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## AGAINST 'GENDER-BASED TAXATION'

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## **ABSTRACT**

### **Against 'Gender-based taxation'**

This paper criticizes the Alesina and Ichino (2007) proposal of taxing men more than women. First, the proposal is outright sex discrimination. Second, it cannot be Pareto-improving. Third, its virtues in terms of efficiency are better obtained by gender-neutral voluntary schemes for taxing households. Fourth, the tax would further undermine marriage.

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# Against ‘Gender-based taxation’

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November 30, 2007

## ABSTRACT

This paper criticizes the Alesina et al. (2007) proposal of taxing men more than women. First, the proposal is outright sex discrimination. Second, it cannot be Pareto-improving. Third, its virtues in terms of efficiency are better obtained by gender-neutral voluntary schemes for taxing households. Fourth, the tax would further undermine marriage.

## 1 Introduction

In a recent paper, Alesina et al. (2007) advocate that men should pay more taxes than women.

It is obvious, but worth stating, that public policy would then explicitly discriminate between individuals on the basis of an innate characteristic: sex. In my view, that would just create a caste society where women are the superior caste and men the inferior caste<sup>1</sup>.

One argument in favor of the man tax is "gender equality". That argument rests on statistical observations such as the "gender wage gap" or the proportion of women in high-ranking executive positions (while ignoring any statistic that would lead to a different prescription, such as the proportion of men in universities, or differences in life expectancy). That argument is a Marxist one: it insists on equal outcomes rather than – in fact, at the expense of – equal

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<sup>1</sup>This caste system would also harm "traditional" women who depend on a male provider.

rights, and it defines equality between groups rather than between individuals<sup>2</sup>. Clearly, the man tax will not reduce inequality between the homeless man down the street (or myself) and Oprah Winfrey.<sup>3</sup> Income inequality is typically dealt with by using taxes and transfers based on individual income, not gender.<sup>4</sup>

Another, more serious, argument, is that male labor supply is less elastic to wages than female labor supply; hence "Ramsey taxation" considerations should lead us to impose higher taxes on men than on women. The total quantity of "social welfare" would then be higher than under equal taxation.

The following three sections of this paper refute that argument. I first argue that if the Ramsey argument is to be taken seriously, then one should implement a whole array of discriminatory taxes on the basis of many innate characteristics. I then show that while the man tax may maximize a social welfare function, it is not Pareto-improving and harms men (a point recognized by Alesina et al., but worth emphasizing). I finally show that while a man tax may improve the welfare of *some* households, while harming others at the same time, a gender-neutral, voluntary scheme that allows for different tax rates between the marginal and inframarginal worker in the household improves welfare for *all* households.

In Section 5, I argue that the man tax undermines marriage, because of the phenomenon referred to as hypergamy. Section 6 contains concluding comments.

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<sup>2</sup>Indeed, the only proposal for a man tax in the political arena that I have seen, comes from a small Swedish extreme left-wing party, see <http://www.thelocal.se/article.php?ID=468&date=20041005>.

<sup>3</sup>The most scaring aspect of the Alesina et al. proposal, when I discuss it with other people, is that people seem mentally incapable of realizing that it is unfair (while of course it would immediatemely come to their mind, and rightly so, if instead the policy imposed more taxes on jews or gays). It is ironical that the only worry I have heard so far is that such a tax would be demeaning to *women*.

<sup>4</sup>A related, weak, argument, is that since sexist policies such as affirmative action and quotas are already in place, there is no obstacle to implementing differential taxation between the genders. That would make some sense if the authors were proposing that their man tax should replace existing affirmative action quotas, as the man tax is probably more efficient. But they do not propose that. In any case, it is hard to see how the existence of objectionable policies justifies the introduction of yet another objectionable policy. One may of course argue that since affirmative action exists, it cannot be objectionable on the basis of the implicit values that are suppose to determine our policies. But then the whole equal opportunity legislation should be thrown away and replaced by something else, perhaps an equal *outcome* law, although it is not clear that equal outcomes is what is being pursued, as no affirmative-action-style policy is observed in areas where women do better than men such as health, educational achievements, or a number of professions.

## 2 Why stop there?

In one sense, the point that differentiating taxes by gender improves "welfare" is obvious. The reason is that non-differentiation is a special case of differentiation. One can always replicate the non differentiating outcome by imposing the same taxes on both genders. If one relaxes that constraint, one has more instruments and "welfare" (i.e., whatever the "social planner" is supposed to maximize) must improve. All what Alesina et al. are saying is that if one does so, then the "optimal" tax on men is likely to be different from that of women, and that the former is likely to be higher, because male labor supply is typically more inelastic.

But, there is no reason to discriminate only along these lines. The tax system would be even better if one discriminated along all observable dimensions, certainly all dimensions that are genetically inherited, but also, potentially, dimensions that are affected by choice such as religion and sexual orientation. For example, Portuguese immigrants in France have a comparatively large employment rate and their participation behavior is probably less elastic than other groups, including native Frenchmen. Why not, then, impose a specific tax on Portuguese immigrants? Women who are infertile for genetic reasons are also likely to have a quite inelastic labor supply. In fact, if they are single, their labor supply may be even less elastic than for married men. Should we make them pay more taxes?

In the limit, each individual should face a unique tax schedule derived from his or her DNA. The man tax is only a gross approximation.

Alesina et al.'s claims imply that equality of treatment is inefficient because any "social welfare function" can be improved by introducing inequality of treatment. On the other hand, "society" has told us (so far) that equality of treatment is an important "social value". Does that mean that "society" is wrong and should instead write down an explicit social welfare function, or that

the economist's social welfare function is an abstraction that fails to capture true social values?

We could exit this dilemma if there was a way to put in place a set of compensatory transfers that make the "man tax" benefit everybody, i.e. if we could show that it is Pareto-improving. However, not surprisingly, that turns out to be impossible.

### **3 The man tax is not Pareto-improving and harms men**

There is a welfare criterion which is much less controversial than a social welfare function, namely the Pareto criterion. If a policy makes everybody at least as well-off as in its absence, then the policy can hardly be disputed, at least relative to the status quo.

One might believe that in a second best world where taxes are distortionary and must be positive to finance public expenditures, a man tax could be Pareto-improving over nondiscrimination, since it brings us closer to the principles of "Ramsey taxation". However, it cannot! To make it Pareto-improving, one should compensate men with a lump-sum transfer that covers at least the extra taxes they are paying. But women would then have to pay more taxes and cannot, consequently, be better-off.

The point is quite general: tax discrimination between different groups cannot improve on non-discrimination in a Pareto sense. Consider the following example. There are  $N$  groups indexed by  $i$ . Each group has a productivity  $a_i$  and pays income tax at rate  $t_i$ . Consequently, the after-tax wage rate is

$$w_i = a_i - t_i.$$

Each group receives a lump-sum transfer  $T_i \geq 0$ . Note that that transfer cannot be negative, hence lump-sum taxation is not feasible. An individual in

group  $i$  maximizes utility

$$U_i(l_i, c_i),$$

subject to the budget constraint

$$(a_i - t_i)l_i + T_i \geq c_i,$$

where  $l$  is labor and  $c$  is consumption. The first-order condition is

$$\frac{\partial U_i}{\partial l} + (a_i - t_i) \frac{\partial U_i}{\partial c} = 0.$$

This maximization problem yields an indirect utility function  $V(t_i, T_i)$ ; in particular, the Envelope Theorem implies that

$$\begin{aligned} \frac{\partial V_i}{\partial T_i} &= \frac{\partial U_i}{\partial c}; \\ \frac{\partial V_i}{\partial t_i} &= -\frac{\partial U_i}{\partial c} l_i. \end{aligned}$$

In the sequel, I will assume that labor supply is falling in taxes for any group:  $dl_i/dt_i < 0$ .

The government sets taxes so as to satisfy its budget constraint:

$$\sum_i T_i + G \leq \sum_i t_i l_i,$$

where  $G$  is the exogenous amount of public expenditure that has to be financed.

We ask the following simple question: When can a change in the distribution of tax schedules  $\{t_i, T_i\}$  be Pareto-improving?

Clearly, it would be easy to improve everybody's utility if the government budget constraint were not binding. Let us then assume it is. The changes must then satisfy

$$\sum_i dT_i = \sum_i (l_i dt_i + t_i dl_i). \quad (1)$$

The utility of group  $i$  then changes according to:

$$dV_i = -\frac{\partial U_i}{\partial c} l_i dt_i + \frac{\partial U_i}{\partial c} dT_i.$$



Thus, for group  $i$  not to lose, it must be that

$$dT_i \geq l_i dt_i. \quad (2)$$

That is, the change in the tax paid by group  $i$ , at its initial level of labor supply, must not exceed the additional transfer it gets.

A straightforward Pareto-improvement could be gotten if there exists a group who pays taxes and gets transfers at the same time. In such a case, one could just reduce  $t_i$  and  $T_i$  by amounts such that  $dT_i = l_i dt_i$ . The group would be left indifferent at the margin, while the difference between the RHS of (1) and its LHS would increase by  $t_i dl_i > 0$ , which allows to increase transfers and welfare for some other group.

Let us therefore assume that in the initial situation  $t_i T_i = 0$  for all groups, which rules out such a Pareto-improvement. Is there any further room for Pareto-improvements? Consider those whose taxes go up. As implied by (2), they must be compensated by a transfer  $dT_i$  at least equal to  $l_i dt_i$ . At this stage we already know that something is wrong, since we just showed that having groups that pay taxes while getting transfers is inefficient. Let us nevertheless complete our argument.

The change in public receipts generated by this shift is equal to  $-dT_i + d(l_i t_i) \leq t_i dl_i < 0$ . Thus, these people generate a net loss for the budget. Consider now those who pay lower taxes. The tax rate they pay must be positive initially, otherwise it could not fall. Therefore, they get a zero transfer initially, and one cannot reduce their transfer. Therefore, they must generate a net gain to the budget which is at most equal to  $l_i dt_i + t_i dl_i$ . If their tax rate is such that they initially are on the upward-sloping portion of the Laffer curve, then that gain is negative. Thus it is impossible to compensate those whose tax rate goes up in a balanced-budget fashion. Consequently:

*PROPOSITION – If the allocation of taxes among groups is such that*

*(i) The government budget constraint holds with equality*

(ii) No taxed group gets a positive transfer:  $t_i T_i = 0$ , for all  $i$ , and

(iii) Each group is on an upward sloping portion of its Laffer curve:  $\frac{d}{dt_i}(l_i t_i) \geq 0, \forall i$ ,

(iv) Labor supply is upward sloping:  $\frac{d}{dt_i} l_i < 0, \forall i$ ,

then the allocation of resources is second-best Pareto optimal in the sense that no other set of taxes and transfers  $\{(t_i, T_i), i = 1, \dots, N\}$  can make each group better-off.

*COROLLARY* – If the initial allocation is non discriminatory,  $T_i = T$ ,  $t_i = t, \forall i$ , and satisfies (i)-(iii), introducing tax discrimination between groups cannot be Pareto-improving.

Thus, the "man tax" is very different from reforms that genuinely improve efficiency, such as a reduction in trade barriers. In such a case, the losers can be compensated by the winners. That is not possible here. The reason why a man tax can improve efficiency, if one is maximizing a social welfare function, is that we can give more units of welfare to women than we take out of men; that is hardly a compensation for the latter. However, in defence of Alesina et al., it must be said that *if* there exists a stable social welfare function which is being maximized by the policy maker, then regardless of what it is, introducing tax discrimination surely improves its value, and is likely to be associated with higher taxes on men (or Portuguese immigrants) than in the absence of discrimination due to their lower elasticity. That may be true even though the social welfare function would put an equal weight on men and women. In fact it is even possible to have higher taxes on men despite that they may have a higher weight than women in the social welfare function.

The conclusion that must be drawn, in my view, is that we cannot base public policy on equal rights, as commonly understood, unless we throw away the notion of a social welfare function. Since equal rights have been, until recently, the foundation of modern Western society, it is fair to conclude that

no social welfare function captures the values of that society.<sup>5</sup>

## 4 The man tax and households

In this section I discuss how the man tax operates from the point of view of a household. Alesina et al. show that total household welfare can increase when the woman's tax rate is reduced and the man's one increased if the man's labor supply is less elastic than the woman's. That is the same utilitarian argument as criticized above, but applied to only two people. That point of view makes more sense to the extent that if these two people bargain over the surplus and make efficient labor supply decisions, their total surplus should go up if one taxes the inelastic supplier more and the elastic one less.

My key argument is: what does that have to do with gender-based taxation? The key aspect is that we benefit from increasing taxes on inframarginal hours while reducing them on marginal hours. Clearly, a gender-neutral differentiated tax system which differentiates between marginal and inframarginal hours is superior to a man tax – there are many households where the primary "inelastic" earner is the woman rather than the man. And the share of such households is likely to go up in the future, since women now acquire more education than men. In such households, the man, not the woman, is the marginal supplier of labor. A not-so-recent Canadian study (Crompton and Geran (1995)) finds that "in the space of *five years*, the proportion of wives with higher earnings than their husbands' jumped by 6 percentage points, from 19% in 1989 to 25% in 1993" (my emphasis); a more recent study by Sussman and Bonnell (2006) estimates that number at 29 % in 2003. What should we make of a proposal which increases distortions for almost 30 % of married couples?

If we put that fact together with the fact that in a country like the U.S., about 50 % of adults are single, we see that the proposal makes sense only

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<sup>5</sup>That paradox is probably at the root of Nozick's (1974) attempt to define justice as a property of the allocation process rather than a property of the allocation itself.

for a shrinking 35 % of the adult population. That is even an overestimate since, as we show below, if the tax schedules cannot be perfectly tuned to each household's characteristics, households where the man's earnings potential is large relative to the woman's are unsurprisingly likely to lose from the proposed tax change.

Furthermore, since the differentiated tax can increase the welfare of the household while not reducing government receipts, participation in a differentiated tax schedule can actually be purely *voluntary*. Households could choose between a tax schedule that only taxes total household income, and another, more complex one, where the larger income is taxed at a higher rate than the lower rate—which is already the case if the household can file separate returns and tax rates are progressive. In the end, we end up quite far from the Alesina et al. proposal.

Consider a household with two individuals, A and B. They provide  $l_A$  and  $l_B$  units of labor to the market, respectively. Each is endowed with 1 unit of labor. They produce a public household good  $h$ , according to the production function

$$h = 2 - l_A - l_B.$$

The wages are  $w_A$  and  $w_B$ , while utility of each member is  $U(c, h)$ , where  $c$  is his/her private consumption. We assume  $U'_2(\cdot, 1) = 0$ , so that the equilibrium value of  $h$  cannot exceed 1. Without loss of generality, we assume  $w_A > w_B$ . For any level of the household good  $h < 1$ , it is easy to see that the optimal allocation of labor in the household is  $l_A = 1$  and  $l_B = 1 - h$ . The resulting income is  $w_A + w_B(1 - h)$ .

The household determines  $h, c_A$ , and  $c_B$ , by maximizing a weighted average of utility:

$$\max \Omega = \theta U(c_A, h) + (1 - \theta)U(c_B, h), \tag{3}$$

subject to the budget constraint

$$c_A + c_B \leq w_A + w_B(1 - h). \quad (4)$$

The first-order conditions are

$$\theta U_2'(c_A, h) + (1 - \theta)U_2'(c_B, h) = (1 - \theta)w_B U_1'(c_B, h) \quad (5)$$

$$\theta U_1'(c_A, h) = (1 - \theta)U_1'(c_B, h). \quad (6)$$

Assume the pre-tax wage levels are  $y_A$  and  $y_B < y_A$ , respectively. Assume there is a proportional tax on labor income equal to  $t_A$  for member  $A$  and  $t_B$  for member  $B$ . Thus,

$$w_i = y_i(1 - t_i), \quad i = A, B.$$

Assume these taxes do not reverse the ranking between the two incomes and therefore have no impact on the pattern of specialization. The government revenues from the household we consider are given by

$$t_A y_A + t_B y_B(1 - h) = G.$$

Differentiating (3), and using the envelope theorem, we see that

$$(1 - h)y_A \frac{\partial \Omega}{\partial t_A} = y_B \frac{\partial \Omega}{\partial t_B}, \quad (7)$$

which can be computed as  $-(1 - h)\theta U_1'(c_A, h) < 0$ .

Consider a change in the tax rates that leaves government revenues unchanged. It must satisfy

$$y_A dt_A + (1 - h)y_B dt_B - y_B^2 t_B \frac{dl_B}{dw_B} dt_B = 0.$$

Substituting, we get its effect on  $\Omega$  :

$$d\Omega = \frac{\partial \Omega}{\partial t_A} \frac{t_B}{1 - h} \frac{y_B^3}{y_A^2} \frac{dl_B}{dw_B} dt_B.$$

Clearly, if the elasticity of labor supply is positive (which need not be the case because of income effects) this quantity is positive for  $dt_B < 0$ , which, unless

one is on the wrong side of the Laffer curve for that category of households, implies that  $dt_A > 0$ . One should therefore increase  $t_A$  and reduce  $t_B$  by as much as possible. That is the essence of the Alesina et al. model.

As I said above, that is just a case for applying different taxes to different incomes, regardless of gender.<sup>6</sup>

Note, though, that the above logic only applies if there is a single household, or equivalently if all households are identical. What if households differ, while all facing the same tax schedule? Using Equation (7) we see that a given household gains from a change in tax rates if and only if

$$-\frac{dt_B}{dt_A} > \frac{y_A}{y_B(1-h)}.$$

Therefore, only the households for which the wife's income is not too different from the husband's income can benefit from the proposed change in tax rates.<sup>7</sup>

Before we continue, we note that in the preceding model, different elasticities are a pure by-product of specialization within the household, which is itself due to differences in earnings capacities. Alesina et al. instead consider a model where the disutility of labor is less elastic to effort for men than for women. They then consider a second model which provides micro-foundations for that feature. The idea is that couples bargain over household chores, and that if men have a higher bargaining power than women, then they will perform a

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<sup>6</sup>At this stage, it is interesting to note that the French government had at some point a policy of subsidies for mothers who retired from the workforce to take care of their children (the policy was actually gender-neutral but mostly women took advantage of it). That is equivalent, at the margin, to  $t_B > t_A$ . That policy was partly motivated by the lump-of-labor fallacy, i.e. was meant to induce people to make room for other, presumably more needy, workers. However another aspect of it is that the cost of subsidized child care (currently around 1,000 Euros per month per child under 3) was not internalized in people's labor supply decisions. If the labor supply of the secondary earner is too high because of other distortions, then the conclusion that one must have  $t_B < t_A$  no longer necessarily holds.

Another recent French measure is that overtime hours will be exempt of social security contributions and income taxes, which goes in the direction of taxing marginal hours at a lower rate than inframarginal ones.

<sup>7</sup>Thus the proposal fits the feminist political agenda by reducing the welfare of single men and "traditional" families for the benefit of single women and "modern" families.

lower share of these chores, which results in a lower and less steep disutility of supplying labor to the market. The proposed man tax reduces the man's outside option in bargaining, while increasing that of the woman. As a result, household chores as well as labor market participation are more "equally shared". Under some circumstances a utilitarian social welfare function goes up, and the sum of the woman's and the man's utility in a household goes up too. It is not clear whether men can gain from the authors' analysis, but the presumption is that they lose due to their lower outside option in bargaining.

This argument rests on two important assumptions: first, that men have a higher bargaining power than women. That assumption plays a role in generating different labor supply elasticities, and probably also in the welfare analysis since it tends to generate a greater marginal utility of consumption for women than for men if taxation is nonbiased. But it is poorly substantiated. First, the authors refer to a study by "Friedberg and Webb (2006)(who) use data from the Health and Retirement Study and document that nearly 31% of males believe that "they have the final say in major decisions" while only 12% believe that their spouse is in the same condition. At the same time, approximately 31% of the females admit that their husband has the final say while only 16% believe to have the final say in major decisions the household can get a greater collective welfare." This is certainly very indirect evidence. To substantiate that claim, it would be more convincing to compare the private consumption expenditures of both parties in a household, or the way the common household belongings (house, financial wealth and children) are split after a divorce. Second, the authors claim that the fact that men perform fewer household chores is evidence for their higher bargaining power. That is certainly consistent with their model, but as far as proving that men have a greater bargaining power is concerned, that argument is circular. This leads me to the second assumption of Alesina et al.: their model is an inefficient bargaining model where people bargain first over household work in a Nash fashion, and then exogenously split

income to determine each member's private consumption. If households bargain simultaneously over home work and private consumption, in most models they will allocate household chores efficiently on the basis of comparative advantage and bargaining power will only affect the allocation of consumption between the two members. Greater male bargaining power no longer provides a basis for their lower labor supply elasticity.

## 5 The man tax undermines marriage

Another aspect is that the man tax undermines marriage. Depending on which perspective one comes from, that may or may not be a problem. However, a plausible case can be made that redistributing from men to women has an adverse impact on marriage. Furthermore, it is often argued that out of wedlock birth leads to adverse social outcomes.

The basic theory of marriage, going back to Becker (1973), states that, because of the sexual division of labor, the surplus from being married is higher, the higher the husband's wage and the lower the wife's wage. Sociologists make in fact the same prediction, based on what they call the "independence effect": a higher income makes the woman more independent of her husband. These predictions are in accordance with the empirical evidence, although that evidence is not as abundant and clear-cut as one would expect<sup>8</sup>. The literature discussed in Ono (1998) suggest a generally negative effect of husband's income on marital separation, while the effect of the wife's income is less clear. The evidence is somewhat stronger that the wife's relative income increases the risk of marital separation. Liu and Vikat (2004) indeed find, using Swedish data, a monotonic relationship between the wife's share in total income and the risk of divorce<sup>9</sup>. Interestingly, that evidence comes from a country where "traditional

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<sup>8</sup>There is an obvious potential bias in that women expecting to divorce for exogenous reasons may increase their labor market participation; thus the causality would run from divorce to wife's income rather than the opposite. However, even if that is the only mechanism, a man tax still clearly increases the divorce rate.

<sup>9</sup>Compared to a non working wife, the risk of divorce is 50 % higher if the woman earns



gender roles" are comparatively unimportant, both by law<sup>10</sup> and because of the culture. Ferro and Vignoli (2007) report similar findings for Italy.

If these predictions are correct, we expect the man tax to further reduce the number of marriages and increase the number of divorces.

Furthermore, divorce and single parenthood impose negative externalities on children. The literature has found that when parents divorce, children end up with lower educational achievements, lower marital stability, and higher divorce rates. They are more prone to suicide and substance abuse. To quote Gruber (2004):

After reviewing 92 studies, Amato and Keith (1991) report that children of divorce have more difficulty than children in intact families adjusting both socially and psychologically. Surveys show that children of divorce are more likely to exhibit behavior that is antisocial, impulsive, or acting out. They are more likely to become delinquents (Matsueda and Heimer 1987; Zill, Morrison, and Coiro 1993), and they are likely to perform worse academically; Guidubaldi, Perry, and Cleminshaw (1984) find that first-, third-, and fifth-graders from divorced families as (compared with children of intact families) scored lower on I.Q., reading, spelling, and math tests. They are also more likely to suffer psychological symptoms such as dependency, low self-esteem, anxiety, and depression. Children whose parents have divorced score above clinical cutoffs on psychological tests of behavior problems twice as often (20% vs. 10%) in comparison to children from intact households. (See, e.g., Achenbach and Edelbrock 1983; Isaacs 1986; and Hetherington and Clingempeel 1989.)

The research on adolescents from divorced families also documents that the man tax is more likely to be paid by women with children between 40 and 60 % of the couple's income, and 110 % higher if she earns between 80 % and 100 % of the couple's income. These authors also find, interestingly, a monotonic decreasing relationship between total household income and divorce probability.

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<sup>10</sup>See Eriksson (2006).

ments negative consequences. Adolescents with divorced parents are two to three times more likely to drop out of school, become pregnant, or engage in antisocial and delinquent behavior, and they score above clinical cutoffs on standardized tests of behavior (Achenbach and Edelbrock 1983). They begin to date and have sex at a younger age (Flewelling and Bauman 1990). Other researchers find that these youngsters are more aggressive, noncompliant, sexually active, and likely to use and abuse drugs and alcohol than adolescents from intact households (Dornbusch et al. 1985; Baumrin 1989; Doherty and Needle 1991). Adolescents whose parents have divorced are more likely to have a low academic performance and to drop out of school, even after one controls for socioeconomic status (Guidubaldi et al. 1984; Krein and Beller 1988).

That seems to be a case for promoting marriage rather than discouraging it. Yet the man tax would go exactly in the opposite direction.<sup>11</sup>

One may speculate, though, that at some point, "gender roles" might be reversed, so that men would perform domestic work and women market work. In such a situation, it is the wife's income that increases marital stability, and the husband's income that reduces it. The greater educational achievements of women compared to men over the last three decades suggest that society may be moving in that direction. That would make all the justifications for the man tax ("equality" as well as "elasticity") go away<sup>12</sup>, but at least such a tax would then encourage marriage rather than discourage it. Except that the sexual division

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<sup>11</sup>From that remark it is very easy to write a paper advocating gender-based taxation at the expense of women rather than men. All one has to do is to take a model like the one described below and introduce some externality from marital arrangements to the quality/welfare of children. Clearly such a tax would be just as discriminatory as the one advocated by Alesina and Ichino, and the promotion of marriage could be obtained by a marriage subsidy benefitting the household as a whole, rather than gender-based taxation. My own view, though, is that one would go a long way if the State just enforced private marriage contracts, which would undoubtedly specify penalties for the party who unilaterally initiates separation.

<sup>12</sup>Feminists may view the man tax as hastening the transition toward a society where traditional gender roles are inverted, since such a society is more desirable in their eyes.

of labor is probably not the main reason why marriage exists; there exists a deeper reason why women are sellers, and men buyers, in a marriage market.<sup>13</sup>

In a marriage, men get the opportunity to have their own legitimate children and to invest in these children's human capital. In the absence of marriage, men do not really know who their children are. Legitimacy is clearly a benefit of marriage for men. By contrast, whether she marries or not, the woman would have legitimate children by the sheer virtue of biology. By marrying, she is committing to have children with her husband rather than other men who might provide superior genetic material. The key point is that this superior genetic material (sperm) is not scarce, so that the woman could obtain it at no cost (as it is in the evolutionary interest of the other man to have more offspring).<sup>14</sup> To summarize: regardless of the sexual division of labor, marriage entails a non transferable utility loss for the woman (the opportunity cost of superior genes that better males could have provided), and a non transferable utility gain for the man (having children who are his for sure). The richer the woman, the lower her marginal utility of consumption, and the greater the consumption equivalent of her opportunity cost. For the marriage to be viable, the man needs to compensate the women for that cost, more so, the richer the woman. Consequently, any transfer from men to women will reduce the number of marriages, even if women were richer than men and if men specialized in household production.

Take the following simple model. A person's skill is equal to  $y$ . His or her productivity in the consumption goods sector is also equal to  $y$ , while productivity in the household good sector is  $y^\gamma$ , with  $0 < \gamma < 1$ . A single individual  $i$ 's utility is  $\ln c_i + \ln h_i$ , where  $c_i$  is consumption and  $h_i$  is the household good. A married individual's utility is  $\ln c_i + \ln h_i + g_i$ , where  $g_i$  is the individual's intrinsic gain from the marriage (Hence  $g_i > 0$  for a man and  $g_i < 0$  for a

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<sup>13</sup>This point is reinforced by the observation that household services can be purchased on the market, rather than be transacted within the household.

<sup>14</sup>I elaborate on the economic consequences of that observation in Saint-Paul, forthcoming, 2008.

woman, according to the above considerations). People can affect a fraction of their time to market work which is either 0, 1/2, or 1.

For a single individual, the optimal fraction of market time is 1/2. Resulting utility is  $(1 + \gamma) \ln y - 2 \ln 2$ .

Consider a married couple, with two individuals, A and B, whose skill levels are  $y_A$  and  $y_B$ , respectively. Let  $g_A$  and  $g_B$  be the corresponding intrinsic gains. Assume  $y_A > y_B$ . Under plausible parameter values, the most skilled should entirely work in the market and the least skilled in the household. That specialization arises because  $\gamma < 1$ : household tasks are less sensitive to skills. The total consumption level generated by that assignment is  $y_A$ ; assume (again for simplicity) that both parties bargain ex-post over that cake, with equal weight. The consumption levels are then  $c_A = c_B = y_A/2$ . The (public) household good is produced at level  $h = y_B^\gamma$ . Each member  $i$  has a utility level given by

$$U_i = \gamma \ln y_B + \ln y_A + g_i - \ln 2.$$

That describes a "modern marriage" where gender roles are not defined by the culture but are just the outcome of optimal specialization within the household. In addition to that, we can consider two other cases:

- "traditional marriage" where individual A is the man, individual B is the woman, and the preceding specialization pattern takes place even when  $y_B > y_A$ .

- "feminist marriage" which is identical to traditional marriage, except that gender roles are reversed and A is now interpreted as the man, and B interpreted as the woman.

In all these cases, the marriage is beneficial for party A iff

$$\gamma \ln \frac{y_B}{y_A} > -g_A - \ln 2.$$

It is beneficial for party B iff

$$\ln \frac{y_B}{y_A} < g_B + \ln 2.$$

Therefore, the marriage will take place provided the skill ratio is such that

$$\frac{-g_A - \ln 2}{\gamma} < \ln \frac{y_B}{y_A} < g_B + \ln 2. \quad (8)$$

In a traditional society, individual A is the man and individual B is the woman. Thus,  $g_A > 0$  and  $g_B < 0$ . The inequality that is most likely to be binding, therefore, is the second one. For  $\gamma = 1/2$ , for example, even with  $g_A = 0$  the man would be happy to marry a woman four times less skilled than he is. Furthermore, the range of values of  $\ln \frac{y_B}{y_A}$  such that the marriage is viable cannot be empty. If  $g_B < -\ln 2$ , there will be hypergamy: women would only marry men who are richer than they are, by enough. If  $g_B > -\ln 2$ , women marry men with sufficient human capital relative to them, but not necessarily with more human capital than they have. Finally, women are necessarily "pickier" than men, as their minimum desired ratio of male skill over female skill, which, in logarithms, is equal to  $-g_B - \ln 2$ , is larger than the converse for men, equal to  $(-g_A - \ln 2)/\gamma$ .

In a "feminist" society, individual A is the woman and individual B is the man. Therefore,  $g_A < 0$  and  $g_B > 0$ . It is now more likely that the first inequality is binding! In fact, if a traditional society is hypergamous, i.e. has  $g_i < -\ln 2$  for women, it will remain hypergamous if turned into a feminist one. What used to be  $g_B$  in the traditional society is now  $g_A$ . Since it is algebraically smaller than  $-\ln 2$ , the quantity  $\frac{-g_A - \ln 2}{\gamma}$  is positive, meaning that women would only accept to marry men with sufficiently more skills than them. Despite being the bread winner, women still want to marry men with better skills. That is because they must be compensated for the opportunity cost of foregoing better genes by high quality domestic work. The fact that  $\gamma < 1$ , i.e. that domestic work is less elastic to skills than market work, only exacerbates the problem by increasing the skill requirements imposed by women on men in order to be willing to marry them. Women will remain more picky than men, provided  $-g_A > -\gamma g_B + (1 - \gamma) \ln 2$ . That condition actually holds if there is hypergamy, i.e. if  $g_A < -\ln 2$ . Finally,

marriage may entirely collapse if  $-g_A - \gamma g_B > (1 + \gamma) \ln 2$ .

How about the modern society? Let us focus on the case where there is hypergamy, i.e.  $g_i < -\ln 2$  for women. In that case, women will be the bread winner if more skilled than their husband, but then they do not benefit from the marriage. Therefore, the only marriages that take place are those where the man has greater skills than the woman.

Let us see how the man tax operates in this case. For married couples, it is equivalent to a reduction in  $y_A$ , while leaving  $y_B$  unchanged, since the reduction in women's taxes only applies to market work. Consequently, both members of the household are harmed. Calling  $t$  the tax, the wife's utility is equal to  $\gamma \ln y_B + \ln y_A + g_B + \ln(1 - t) - \ln 2$  and clearly decreases with  $t$ . As for single women, the subsidy they get, relative to the status quo, is equivalent to an increase in  $y_B$ . Calling  $s$  the subsidy rate, their utility is now  $(1 + \gamma) \ln y_B + (1 + \gamma) \ln(1 + s) - 2 \ln 2$ . Thus, single women are better-off. A marriage takes place if and only if

$$\ln \frac{y_B}{y_A} < g_B + \ln 2 - (1 + \gamma) \ln(1 + s) + \ln(1 - t).$$

A woman who does not marry, or divorces, as a result of the man tax is better-off provided

$$g_B + \ln 2 - (1 + \gamma) \ln(1 + s) < \ln \frac{y_B}{y_A} < g_B + \ln 2.$$

Those women for whom

$$g_B + \ln 2 - (1 + \gamma) \ln(1 + s) + \ln(1 - t) < \ln \frac{y_B}{y_A} < g_B + \ln 2 - (1 + \gamma) \ln(1 + s),$$

are also induced to divorce by the man tax, but they are worse-off than absent the man tax.

Therefore, the man tax reduces the number of marriages, always harms men, and often harms women.

If the hypergamy condition does not hold, the effects are milder; at some point, the man tax will, by making husbands poorer than their wives, trigger a reversal of gender roles within the household. But that does not make it more stable, as it makes it more likely that the first inequality in (8) is violated. If the tax on men and subsidy on women continues to grow, it will eventually be violated and the marriage will break. This model therefore suggests that even if the sexual division of labor is inverted, the man tax is likely to undermine marriage.

## 6 Concluding comments

The Alesina et al/ proposal underscores the dangers of basing policies on social welfare functions that aggregate utility between individuals. If a proposed policy violates basic principles of equal treatment and makes some people worse-off, it can hardly square with social preferences. If that same policy maximizes a (generic) social welfare function, it must be that social preferences cannot be represented by a social welfare function.<sup>15</sup>

From a practical perspective, another issue is that the proposed tax system may have very different effects from the ones expected by the authors.

The view that men's labor supply is less elastic derives from econometric studies where the sources of variation in wages are quite different from the policy proposed by Alesina et al.. It is therefore dubious that the response of male labor supply to their proposed tax would be the one predicted by these studies – a standard case of the "Lucas critique".

In particular, it is unlikely that people are going to react to a tax that is unfair in the same fashion as with a nondiscriminatory tax. There exists a body of empirical evidence showing that people are willing to harm themselves to retaliate against an action that they consider as unfair. For example, Fehr

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<sup>15</sup>Of course, one may also assume that these principles no longer apply to our society, but then this brings a whole array of new issues, such as: Who has made that decision? and: Why should social scientists take "social goals" as given rather than challenge them?

and Gächter (2000) report experimental results showing that in the ultimatum game, the offer is quite often decline if it is below 30 % of the total income to be distributed, despite that such a refusal generates a zero income for both parties. Thus, people accept 30 out of a cake of 60 but refuse 30 out of a cake of 100.

That suggests that unfair taxes may trigger far more elastic responses than suggested by existing econometric studies.



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