 2 = Model 1 + husband's education level + wife's education level

Model 2a = Model 2 + total income * wife's education level

Model 3 = Model 2 + relative level of education

aML software was used to fit the models (Lillard & Panis, 2000). Model 1 tests the independence effect and the income effect simultaneously. Both spouses' levels of education are added in Model 2 and spouses' relative education in Model 3. The interactions of the wife's relative income with total income in Model 1a, and the interactions of the wife's relative income with the wife's education level in Model 2a were also investigated.

Results

Control Variables

The relative divorce risks by the control variables change very little from one model to another, and those obtained from Model 1 reflect well their effects (Table 2). These effects are consistent with the results from earlier studies that have motivated us to control for them. Divorce risks decreased with the wife's *age at marriage* linearly at about 11% per year.

The more children the wife or the husband had from a previous relationship, the more likely the marriage was to dissolve. Apparently, the children from wife's pre-union have a larger disruptive effect than those children from the husband's pre-union. Having a shared child is a sign of commitment to the relationship (Thomson et al., 2002), and this is clearly reflected in the lower divorce risk of couples with children as compared to childless couples. The risk of divorce was considerably higher if the wife had been married before, whereas such experience of the husband did not influence the divorce risk notably.

A large age difference between the spouses increased their divorce risk. When the husband was one or two years older than the wife – which is the most common age configuration – the couple faced the lowest divorce risk. It increased the more a couple deviated from this. The increase in the divorce risk was notably larger if the husband was younger than the wife as compared to the opposite situation.

Spouses' Income and Education

We first examine the main effects of the explanatory variables estimated in Model 1, which includes the demographic control variables and the income variables (Table 3). There was a clear linear pattern in the effect of a wife's relative income: the higher the wife's share in the couple's income, the higher the divorce risk. When the wife contributed 80% or more to the total income, the divorce risk was twice as high as when she contributed less than 20%; other categories by relative income faced a divorce risk between those two extremes. These estimates are controlled for the couple's total income. The effect of the

Relative Divorce Risk by Control Variables for Sweden: 1981-1998

Variable	Category	Relative Risk	Spline Gradient
Marriage Duration, Exact Years	0-1		2.9981
	1-2		0.6164
	2-3		0.1899
	3-5		-0.0285
	5-7		-0.0721
	7-11		-0.0728
	11+		-0.0611
Wife's Age at Marriage			-0.1128
Order of Marriage, Wife	1st	1.00	
	2nd+	1.43	
Order of Marriage, Husband	1st	1.00	
	2nd+	*1.02*	
Number of Wife's Children from Previous Partnerships	0	1.00	
	1	1.98	
	2+	2.31	
Number of Husband's Children from Previous Partnerships	0	1.00	
	1	1.60	
	2+	1.59	
Number of Shared Children	0	1.58	
	1	1.29	
	2	1.00	
	3	*0.98*	
	4+	1.21	
Age of Youngest Shared Child, Exact Years	wife pregnant	0.28	
	0-1	0.17	
	1-3	0.43	
	3-6	1.00	
	6-9	1.03	
	9+	1.06	
Intercept		-4.3522	
exp(Intercept)		0.0129	

Notes: Relative risks not significantly different from the reference category at five percent level are in italics. All other estimates are significant at the five percent level. Estimated from a hazard regression model that includes all these variables, the two income variables, and spouse's age difference (Model 1).

couple's total income on divorce risk primarily concerned the lower part of the income distribution. Couples in the lowest quartile had the highest divorce risk. In the middle part of the distribution, there was no change, whereas those in the highest quartile had a slightly higher risk.

In Model 2, both the wife's and the husband's level of education were added, both of which showed a strong influence on divorce risk (Table 3). A higher education level of either spouse clearly decreased the divorce risk. A wife's education has a somewhat larger influence, as couples with a wife who had attained higher education were half as likely to divorce as couples where the wife had a low education level. These estimates are controlled for the income variables, but they change very little only when these variables are removed from the model (results not shown). This relationship also holds when relative education level was added to the model. If the wife's education was higher than that of the husband, the couple had a *lower* divorce risk than other couples. There was no difference between couples of the same education level and couples where the husband's education was higher than that of the wife's. The effect of relative education on divorce risk is by far smaller than that of relative income.

The inclusion of education level in the model did not have any influence on the effect of relative income, but considerably altered that of the couple's total income. After controlling for education level, a U shape relationship appeared with the highest income bracket having the highest divorce risk, and couples between the 25th and 50th percentile the lowest.

The interactions between wife's share of total couple income and total couple income (Figure 1) show that in all three percentiles of couple's income, the higher the wife's share of income, the higher the hazard of divorce, though the rate of change of divorce hazard in the lowest 5% income percentile looks flat. The interactions between the wife's share of total income and the wife's education level indicates that in all three categories of wives' education levels -- low, medium and high, the hazard of divorce increases with her share of the couple income (Figure 2). To save space in this paper, results are not presented in the tables.

Discussion

Swedish register data used in this analysis has several advantages. Since the data set covers the entire population, there is no need to be concerned with sampling issues and statistical power to support the observed substantive differences. There is also no need to deal with reporting errors that may be encountered in self-reported income data. With the exception of two recent studies from Finland (Jalovaara, 2001, 2003), earlier work on the relationship.

Figure 1

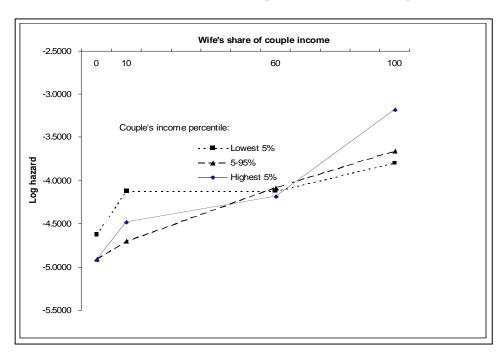**Interaction between Wife's Share of Couple Income and Total Couple Income**

Figure 2

Interaction between Wife's Share of Couple Income and Wife's Educational Level
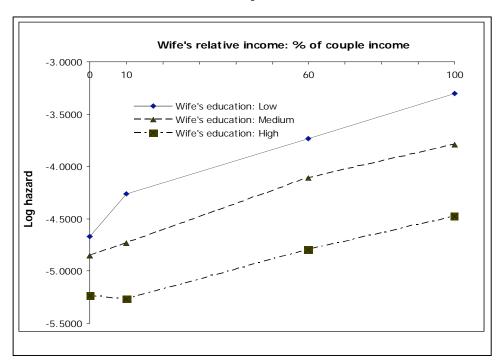
Table 3

Relative Divorce Risk by Explanatory Variables estimated from Hazard Regression Models that also include the control variables presented in Table 1

Variable	Category	Model 1	Model 2	Model 3
Wife's Share in Couple's	0-20	0.67	0.65	0.65
Total Income (%)	20-40	0.84	0.83	0.83
	40-60 (ref.)	1.00	1.00	1.00
	60-80	1.27	1.30	1.31
	80-100	1.40	1.41	1.42
Couple's Total Income,	0-25	1.16	1.12	1.12
Percentile	25-50 (ref.)	1.00	1.00	1.00
	50-75	1.02	1.05	1.05
	75-100	1.04	1.16	1.16
Couple's Age Difference	husband 6 or more years older	1.09	1.05	1.06
	husband 3 to 5 years older	*0.99*	0.97	0.97
	husband 1 to 2 years older	0.98	0.97	0.97
	age differene <=1 year (ref.)		1.00	1.00
	wife 1 to 2 years older		1.26	1.25
	wife 3 or more years older		1.62	1.62
Husband's Level of	pre-gymnasium		1.11	1.16
Education	gymnasium (ref.)		1.00	1.00
	post-gymnasium		0.84	0.81
Wife's Level of Education	pre-gymnasium		1.46	1.42
	gymnasium (ref.)		1.00	1.00
	post-gymnasium		0.83	0.81
Couple's Relative	husband's education higher			*0.99*
Level of Education	same level of education (ref.)			1.00
	wife's education higher			0.92

Note: Relative risks not significantly different from the reference category
at 5% level are in italics. All other estimates are significant at the 5% level.

between individual-level economic variables and divorce risk has been based on sample surveys

Throughout the analyses, support was found for the independence effect hypothesis, as the divorce risk increased linearly with the share of the wife's income to the couple's total income. This result is interpreted to be in line with the dominant arguments in the literature, according to which a higher income lowers the wife's constraint to exit an unhappy marriage. For women whose income is high in both relative and absolute terms, an additional interpretation may be that a high absolute income level grants them greater freedom in pursuing individual life goals, and that they may place high requirements on the qualities of their partner. A couple's non-traditional income ratio may have a negative influence on the quality of the relationship by threatening the traditional division of labour and breadwinner roles if these are valued by at least one of the spouses, usually the husband. The egalitarian value orientations prevailing in Sweden are assumed to reduce the influence of the non-traditional income ratio of spouses on their relationship quality. Against this background, finding such a strong independence effect and no support to the *egalitarian gender attitudes* hypothesis may be seen as somewhat unexpected. However, results of a recent study from Finland, where the context of gender relations resembles that of Sweden, were also consistent with the independence effect (Jalovaara, 2003).

The direction of the causal link between relationship quality and relative income can also be the opposite one, however. Johnson & Skinner (1986) and Rogers (1999) show that increases in perceived marital discord are related to increases in wives' income. If this relationship holds in Sweden, it would explain some of the variation in divorce rates by spouses' relative income that is presented.

With register data, it would not be possible to disentangle the relative importance of those interpretations: a self-supporting wife has a lower threshold to exit an unhappy marriage, the unconventional power relations resulting from the wife's higher income decrease the relationship quality, or marital discord stimulating wives to increase their income. It is likely that they all contribute to shaping the observed divorce pattern by spouses' income ratio. The age of the youngest child is used as a control variable in your models because of its high association with divorce risk as indicated in existing literatures. The number of children in the family, however, could be a factor that is related to couples' economic status and plays role in influencing family stability. This study would be more convincing if this issue is taken into consideration.

Our study lends some support to the income effect: couples with low income had a higher divorce risk. In the higher income brackets, divorce rather increased with income. Like previous studies that have aimed at distinguishing between the income and the independence effect (Greenstein, 1990, 1995), our

finding is inconclusive pointing at the existence of this effect only in a part of the income distribution.

Our hypotheses about *equally dependent spouses* and *egalitarian gender attitudes* focused on couples where each partner contributed 40-60% of the income. This group hardly deviated from the overall pattern of a linear relationship between the wife's relative income and divorce risk. The hypothesis on *equally dependent spouses* was supported to the extent that it compares this group to the couples with traditional income configuration. However, the further linear increase of divorce risk among the reverse traditional couples where the wife is the main earner of family incomes does not distinguish the group of equal earners within the overall linear relationship between the wife's relative income and divorce risk. Correspondingly, the hypothesis on *reverse traditional couples* did not find support either.

Our study highlights that couples where the wife earns more than the husband have a relatively high divorce risk not only in a traditional set up but also in a society that is organized on the principles of gender equality and with dominant egalitarian gender views.

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