



BGPE Discussion Paper

No. 39

**The tragedy (or virtue?) of in-kind
redistribution: How the poor pays for the
rich's status concerns**

Jan Schumacher

January 2008

ISSN 1863-5733

Editor: Prof. Regina T. Riphahn, Ph.D.
Friedrich-Alexander-University Erlangen-Nuremberg
© Jan Schumacher

The tragedy (or virtue?) of in-kind redistribution: How the poor pays for the rich's status concerns

Jan Schumacher*

University of Regensburg

January 28, 2008

Abstract

The model describes a two person economy, in which one individual with positive exogenous income is altruist towards an individual with no income. The rich individual cares for her own social status. She evaluates her status by comparing disposable net cash incomes. When deciding on the size and on the structure of redistribution, the rich person decides that at least part of the redistribution is done in-kind, even if a private substitute for the publicly provided good is available. The amount of in-kind transfers that is provided exceeds the unconstrained Marshallian demand of the poor individual for the good in question. Hence, optimal policy restricts the poor in his allocative choices. The overall resource transfer is lower when the richer cares for her status compared to a situation in which she does not.

Keywords: Redistribution, in-kind transfers, altruism, status

JEL-Code: H42, D63, D64, D31

*Address correspondence to: Jan Schumacher, University of Regensburg, Department of Economics & Econometrics, 93040 Regensburg, Germany, phone: +49 941 943 2715, e-mail: jan.schumacher@wiwi.uni-r.de.

I thank Bruno Amable, Lutz Arnold, Wolfgang Buchholz and Andreas Graichen for helpful comments and suggestions. The usual disclaimer applies.

1 Introduction

One of the essential conclusions from the first and second theorem of welfare economics is that redistribution can be done efficiently by using lump-sum cash transfers. However, real world observations tell us that in many developed countries a considerable share of redistribution is given in-kind by the public provision of private goods. Health care systems and public education are surely the most prominent examples.¹

This paper gives a new explanation why in-kind transfers are often chosen to redistribute resources from wealthier to poorer individuals, even if efficient cash transfers are a feasible alternative. My argument is motivated by some observations made during recent public sector reforms in European countries: On one hand there was widespread support for redistribution, even by people who were not immediately concerned by the intended cutbacks. On the other hand discussions in the media were influenced by some new sociological phenomenon: In times of sensible economic pressure – caused among other developments by increasing international competition, high unemployment and growing economic uncertainty – people of the middle class seem to be increasingly haunted by the fear of their own potential social decline.² This phenomenon may also be interpreted as the fear of a shrinking distance between one's own (not at least financial) situation and the situation of beneficiaries of transfer incomes.

I argue that the support for redistribution as such, which I explain by assuming that people are altruistic towards the poor, and the concern for one's own income position and social status jointly explain why at least part of redistribution is given in kind, and why people may find a transfer system consisting only of cash transfers unattractive. I consider an economy with two people, one with some positive exogenous income and one without any income, and a government executing the preferred policy of the richer individual. In the following, the individual with positive exogenous income is called "the rich", and the individual with no exogenous income is called "the poor". These terms are chosen only to simplify the language. The term "rich" does not imply that the income differential between the two is necessarily very big and that the rich is very wealthy. Anecdotic evidence suggests that, if that were the case, those really wealthy people might perhaps not be concerned about the income gap between themselves and the poor as this gap would be too large. On the contrary, their attitude towards the poor is likely to be driven by other motives,

¹Besley and Coate (1991) show that redistribution by in-kind transfers is feasible, but underline that there are more efficient ways to transfer resources from rich to poor people.

²In Germany, the press even found a name for this phenomenon: They dubbed it *Abstiegsgangst*.

which are not captured by this model.

Here, the rich is altruist, but also compares her own disposable cash income to the poor's cash income in order to evaluate his status in society. Hence, she wants the poor to be better off and favors redistribution, but not at the price of making him 'too rich' compared to herself. The chosen policy mix of cash and in-kind transfers distorts the poor's optimal allocation of his financial resources by forcing him to overconsume the publicly provided good. Compared to a situation where people completely ignore status concerns, total redistribution may decrease.

This argument differs fundamentally from the well known explanations: These saw paternalist preferences of the donor (Pollack (1988)), the will to avoid strategic action by the donee (Buchanan (1975), Coate (1995), Bruce and Waldman (1991)), a desire to achieve equality of opportunity (Gasparini and Pinto (2006)), the potential stimulating effect of in-kind redistribution on labor supply (Gahvari (1994)), or the property of in-kind transfers to allow for a more efficient targeting of resources to the intended beneficiaries (Blackorby and Donaldson (1988)) as fundamental reasons for their widespread use. Furthermore, when in-kind transfers are used in addition to optimal income tax schedules, they allow for a welfare enhancement in case of information asymmetries between governments and citizens, as such transfers facilitate self-selection (Boadway and Marchand (1995), Blomquist and Christiansen (1995), Cremer and Gahvari (1997)). It has been shown that a mixed regime of public and private provision of some quasi-private good, such as health services, can be preferred by a majority of individuals to an entirely public or entirely private provision scheme and that, hence, public provision of private goods may constitute a political equilibrium (Epple and Romano (1996)).

In this paper, I assume that the human attitude towards redistribution is shaped by essentially two concerns, which have both separately attracted the attention of economists in recent years: The first is altruism, the second is status awareness.

Experimental economic research has generated a considerable amount of evidence that people do not behave entirely selfish. Altruist behavior has been observed in numerous laboratory experiments.³ Therefore, altruism should play a prominent role in economic models explaining redistributive behavior: Not astonishingly, wealth transfers inside families are often assumed to be driven by altruistic motives (Bernheim et al. (1985) or Bruce and Waldman (1991)). But even transfers between strangers may be motivated altruist feelings, as it is the case in Coate (1995).

Nevertheless, it seems as if only few individuals were *unconditionally* altruist

³Fehr and Fischbacher (2003) give a brief and precise survey on experimental evidence on the importance of altruism for human behavior.

(cf. Fehr and Schmidt (2006)). People sometimes do behave in an altruist way, and sometimes they don't. Such "pollution" of altruistic feelings is explained in different ways, e.g. as a trade-off between altruism towards the least well-off individual on one hand and a preference for efficiency on the other (Engelmann and Strobel (2004)), or as a trade-off between altruism and inequality aversion (Fehr et al. (2006)). Another important form of polluted altruism is the well known warm-glow argument given by Andreoni (1990). In the present paper I take up this trade-off idea. I assume that people trade their altruistic feelings towards poor individuals against their concerns for social status.

Individual status orientation and relative income concerns are known to have an effect on economic behavior in general and on attitudes towards redistribution in particular. They may influence optimal redistributive taxation (Boskin and Sheshinski (1978)) or change the optimal policy mix of a tax schedule and education subsidies (Lommerud (1989)). In a very influential paper, Corneo and Grüner (2000) argue that status considerations may reduce redistribution, as the expected utility of people belonging to the middle class rises when the consumption differential between themselves and poor people increases.

Falk and Knell (2004) stylize main features that are common to many models incorporating status: Relative consumption or income are the most widely used status measures, utility increases in one's own performance and decreases in the respective performance of the reference group. Furthermore, the reference standard is usually exogenously given and assumed to be identical to all individuals. In my model, status directly enters people's utility functions (as in Boskin and Sheshinski (1978), Lommerud (1989), Ng (1987), Akerlof (1997)). It is not a trivial assumption, that individuals use some income or wealth based measure to evaluate their status, but yet it is a widespread one and I keep close to the standard.⁴ Cole et al. (1992) show that social competition can lead to a situation, where a concern for one's relative position in society emerges endogenously, and where higher income implies higher status. There is also evidence that relative income has a considerable impact on peoples' well-being (Luttmer (2005)) or on their economic performance (Torgler et al. (2006)).

Bruce and Waldman (1991) set up an important benchmark for a non-trivial explanation of in-kind transfers, by pointing to the fact that once it is assumed that the donor cares for a particular consumption pattern of the donee, a justification for providing a particular good lays at hand and comes without any surprise. I

⁴In Ireland (1998) individuals tend to overconsume particular goods in order to signal status, which is a different concept to treat the question.

think that this argument should be taken seriously. The rich in my model is not interested in the consumption pattern of the poor. She does not think of the quasi-private good as a merit good, in which case we would return to the context of the paternalism argument. Here, the public provision of the quasi-private good is only a vehicle to avoid a too strong convergence of net incomes. Whether the good has some virtue other than to allow the reduction of the cash transfer, is of no particular importance. Nevertheless, the poor's actual consumption pattern turns out to become an externality for the utility of the rich – not directly, though, but only insofar as public provision allows to achieve a precise distribution goal which is detached from the actual characteristics of the good in question.

The paper is organized as follows: Section 2 describes the basic setup of the model and section 3 presents the poor's decision. Section 4 analyzes the rich's policy choices. In section 5 I make some remarks on the result from an ethical point of view. Section 6 concludes.

2 The model

The ambiguous role of in-kind transfers in the presence of status concerns is shown in a simple framework. The economy consists of just two individuals, one with some positive exogenous income ("the rich") and one without any exogenous income ("the poor"). Furthermore, I assume that there is a government, which executes the preferred policy of the rich.⁵ The positive exogenous income of the rich is denoted y . Both individuals have preferences over two commodities: a (composite) consumption good c and some quasi-private⁶ good g which can be provided both by the government or by private markets. For simplification, the price of both goods is fixed to unity, so that $p_g = p_c = 1$. In addition to her preferences for the commodities, the rich individual is altruistic towards the poor and derives utility from the poor's utility, denoted u^0 .

Hence, she can decide to transfer a share T of her wealth to the poor. She may make this wealth transfer either in cash, or in kind in terms of good g , or she may choose some combination of the two. I call g_p the in-kind transfer, then $T - g_p$ is the cash transfer. The policy choice of the rich is executed by the government, which collects T from the rich, and hands it over to the poor: it gives $T - g_p$ in cash

⁵This is clearly a highly simplifying assumption. But in order to keep the model as simple as possible, the political decision process has been boiled down to the strict minimum. A similar setting can be found in Coate (1995).

⁶In the literature on the public provision of private goods, the term *quasi-private good* usually designates private goods, that are both provided by the government and by markets.

and provides g_p units of good g to the poor. Then the net cash income of the rich is $y - T$ and net cash income of the poor is $T - g_p$. The rich uses her net income to buy c^r units of a composite consumption good c or to buy g^r units of good g . The poor can use his net cash income to buy c^0 units of the consumption good and some additional units g^a of the quasi-private good g on the market, if the publicly provided quantity g_p is not sufficient for him. On the contrary he may not re-sale any of the publicly provided units.

Additionally, the rich individual cares about the difference between her own net cash income and the net cash income of the poor. In the sense of the social decline-argument described above, she prefers a larger distance between incomes to a smaller one. Calling this distance D , it is defined by

$$D = (y - T) - (T - g_p) = y - 2T + g_p \quad (1)$$

A rise in the overall wealth transfer T closes the gap between net incomes, a rise in the in-kind part g_p of this transfer widens it, as $\partial D/\partial T = -2 < 0$ and $\partial D/\partial g_p = 1 > 0$. Note that with net income of the poor catching up with net income of the rich, utility of the latter decreases.

Then preferences of the rich individual are described by a strictly quasi-concave utility function

$$u(c^r, g^r, u^0, D)$$

To simplify the following analysis, corner solutions are excluded by the following

ASSUMPTION 1 The indifference surfaces associated to $u(c^r, g^r, u^0, D)$ are tangential to the coordinate axis.

Preferences of the poor need further explanation: Both individuals are rational and perfectly aware of their situation, and the poor individual knows that he is poor and has to rely on the rich's donations. In this context, altruism towards the rich would be an awkward assumption. The poor in this model is not altruist, because he cannot afford any altruism. Neither is it reasonable to assume that he cares about status, as his exogenous income is zero and depends entirely on transfers. So, $u^0 = u^0(c^0, g^0)$ with u^0 strictly quasi-concave and with indifference curves tangential to the coordinate axis in the c^0 - g^0 -diagram.

With this information, the utility of the rich person can be rewritten as

$$u^r(c^r, g^r, u^0, D) = u^r(\underbrace{y - T - g^r}_{c^r}, \underbrace{g^r}_{g^r}, \underbrace{u^0(T - g_p - g^a, g_p + g^a)}_{u^0}, D) \quad (2)$$

Economic decisions take place in two stages: In a first stage, the rich decides on the overall wealth transfer T and on the split-up of T into an in-kind transfer g_p

and a cash transfer $T - g_p$. The government then executes this policy choice. In a second stage, the poor decides whether or not to supplement the publicly provided quantity g_p by private purchases g^a . The rich's optimal policy choice is determined by backward induction.

3 The second stage: the poor's consumption choice

On the second stage, the poor individual will have to make his decision contingent on the policy choice of the rich. As he has no net income of his own he has to cope with the transfers he receives. Given his disposable cash $T - g_p$ and the publicly provided quantity of g , g_p , he will maximize his utility. Hence, he solves the following maximization problem:

$$\max_{g^a} u(T - g_p - g^a, g_p + g^a) \quad (3)$$

$$\text{s.t. } g^a \geq 0 \quad (4)$$

A utility maximum is characterized by

$$g^a \left(-\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} \right) = 0 \quad \text{and} \quad \left(-\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} \right) \leq 0 \quad (5)$$

The poor will choose his private purchase g^a of good g in order to equalize marginal utilities derived from the consumption good and from the quasi-private good g respectively. To what extent this is possible is limited by the non-negativity constraint concerning g^a , which is due to the assumption that publicly provided units of g cannot be resold. Define $g_{opt}^0(T)$ as the total quantity of the quasi-private good the individual would consume, if he were not bound by any constraint, given a cash transfer income of T . Then $g_{opt}^0(T)$ is the poor's unrestricted Marshallian demand for g . Hence, (5) leads to the following demand function for g^a :

$$\tilde{g}^a(g_p, T) = \begin{cases} g_{opt}^0(T) - g_p & \text{if } g_p \leq g_{opt}^0(T) \\ 0 & \text{if } g_p > g_{opt}^0(T) \end{cases} \quad (6)$$

It then follows, that

$$\frac{\partial \tilde{g}^a(g_p, T)}{\partial g_p} = \begin{cases} -1 & \text{if } g_p \leq g_{opt}^0(T) \\ 0 & \text{if } g_p > g_{opt}^0(T) \end{cases} \quad (7)$$

As it is prohibited to resell g_p in part or totally, the poor is always forced to consume at least g_p . As long as the publicly provided quantity is inferior or equal to the

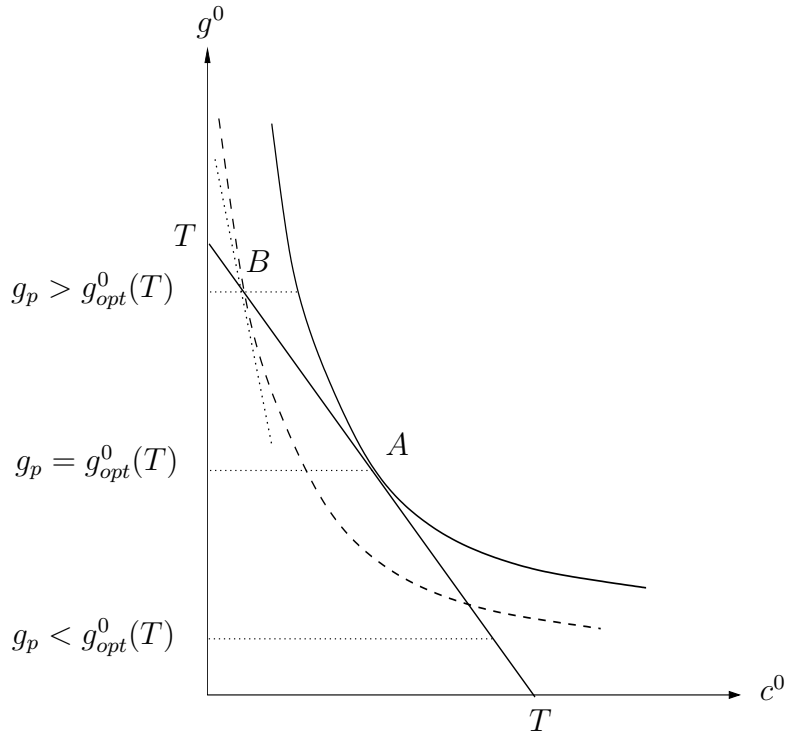


Figure 1: Income allocation of the poor individual

Marshallian demand of the poor, he additionally buys those units privately which he needs to equalize marginal utilities. When g_p exceeds his Marshallian demand, public provision constrains him. Hence, he overconsumes g and underconsumes c . Figure 1 illustrates the three possible situations in which the poor can find himself: g_p is lower than the poor's Marshallian demand, g_p is equal to it and g_p is higher than $g_{opt}^0(T)$.

When $\tilde{g}^a(g_p, T)$ denotes the poor's demand function for additional purchases of g call

$$\tilde{u}^0(g_p, T) = u^0(T - g_p - \tilde{g}^a(g_p, T), g_p + \tilde{g}_a(g_p, T)) \quad (8)$$

the poor's indirect utility function.

Once the in-kind share of T , g_p , gets higher than the poor's Marshallian demand for g , the poor's utility decreases, as the figure makes clear. Hence

$$\frac{\partial \tilde{u}^0(g_p, T)}{\partial g_p} = \frac{\partial u^0(T - g_p - \tilde{g}^a(g_p, T), g_p + \tilde{g}_a(g_p, T))}{\partial g_p} \quad (9)$$

$$= \frac{\partial u^0}{\partial c^0} \left(-1 - \frac{\partial \tilde{g}^a}{\partial g^p} \right) + \frac{\partial u^0}{\partial g^0} \left(1 + \frac{\partial \tilde{g}^a}{\partial g^p} \right) \quad (10)$$

Using (7) it can be seen that

$$\frac{\partial \tilde{u}^0(g_p, T)}{\partial g_p} = \begin{cases} 0 & \text{if } g_p \leq g_{opt}^0(T) \\ -\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} < 0 & \text{if } g_p > g_{opt}^0(T) \end{cases} \quad (11)$$

When the in-kind transfer does not constrain the poor, he will, either by supplementing on the market or because the transfer just equals his Marshallian demand for g , end up in point A . If the in-kind transfer exceeds the poor's Marshallian demand, he find himself in situation B at a lower utility level.

Remember that it is the rich who fixes T and g_p on the first stage. The rich cares positively for the poor's utility, so constraining the poor and consequently lowering his utility level will lower her own utility as well. Then the central question is: Is there any reason, why the poor should find himself in the situation with $g_p > g_{opt}^0(T)$, hence being constrained by the in-kind transfer. The answer is yes. In the following sections, I show that the rich has an incentive to increase g_p at a level which constrains the poor, because the negative effect on the utility of the poor (and hence on the utility of the rich as well) will be offset by an increase in status and the resulting positive impact on the rich's utility.

4 The first stage: the rich's policy choice

4.1 What if status did not matter?

Imagine that the rich individual was altruist towards the poor, but that she did not care about her social status. Preferences are then described by a utility function

$$\hat{u}^r(c^r, g^r, u^0) = \hat{u}^r(y - T - g^r, g^r, u^0(T - g_p - \tilde{g}^a, g_p + \tilde{g}^a)) \quad (12)$$

The first order conditions for an interior⁷ utility maximum are

$$\frac{\partial \hat{u}^r}{\partial T} = -\frac{\partial \hat{u}^r}{\partial c^r} + \frac{\partial \hat{u}^r}{\partial u^0} \frac{\partial u^0}{\partial c^0} = 0 \quad (13)$$

$$\frac{\partial \hat{u}^r}{\partial g_p} = \frac{\partial \hat{u}^r}{\partial u^0} \left[-\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} \right] = 0 \quad (14)$$

$$\frac{\partial \hat{u}^r}{\partial g^r} = \frac{\partial \hat{u}^r}{\partial c^r} + \frac{\partial \hat{u}^r}{\partial g^r} = 0 \quad (15)$$

$$(16)$$

The rich individual chooses a positive wealth transfer T . The size of T depends positively on the strength of the rich's altruistic feelings. To achieve a utility maximum, the rich has to choose her optimal (T, g_p) -bundle so that the poor's marginal utilities from consumption and from the quasi-private are equalized. Hence, obviously this policy choice must not constrain the poor individual. By consequence, given the

⁷In the following section it is shown that when status concerns matter, only interior solutions can emerge. Hence, I limit my analysis to interior solutions in the present section as well.

optimal wealth transfer T , any in-kind share $g_p \in [0, g_{opt}^0]$ yields the same maximal utility for the rich.⁸ No public provision is *needed*. On the contrary, the rich has absolutely no benefit from distorting the poor's consumption with a constraining in-kind transfer, as it would make both the poor's and her own utility fall without any positive counter effect.

Thus, at the rich's utility maximum

$$\frac{\frac{\partial u^0}{\partial c^0}}{\frac{\partial u^0}{\partial g^0}} = 1 \quad (17)$$

holds and, hence,

$$\text{MRS}_{c^0, g^0}^0 = \text{MRT}_{c^0, g^0} = 1 = \frac{p_c}{p_g} \quad (18)$$

The poor's marginal rate of substitution (MRS_{c^0, g^0}^0) between the consumption good and the quasi-private good equals the marginal rate of transformation between these commodities, equaling the price ratio between c and g . His choice is undistorted, he will always find himself in situation A as depicted in figure 1.

Altruism alone cannot explain the existence of in-kind redistribution. Altruistic concerns make rich people transfer part of their income to the poor. But once the optimal wealth transfer is determined, any in-kind transfer which leaves the poor unconstrained maximizes her utility. This includes the policy of giving no in-kind transfer at all.

4.2 The influence of status concerns

Now turn to the utility function as originally defined in (2) where the rich exhibits an *impure* altruism vis-à-vis the poor: *Impure* in the sense that she wants to raise the poor's well being, but not at the price of letting the gap between disposable incomes become too narrow. Hence, the rich solves the following maximization problem:

$$\max_{T, g_p, g^r} u^r (y - T - g^r, g^r, u^0 (T - g^p - \tilde{g}^a, g^p + \tilde{g}^a), D) \quad (19)$$

$$\text{s.t. } 0 \leq T \leq y \quad (20)$$

$$0 \leq g_p \leq T \quad (21)$$

$$g^r \geq 0 \quad (22)$$

The assumptions on the utility function directly lead to the following

⁸In this situation where status does not matter, there is no unique optimal choice for g_p . Given that the rich sets T optimally, any g_p from the interval mentioned above yields a utility maximum.

LEMMA 1 *At any solution to the maximization problem the side constraints are not binding.*

Proof in the appendix.

Hence, the rich individual will always choose a positive and feasible wealth transfer T , a positive and feasible in-kind share g_p and will buy a positive amount g^r for herself. Thus, in the following only interior solutions to the rich's maximization problem have to be considered.

The FOCs for such an interior solution are:

$$\frac{\partial u^r}{\partial T} = -\frac{\partial u^r}{\partial c^r} + \frac{\partial u^r}{\partial u^0} \frac{\partial u^0}{\partial c^0} + \frac{\partial u^r}{\partial D} \frac{\partial D}{\partial T} = 0 \quad (23)$$

$$\frac{\partial u^r}{\partial g_p} = \frac{\partial u^r}{\partial u^0} \left(-\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} \right) + \frac{\partial u^r}{\partial D} \frac{\partial D}{\partial g_p} = 0 \quad (24)$$

$$\frac{\partial u}{\partial g^r} = -\frac{\partial u^r}{\partial c^r} + \frac{\partial u^r}{\partial g^r} = 0 \quad (25)$$

According to equation (25), the rich will always balance marginal utilities derived from the two commodities, so that

$$\text{MRS}_{c^r, g^r} = 1 \quad (26)$$

This yields the following:

PROPOSITION 1 *Status concerns do not distort the allocation of the rich individual's net income and the rich will always choose a non-distorting consumption bundle c^r, g^r .*

This result is a consequence of the fact that public provision is not universal. The rich individual is not forced to consume the same quantity g_p she wants to be provided to the poor. Hence, she can freely choose the amount of the quasi-private good she desires to consume. Given any wealth transfer T that leaves her with some positive net income, she always allocates her remaining net income efficiently.

The definition of D leads to:

PROPOSITION 2 *The rich will never equalize the net cash income of herself and the poor.*

This follows directly from the fact that $D = 0$, when both cash incomes are equal, which cannot be a utility maximum given assumption 1. Whereas in the case without

status, if altruistic feelings are sufficiently strong, the poor can well end up with a higher cash income than the rich, here this clearly is not true.

A marginal increase of the wealth transfer T has a negative impact on status, as it closes the net income gap between the poor and the rich. Thus, it generates a negative impact on the utility of the rich and the last term of the left hand side of equation (23) is negative. When choosing the optimal wealth transfer, the rich faces a trade-off between her own consumption and the poor's consumption. The status concern causes a wedge between marginal utilities derived from her own and the poor's consumption, rising the marginal costs (in terms of her own utility) of a higher consumption of the poor. On the contrary, an increase of the in-kind share g_p of this transfer generates a positive impact on the rich's utility, as it improves status and widens the net income gap.

LEMMA 2 *A situation without public provision cannot be a utility maximum for the rich.*

Given any positive wealth transfer, up to the Marshallian demand of the poorest for a given T , an increase in g_p is a free lunch in terms of status. Because of $\partial D/\partial g_p = 1 > 0$, the rich can *ceteris paribus* improve her status by giving a larger share of the wealth transfer in kind. And (10) states that for any $g_p \leq g_{opt}^0(T)$ this will be utility neutral for the poor. Hence, given any positive and feasible wealth transfer T , the in-kind share amounts at least to the poor individual's unconstrained Marshallian demand for the quasi-private good. This lemma is crucial insofar, as it states that when status concerns pollute altruistic motives, part of the redistribution will always be done in kind. Hence, status awareness provides an explanation for the use of in-kind redistribution.

This result can be extended by

PROPOSITION 3 *The chosen in-kind transfer always constrains the poor in his consumption choice.*

Proof in the appendix.

The last term of the left hand side of equation (24) is positive, meaning that at any solution to the maximization problem, the poor derives a higher marginal utility from good c than from good g . He is constrained. Hence, the poor will always at least marginally overconsume g at the expense of his consumption of good c , g_p will always exceed the poor's unconstrained Marshallian demand for the quasi-private good.

The rich individual's status concerns are costly for the poor individual in two ways: financially and in terms of utility. Let us first turn to the monetary costs. Combining equations (23) and (24), together with $\partial D/\partial T = -2$ and $\partial D/\partial g_p = 1$, yields

$$\frac{\frac{\partial u^r}{\partial c^r}}{\frac{\partial u^r}{\partial u^0} \frac{\partial u^0}{\partial g^0}} = 1 - \frac{\frac{\partial u^r}{\partial D}}{\frac{\partial u^r}{\partial u^0} \frac{\partial u^0}{\partial g^0}} \quad (27)$$

For the next proposition, we need the following

ASSUMPTION 2 *The rich's utility function is linearly separable in all arguments and marginal altruism is positive and constant.*

Then equation (27) implicitly yields:

PROPOSITION 4 *Under assumption 2, in a situation where the rich individual is altruistic and cares about status, the global wealth transfer T is lower than in a configuration without status concern.*

Proof in the appendix.

This means that the presence of status concerns reduces the total amount of redistribution, i.e. the sum of redistribution in cash and in kind. A reduction in T widens the gap between the rich and the poor and improves the rich individual's position. Thus, T will be lowered to a point where the marginal gain induced by the status argument and the marginal gain induced by a rise in the rich's own consumption just outweighs the marginal utility loss, which is caused by the decrease of the poor's disposable income.

Furthermore, there are additional costs for the poor in terms of a loss of utility, which is induced by the distortion of his consumptive choices. The rich's status concern creates a negative externality. With the rich choosing her optimal wealth transfer and the corresponding in-kind share, the marginal positive impact that g_p has on the rich's status and thus on her utility just outweighs the marginal utility loss it induces by constraining the poor and by lowering his utility. Reformulation of (24) using the fact that $\partial D/\partial g_p = 1$ gives

$$\frac{\frac{\partial u^0}{\partial c^0}}{\frac{\partial u^0}{\partial g^0}} - \frac{\frac{\partial u^r}{\partial D}}{\frac{\partial u^r}{\partial u^0} \frac{\partial u^0}{\partial g^0}} = 1 \quad (28)$$

$$\Rightarrow \text{MRS}_{c^0, g^0}^0 - \text{SE} = 1 \quad (29)$$

$$\Rightarrow \text{MRS}_{c^0, g^0}^0 = \frac{p_c}{p_g} + \text{SE} \quad (30)$$

where MRS_{c^0, g^0}^0 is the poor's marginal rate of substitution between the composite good c and the quasi-private good g and $SE = \frac{\frac{\partial u^r}{\partial D}}{\frac{\partial u^r}{\partial u^0} \frac{\partial u^0}{\partial g^0}} > 0$ is the *status externality* the rich imposes on the poor. At any solution to the rich's utility maximization, the poor's marginal rate of substitution between the two commodities exceeds the marginal rate of transformation between c and g , which is equal to unity. Additionally, equation (30) shows that at an interior utility maximum, the effective relative price of the poor's consumption of c exceeds the constant price ratio p_c/p_g given by the production technology of g .⁹ This situation corresponds to point B in figure 1.

The higher $\partial u^r / \partial D$ is, e.g. the stronger the rich's status concern, the more important is the distortion which is imposed on the poor. Thus, the degree of overconsumption of the quasi-private good the poor has to accept depends positively on how much the rich values the distance between net incomes.

5 The dual costs of status concerns

I have shown that, when the rich cares about status, the poor will dispose of less purchasing power than he does when the rich disregards status. Furthermore, he is no longer able to allocate this purchasing power freely the way he wants to. His consumption choices are distorted, he is forced to underconsume some goods, which he then values relatively higher at the margin, and to overconsume others, which he then values relatively lower at the margin.

Hence, the poor pays the price for the rich's status awareness, and he pays it in two ways. He directly pays it through the loss of purchasing power – a price which is easily quantifiable. But he also pays it through the loss of consumptive freedom: the freedom to dispose of his revenues the way he wants to as a rational consumer.

⁹Note the similarity of this result with Ng (1987), who shows that in the presence of status effects (measured by a comparison of *private* consumption), the amount of a public good that should optimally be provided will exceed optimal provision without status effects, i.e. according to the Samuelson condition. In his model, agents can use their initial endowment either to buy a public good, or to buy a private composite good. Status is measured as the relation of one's own private good consumption to average private good consumption. In the absence of status effects, optimal public good provision is determined according to the Samuelson rule. In the presence of status effects, however, the consumption of the public good has three effects: First, it directly delivers itself a certain utility, as it does in the case without status. Second, it has a negative effect on one's own status as it decreases the relation of individual private consumption to average private consumption. And third, it creates a positive externality for other individuals by raising their status position, as average private consumption is decreasing.

At a first glance, the latter consequence may appear to be rather innocuous, but it clearly is not.¹⁰

The loss of "freedom of choice" clearly is an issue, which merits a thorough ethical discussion (see e.g. Sen (1988)). Here I just want to address the consequences of such a constraint: Why the lack of freedom may have as severe effects as the reduction of purchasing power, can best be understood by looking at a (possible) extreme solution to the rich's utility maximization, where nearly all redistribution is given in-kind.¹¹ Think of the commodity c as a basket of basic consumption goods such as food and clothes. With the rich individual opting to redistribute predominantly in-kind, the poor lacks the financial resources necessary to buy even these basic consumption goods, which are of utmost importance for survival.

The model is simple, and clearly appears oversimplified to make overhasty predictions for such real-world situations. But it is far from trivial, as it explains well the impact a concern for status may have when redistribution is on the agenda. Whether it is the rich and the middle class in a society who decide in what way to organize redistribution to the poor, or whether its a rich country who intends to help a third world country, implications are analogous: The donors always manage to shift the cost of their status concerns to the donees.

6 Conclusion

The aim of the paper was to give a new explanation for the existence of in-kind transfers. I have shown that when people are altruist and also care about their status, in-kind transfers play an ambiguous role: On the one hand, they are used to transfer wealth and to make the poor better off. On the other hand the in-kind share of transfers chosen by the rich always exceeds the poor's Marshallian demand for the quasi-private good. Thus the poor is forced to overconsume this good and to underconsume other consumption goods. Furthermore, status concerns are likely to decrease the overall volume of resources that is transferred.

¹⁰Amartya Sen has repeatedly pointed to the fact that wealth alone is likely to be an incomplete criterion for the evaluation of the situation an individual is in: "A person's well-being is not really a matter of how *rich* [sic!] he or she is. [...] Commodity command is a *means* [sic!] to the end of well-being, but can scarcely be the end itself" (Sen (1999), p. 19), and in a different essay: "Despite the crucial role of incomes in the advantages enjoyed by different persons, the relationship between income (and other resources), on the one hand, and individual achievements and freedoms, on the other, is neither constant nor in any sense automatic and irresistible. Different types of contingencies lead to systematic variations in the "conversion" of incomes into the distinct "functionings" we can achieve, and that affects the lifestyle we can enjoy." (Sen (2000), p. 109)

¹¹This is likely to arise when the rich individual values status very strong relative to altruism.

What has to be left out in the present paper is the analysis of a more sophisticated political equilibrium. But here it is clearly not politics that drive the results. The analysis can readily be extended to a case with more than two individuals where the rich and the middle class are forming one group which wants to take care of the poor and which holds the majority in society. The argument that in-kind transfers serve to make status friendly redistribution would remain unchanged.

The interpretation of what happens in the present context is not far away from the point made by Corneo and Grüner (2000). Richer individuals may have some interest in the poor staying poor in terms of disposable income. But I want to underline, that my explanation for the existence of in-kind transfers points into a different direction than existing arguments. Paternalism may or may not be desirable. But in the case of paternalist preferences the in-kind transfer is given in the spirit of enhancing the beneficiary's well-being. In the case of asymmetric information, in-kind transfers are a potentially welfare enhancing instrument, which allows the social planner to loosen self-selection constraints. In-kind transfers avoid inefficient strategic behavior as shown in the literature on the Samaritan's Dilemma. On the contrary, in the present situation these transfers are a way to achieve "cheap" redistribution: Cheap in the sense that they allow the rich to satisfy their altruist feelings and to enjoy the warm glow of giving, but without letting the poor come too close to themselves in terms of net income. I argue that in-kind transfers are not necessarily given to foster welfare or to guarantee equality of opportunity, but in order to conserve as far as possible the pre-tax income distribution. In that sense, in-kind transfers considerably reduce the poor's elementary freedoms of choice. This is not to say that arguments defending a positive role of in-kind transfers are not sensible – in fact I do very much think they are. But there may be much less nice reasons for which our societies have chosen to give to the poorest in the way they do than those that have been advanced so far by the economic profession.

Appendix

Proof of Lemma 1:

The assumption on indifference curves not intersecting the axis implies that $g^r > 0$. Additionally we have to have $T < y$, as otherwise, together with $g^r > 0$ one would have $c^r < 0$, which cannot be a utility maximum by the same assumption. Neither can any solution with $g^p > T$ be a utility maximum, as with $\tilde{g}^a \geq 0$ this would imply $c^0 < 0$ which is impossible by the same assumption. With this, the only side constraints which have to be considered are the non-negativity constraints $T \geq 0$

and $g_p \geq 0$. Hence, the Kuhn–Tucker conditions for a utility maximum are

$$\begin{aligned} -\frac{\partial u^r}{\partial c^r} + \frac{\partial u^r}{\partial u^0} \frac{\partial u^0}{\partial c^0} + \frac{\partial u^r}{\partial D} \frac{\partial D}{\partial T} &\leq 0 \quad \text{and} \quad T \left(-\frac{\partial u^r}{\partial c^r} + \frac{\partial u^r}{\partial u^0} \frac{\partial u^0}{\partial c^0} + \frac{\partial u^r}{\partial D} \frac{\partial D}{\partial T} \right) = 0 \\ \frac{\partial u^r}{\partial u^0} \left(-\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} \right) + \frac{\partial u^r}{\partial D} \frac{\partial D}{\partial g_p} &\leq 0 \quad \text{and} \quad g_p \left(\frac{\partial u^r}{\partial u^0} \left(-\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} \right) + \frac{\partial u^r}{\partial D} \frac{\partial D}{\partial g_p} \right) = 0 \\ -\frac{\partial u^r}{\partial c^r} + \frac{\partial u^r}{\partial g^r} &= 0 \end{aligned}$$

The same assumption as above implies that the two conditions

$$\begin{aligned} T - g_p - \tilde{g}^a &> 0 \\ g_p + \tilde{g}^a &> 0 \end{aligned}$$

have to be fulfilled. They can be rewritten as follows:

$$\begin{aligned} T &> g_p + \tilde{g}^a \\ g_p + \tilde{g}^a &> 0 \end{aligned}$$

implying $T > 0$.

But with $T > 0$ and keeping in mind that $\frac{\partial u^r}{\partial D} \frac{\partial D}{\partial g_p} > 0$ the first order condition on g_p implies $-\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} < 0$, which is only possible with $g_p > 0$. ■

Proof of Proposition 3:

Lemma 1 assures that $0 < T < y$. With the assumption of strict quasi-concavity of the preferences, it is clear that $g_{opt}^0(T) < T$, i.e. at $g_p = g_{opt}^0(T)$ side constraint (21) is not binding. Hence, the benefit of a marginal increase in g_p is given by

$$\left. \frac{\partial u^r}{\partial D} \frac{\partial D}{\partial g_p} \right|_{g_p = g_{opt}^0(T)} = \frac{\partial u^r}{\partial D} > 0 \quad (31)$$

On the contrary, the utility loss incurred by a marginal increase in g_p is given by

$$\left. \frac{\partial u^r}{\partial u^0} \left(-\frac{\partial u^0}{\partial c^0} + \frac{\partial u^0}{\partial g^0} \right) \right|_{g_p = g_{opt}^0(T)} = 0 \quad (32)$$

as shown in (11). Hence, the rich has an incentive to marginally increase g_p . ■

Proof of Proposition 4:

Using (25), equation (27) can be rewritten as

$$\frac{\frac{\partial u^r(c^r, g^r, u^0(c^0, g^0), D)}{\partial g^r}}{\frac{\partial u^r(c^r, g^r, u^0(c^0, g^0), D)}{\partial u^0} \frac{\partial u^0(c^0, g^0)}{\partial g^0}} = 1 - \frac{\frac{\partial u^r(c^r, g^r, u^0(c^0, g^0), D)}{\partial D}}{\frac{\partial u^r(c^r, g^r, u^0(c^0, g^0), D)}{\partial u^0} \frac{\partial u^0(c^0, g^0)}{\partial g^0}} \quad (33)$$

Hence, at a solution to the maximization problem with status the following relation has to hold:

$$\frac{\partial u^r(c^r, g^r, u^0(c^0, g^0), D)}{\partial g^r} < \frac{\partial u^r(c^r, g^r, u^0(c^0, g^0), D)}{\partial u^0} \frac{\partial u^0(c^0, g^0)}{\partial g^0} \quad (34)$$

By Proposition 1, this can be rewritten as

$$\frac{\partial u^r(c^r, g^r, u^0(c^0, g^0), D)}{\partial c^r} < \frac{\partial u^r(c^r, g^r, u^0(c^0, g^0), D)}{\partial u^0} \frac{\partial u^0(c^0, g^0)}{\partial g^0} \quad (35)$$

Assume that (\bar{g}_p, \bar{T}) is the rich individual's policy choice when caring for status, leading to $\bar{c}^r, \bar{g}^r, \bar{c}^0, \bar{g}^0$ and \bar{D} . Then inequality (35) becomes

$$\frac{\partial u^r(\bar{c}^r, \bar{g}^r, u^0(\bar{c}^0, \bar{g}^0), \bar{D})}{\partial \bar{c}^r} < \frac{\partial u^r(\bar{c}^r, \bar{g}^r, u^0, \bar{D})}{\partial u^0} \frac{\partial u^0(\bar{c}^0, \bar{g}^0)}{\partial \bar{g}^0} \quad (36)$$

Assumption 2 guarantees, that marginal utilities are independent from D . So at (\bar{g}_p, \bar{T}) , for a rich individual *not caring for status*, we find

$$\frac{\partial \hat{u}^r(\bar{c}^r, \bar{g}^r, u^0(\bar{c}^0, \bar{g}^0))}{\partial \bar{c}^r} < \frac{\partial \hat{u}^r(\bar{c}^r, \bar{g}^r, u^0(\bar{c}^0, \bar{g}^0))}{\partial u^0} \frac{\partial u^0(\bar{c}^0, \bar{g}^0)}{\partial \bar{g}^0} \quad (37)$$

However, combining the first order conditions (13), (14), and (15) tells us that for the rich individual's *optimal* policy choice *without* status

$$\frac{\partial \hat{u}^r(c^r, g^r, u^0(c^0, g^0))}{\partial g^r} = \frac{\partial \hat{u}^r(c^r, g^r, u^0(c^0, g^0))}{\partial u^0} \frac{\partial u^0(c^0, g^0)}{\partial g^0} \quad (38)$$

has to be fulfilled. Hence, (\bar{g}_p, \bar{T}) cannot be the optimal policy choice in a situation without status. We know (from Proposition 3 together with the fact that when status concerns are ignored the poor is never constrained by the optimal policy), that given \bar{T} the in-kind share g_p will lower in the situation without status concerns than the in-kind share \bar{g}_p . Call this (lower) in-kind share \check{g}_p , leading to \check{c}^0 and \check{g}^0 . We can readily infer that

$$\frac{\partial u^0(\bar{c}^0, \bar{g}^0)}{\partial \bar{g}^0} < \frac{\partial u^0(\check{c}^0, \check{g}^0)}{\partial \check{g}^0} \quad (39)$$

while

$$\frac{\partial \hat{u}^r(\bar{c}^r, \bar{g}^r, u^0(\bar{c}^0, \bar{g}^0))}{\partial u^0} = \frac{\partial \hat{u}^r(\check{c}^r, \check{g}^r, u^0(\check{c}^0, \check{g}^0))}{\partial u^0} \quad (40)$$

by Assumption 2 so that we, have

$$\frac{\partial \hat{u}^r(\bar{c}^r, \bar{g}^r, u^0(\bar{c}^0, \bar{g}^0))}{\partial \bar{c}^r} < \frac{\partial \hat{u}^r(\bar{c}^r, \bar{g}^r, u^0(\check{c}^0, \check{g}^0))}{\partial u^0} \frac{\partial u^0(\check{c}^0, \check{g}^0)}{\partial \check{g}^0} \quad (41)$$

This still violates optimality condition (38), hence (\check{g}_p, \bar{T}) cannot be the rich's policy choice in a situation without status. Condition (38) can only be fulfilled by lowering the rich's consumption, and thus by rising the total transfer T , as this increases the left hand side of inequality (41) (the rich's marginal utility of consumption) and decreases the term on the right. Hence status concerns decrease the total wealth transfer T . ■

References

- Akerlof, G. A.**, “Social Distance and Social Decisions,” *Econometrica*, 1997, *65* (5), 1005–1027.
- Andreoni, James**, “Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving,” *The Economic Journal*, 1990, *100*, 464–477.
- Bernheim, B. Douglas, Andrei Shleifer, and Lawrence H. Summers**, “The Strategic Bequest Motive,” *Journal of Political Economy*, 1985, *93* (6), 1045–1076.
- Besley, Timothy and Stephen Coate**, “Public Provision of Private Goods and The Redistribution of Income,” *American Economic Review*, 1991, *81* (4), 979–984.
- Blackorby, Charles and David Donaldson**, “Cash Versus Kind, Self-Selection, and Efficient Transfers,” *American Economic Review*, 1988, *78* (4), 691–700.
- Blomquist, Soeren and Vidar Christiansen**, “Public provision of private goods as a redistributive device in an optimum income tax model,” *Scandinavian Journal of Economics*, 1995, *97* (4), 547–567.
- Boadway, Robin and Maurice Marchand**, “The Use of Public Expenditures for Redistributive Purposes,” *Oxford Economic Papers*, 1995, *47*, 45–59.
- Boskin, Michael J. and Eytan Sheshinski**, “Optimal Redistributive Taxation when Individual Welfare Depends upon Relative Income,” *The Quarterly Journal of Economics*, 1978, *92*, 589–601.
- Bruce, Neil and Michael Waldman**, “Transfers in Kind: Why They Can be Efficient and Nonpaternalistic,” *American Economic Review*, 1991, *81* (5), 1345–1351.
- Buchanan, James M.**, “The Samaritan’s Dilemma,” in Edmund S. Phelps, ed., *Altruism, Morality and Economic Theory*, New York: Russell Sage Foundation, 1975, pp. 71–85.
- Coate, Stephen**, “Altruism, the Samaritan’s Dilemma and Governments Transfer Policy,” *American Economic Review*, 1995, *85* (1), 46–58.
- Cole, H. L., J. M. George, and A. Postlewaite**, “Social Norms, Savings Behavior, and Growth,” *Journal of Political Economy*, 1992, *100* (6), 1092–1125.

- Corneo, Giacomo and Hans Peter Grüner**, “Social Limits to Redistribution,” *American Economic Review*, 2000, *90* (5), 1491–1507.
- Cremer, H. and F. Gahvari**, “In-kind transfers, self selection and optimal tax policy,” *European Economic Review*, 1997, *41* (1), 97–114.
- Engelmann, Dirk and Martin Strobel**, “Inequality Aversion, Efficiency and Maximin Preferences in Simple Distribution Experiments,” *American Economic Review*, 2004, *94* (4), 857–869.
- Epple, Dennis and Richard E. Romano**, “Public Provision of Private Goods,” *Journal of Political Economy*, 1996, *104* (1), 57–84.
- Falk, A. and M. Knell**, “Choosing the Joneses: Endogenous Goals and Reference Standards,” *Scandinavian Journal of Economics*, 2004, *106*, 417–435.
- Fehr, E. and K. M. Schmidt**, “The Economics of Fairness, Reciprocity and Altruism – Experimental Evidence and New Theories,” 2006. Discussion Paper 2005-20, LMU Munich, Dep. of Economics.
- **and U. Fischbacher**, “The nature of human altruism,” *NATURE*, 2003, *425*, 785–791.
- **, M. Naef, and K. M. Schmidt**, “The Role of Equality and Efficiency in Social Preferences,” 2006. Institute for Empirical Research in Economics, University of Zurich, Working Paper No. 300.
- Gahvari, Firouz**, “In-kind transfers, cash grants and labor supply,” *Journal of Public Economics*, 1994, *55*, 495–504.
- Gasparini, Leonardo C. and Santiago M. Pinto**, “Equality of opportunity and optimal cash and in-kind policies,” *Journal of Public Economics*, 2006, *90*, 143–169.
- Ireland, Norman J.**, “Status-seeking, income taxation and efficiency,” *Journal of Public Economics*, 1998, *70*, 99–113.
- Lommerud, Kjell Erik**, “Educational Subsidies When Relative Income Matters,” *Oxford Economic Papers*, 1989, *41*, 640–652.
- Luttmer, Erzo F. P.**, “Neighbors as Negatives: Relative Earnings and Well-Being,” *The Quarterly Journal of Economics*, 2005, *120* (3), 963–1002.

- Ng, Yew-Kwang**, “Relative-Income Effects and the Appropriate Level of Public Expenditure,” *Oxford Economic Papers*, 1987, 39, 293–300.
- Pollack, Robert A.**, “Tied Transfers and Paternalistic Preferences,” *American Economic Review (Papers and Proceedings)*, 1988, 78, 240–244.
- Sen, A.**, “Freedom of Choice - Concept and Content,” *European Economic Review*, 1988, 32, 269–294.
- , *Commodities and Capabilities*, New Delhi: Oxford India Paperbacks, 1999.
- , *Development As Freedom*, New Delhi: Oxford India Paperbacks, 2000.
- Torgler, Benno, Sascha L. Schmidt, and Bruno S. Frey**, “Relative Income Position and Performance: An Empirical Panel Analysis,” 2006. CREMA Working Paper No. 2006-03.