Documento de Trabajo

Does the Inheritance and Gift Tax reduce wealth inequality? It depends

JULIO LÓPEZ-LABORDA

Documento de Trabajo 2024/06
julio de 2024

fedea

Does the Inheritance and Gift Tax reduce wealth inequality? It depends

Julio López-Laborda

Universidad de Zaragoza and Fedea

17 July 2024

Abstract: The paper determines the conditions for inheritances or gifts, first, and the Inheritance and Gift Tax (IGT), next, to reduce wealth inequality in the short run. The results show that it may not be sufficient for IGT to be progressive to reduce inequality in the distribution of wealth, but that it must be progressive enough to reinforce or reverse, as appropriate, the effect of inheritances on wealth inequality. The paper shows the conditions for this requirement to be met.

Keywords: Inequality, wealth, inheritance, Inheritance and Gift Tax.

JEL Classification: D31, H23, H24.

Acknowledgements: The author gratefully acknowledges comments by Jorge Onrubia and funding from the Government of Aragón, Project S23_23R (Public Economics Research Group).

1. Introduction

From a theoretical point of view, inheritances can either increase or reduce inequality in the distribution of wealth. The empirical literature suggests that the equalising effect prevails in the short run. This is because, although inheritances increase in absolute value with the wealth of the heirs, in relative terms, they decrease (see Wolf, 2002, and Wolff and Gittleman, 2014, for USA; Boserup et al, 2016, for Denmark; Bönke et al, 2017, for eight European countries; Karagiannaki, 2017, for the United Kingdom; Elinder et al, 2018, and Nekoei and Seim, 2023, for Sweden; OECD, 2021, for twelve of the sixteen OECD countries analysed). However, in the long run, the outcome may be different, due to different consumption/savings responses or heterogeneous rates of return on inherited wealth at different points in the wealth distribution (Nekoei and Seim, 2023).

In addition, the effect of a progressive Inheritance and Gift Tax (IGT) on inheritances received has to be taken into account, which can reinforce or weaken the effect of inheritances and can also vary in the short and long term (Cowell et al, 2018; Elinder et al, 2018; Nekoei and Seim, 2023). The distribution of the IGT proceeds, which may also affect the distribution of wealth, should also be considered.

This paper aims to contribute to this literature by addressing (part of) this problem from a theoretical perspective. Specifically, the aim of the paper is to determine the conditions for inheritance (or gift), first, and the IGT, next, to reduce inequality in the distribution of wealth in the short run. Wealth and inheritances incorporate the behavioural responses, if any, of parents (or donors) and heirs. Nekoei and Seim (2023) take a different approach, which also accounts for long-term effects.

The structure of the paper is as follows. In the second section we examine when inheritances received have an equalising or disequalising effect on the heirs' wealth. In the third section we add the IGT and analyse the joint equalising or disequalising effect of inheritances and the IGT, relative to pre-inheritance wealth. In the fourth section we ask whether the IGT has an equalising or disequalising effect, relative to wealth after inheritance. Section five concludes.

2. The equalising or disequalising effect of inheritances

Let X be the wealth of an individual before receiving an inheritance H. For the sake of simplicity, we omit the subscripts. We assume that the inheritance is increasing in absolute value with the wealth of the heir:

$$h'(X) = \frac{\delta H(X)}{\partial X} > 0$$

The average inheritance for that individual will be:

$$h^*(X) = \frac{H(X)}{X}$$

As the distribution of wealth prior to inheritance does not vary, we can measure the redistributive effect of inheritances (and, subsequently, of IGT) with the usual measures of local or structural progression: liability progression and residual progression (Jakobsson, 1976; Kakwani, 1977; Lambert, 2001). In the context of this paper, liability progression, *LP*, is the elasticity of inheritances with regard to pre-inheritance wealth. Its value is less than 1 for progressive inheritances:

$$LP_H(X) = \frac{\frac{\partial H(X)}{H(X)}}{\frac{\partial X}{X}} = \frac{h'(X)}{h^*(X)} < 1$$

Residual progression, *RP*, is the elasticity of post-inheritance wealth with regard to pre-inheritance wealth. Its value is less than 1 for redistributive inheritances. Therefore, inheritances will be equalising if and only if the following expression is satisfied, for all X:

(1) $$RP_H(X) = \frac{\frac{\partial(X+H(X))}{X+H(X)}}{\frac{\partial X}{X}} = \frac{1+h'(X)}{1+h^*(X)} < 1$$

Which will be fulfilled when $h'(X) < h^*(X)$.

3. The equalising or disequalising effect of inheritances and the IGT, relative to wealth before inheritance

We now add to the analysis an Inheritance and Gift Tax, *T*, which is levied on inheritances and is progressive. The marginal tax rate will be:

$$t'\big(H(X)\big) = \frac{\delta T\big(H(X)\big)}{\partial H(X)} > 0$$

And the average tax rate:

$$t^*\big(H(X)\big) = \frac{T\big(H(X)\big)}{H(X)}$$

We call *S* the inheritance an individual receives, net of the IGT they pay: *S = H-T*. The average "net inheritance" is as follows:

$$s^*(X) = \frac{S(X)}{X} = \frac{H(X)-T\big(H(X)\big)}{X} = h^*(X) - \frac{T\big(H(X)\big)}{X} \cdot \frac{H(X)}{H(X)} = h^*(X) \cdot \Big(1 - t^*\big(H(X)\big)\Big)$$

And the marginal net inheritance:

$$s'(X) = \frac{\partial S(X)}{\partial X} = h'(X) - t'\big(H(X)\big) \cdot h'(X) = h'(X) \cdot \Big(1 - t'\big(H(X)\big)\Big)$$

Net inheritance will have a positive redistributive effect (i.e., it will reduce the existing inequalities in the distribution of heirs' previous wealth) iff, for all *X*, it holds that:

(2) $$RP_S(X) = \frac{1+s'(X)}{1+s^*(X)} = \frac{1+h'(X)\cdot\big(1-t'\big(H(X)\big)\big)}{1+h^*(X)\cdot\big(1-t^*\big(H(X)\big)\big)} < 1$$

The above condition will be fulfilled when:

(3) $$\frac{1-t'\big(H(X)\big)}{1-t^*\big(H(X)\big)} < \frac{h^*(X)}{h'(X)}$$

The left-hand side of condition (3) reflects the redistributive effect of the IGT, measured by its residual progression, i.e., the elasticity of post-IGT inheritance with regard to pre-IGT inheritance. The right-hand side reflects the degree of progressivity of inheritances, measured by the inverse of their liability progression. To discuss the solution, we can consider the following scenarios:

(a) Inheritance is wealth-equalising

In this case, it will be satisfied that $\frac{h^*(X)}{h'(X)} > 1$. If the IGT is progressive or proportional, it will be fulfilled that $\frac{1-t'\big(H(X)\big)}{1-t^*\big(H(X)\big)} \leq 1$, so that condition (3) will be satisfied in any case, and net inheritance will have a correcting effect on inequality in the distribution of heir's previous wealth. Condition (3) will also hold if the IGT is progressive and the inheritances are proportional to the pre-inheritance wealth of the heirs: $\frac{h^*(X)}{h'(X)} = 1$.

However, it is not necessary for the IGT to be progressive or proportional for condition (3) to hold. It will also be fulfilled when the IGT is regressive (e.g., due to the existence of exemptions, allowances or tax credits benefiting higher wealth), if the inheritance is sufficiently progressive.

(b) Inheritance is wealth-disequalising

In this case, it will be the case that $\frac{h^*(X)}{h'(X)} < 1$. Condition (3) will be fulfilled if the inheritance is not very disequalising or the IGT is sufficiently progressive. Condition (3) will never be met if the IGT is proportional or regressive.

In Spain, as recommended by Nekoei and Seim (2023), the IGT depends on the amount of the inheritance, but also on the size of the pre-inheritance wealth of the heir: $T = T(H(X), X)$, with $t'(X) > 0$. Condition (3) becomes:

(4) $\frac{1-t'(H(X))}{1-t^*(H(X))} < \frac{h^*(X)}{h'(X)} + \frac{t'(X)}{h'(X)} \cdot \frac{1}{\left(1-t^*(H(X))\right)}$

The second term on the right-hand side of condition (4) is always positive, which facilitates the fulfilment of that condition in the two scenarios discussed above.

4. The equalising or disequalising effect of the IGT, relative to wealth after inheritance

Let us now examine the redistributive effect of the IGT with respect to the wealth of individuals after receiving the inheritance: $X + H$. The relevant questions are the following: If inheritances reduce existing inequality in the distribution of pre-inheritance wealth, does a progressive IGT reinforce or weaken that equalising effect? And, if inheritances increase inequality in the distribution of pre-inheritance wealth, does a progressive IGT correct or reinforce that disequalising effect?

The IGT will reduce post-inheritance wealth inequality, if and only if residual progression of inheritances, net of IGT, is less than residual progression of inheritances alone, for all X. In accordance with expressions (1) and (2):

$RP_S(X) < RP_H(X)$

This condition will be fulfilled when:

(5) $\frac{t'(H(X))}{t^*(H(X))} > \frac{\left(1+h'(X)\right)}{\left(1+h^*(X)\right)} \cdot \frac{h^*(X)}{h'(X)}$

The left-hand side of equation (5) is the degree of progression of the IGT, measured by its tax-liability progression, i.e, the elasticity of tax liability with regard to pre-tax inheritance. If the IGT is progressive, it holds that: $\frac{t'(H(X))}{t^*(H(X))} > 1$. The right-hand side of equation (5) is the product of the residual progression and the degree of progressivity of inheritances. We discuss again the two scenarios considered in Section 3:

(a) Inheritance is wealth-equalising

If inheritance is wealth-equalising, the right-hand side of equation (5) will be greater than 1, so that the fulfilment of that expression will depend on the degree of progressivity of the IGT and the equalising effect of inheritances. Although it is not a necessary condition, it is sufficient for condition (5) to be met that the degree of progressivity of the IGT is greater than the degree of progressivity of inheritances: $\frac{t'(H(X))}{t^*(H(X))} > \frac{h^*(X)}{h'(X)}$. Condition (5) will never hold if the IGT is proportional or regressive.

Therefore, it is not certain that the IGT always reinforces the equalising effect of inheritances in a way that reduces the inequality of post-inheritances wealth.

(b) Inheritance is wealth-disequalising

If inheritance increases (or maintains) the inequality of the pre-inheritance wealth, the right-hand side of equation (5) is less than or equal to 1, so a progressive IGT will always reduce the inequality of post-inheritance wealth; that is, the IGT corrects the disequalising effect of inheritances. Condition (5) could also be met if the IGT is regressive, depending on the degree of regressivity of inheritance.

If the IGT depends on both the inheritance and the pre-inheritance wealth of the heir, condition (5) becomes:

(6) $$\frac{t'(H(X))}{t^*(H(X))} + \frac{t'(X)}{h'(X)} \cdot \frac{1}{t^*(H(X))} > \frac{\left(1+h'(X)\right)}{\left(1+h^*(X)\right)} \cdot \frac{h^*(X)}{h'(X)}$$

The second term on the left-hand side of condition (6) is always positive, which again facilitates the fulfilment of this condition in the two scenarios above.

To illustrate the above results, we move from local progression measures to effective progression. Figures 1 and 2 show Lorenz curves of the distribution of wealth, *L(p)*, in two hypothetical scenarios. In both, IGT is assumed to be progressive: $L_H(p) > L_T(p)$. In Figure 1, inheritance reduces the inequality of pre-inheritance wealth:

$$L_H(p) > L_{X+H}(p) > L_X(p)$$

As we know, the aggregate effect of inheritance and IGT (which we have called net inheritance) is a reduction of existing inequality in the distribution of the pre-inheritance wealth:

$$L_{X+H-T}(p) > L_X(p)$$

But we have also just shown that the distribution of wealth after inheritance and IGT is not necessarily more equal than before the tax:

$$L_{X+H-T}(p) \gtrless L_{X+H}(p)$$

Both possibilities are shown in Figure 1.

In Figure 2, inheritance increases wealth inequality:

$$L_X(p) > L_{X+H}(p) > L_H(p)$$

As we have shown, progressive IGT at least partially corrects this effect:

$$L_{X+H-T}(p) > L_{X+H}(p)$$

But we cannot be sure that the distribution of wealth after inheritance and IGT is more equal than the distribution of the heirs' previous wealth:

$L_X(p) \gtrless L_{X+H-T}(p)$

Both alternatives are shown in Figure 2.

Figure 1. Lorenz curves. Wealth-equalising Inheritances

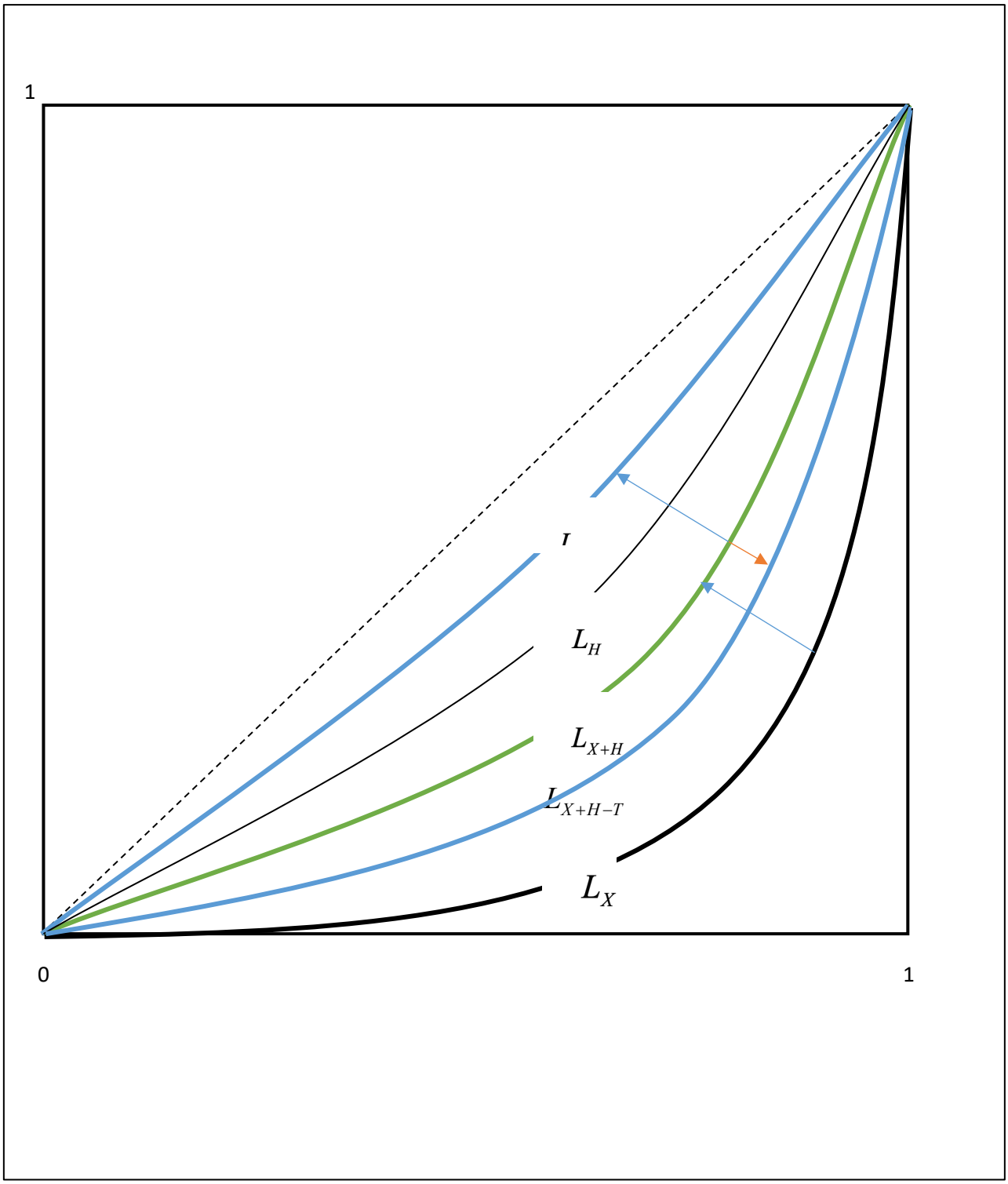
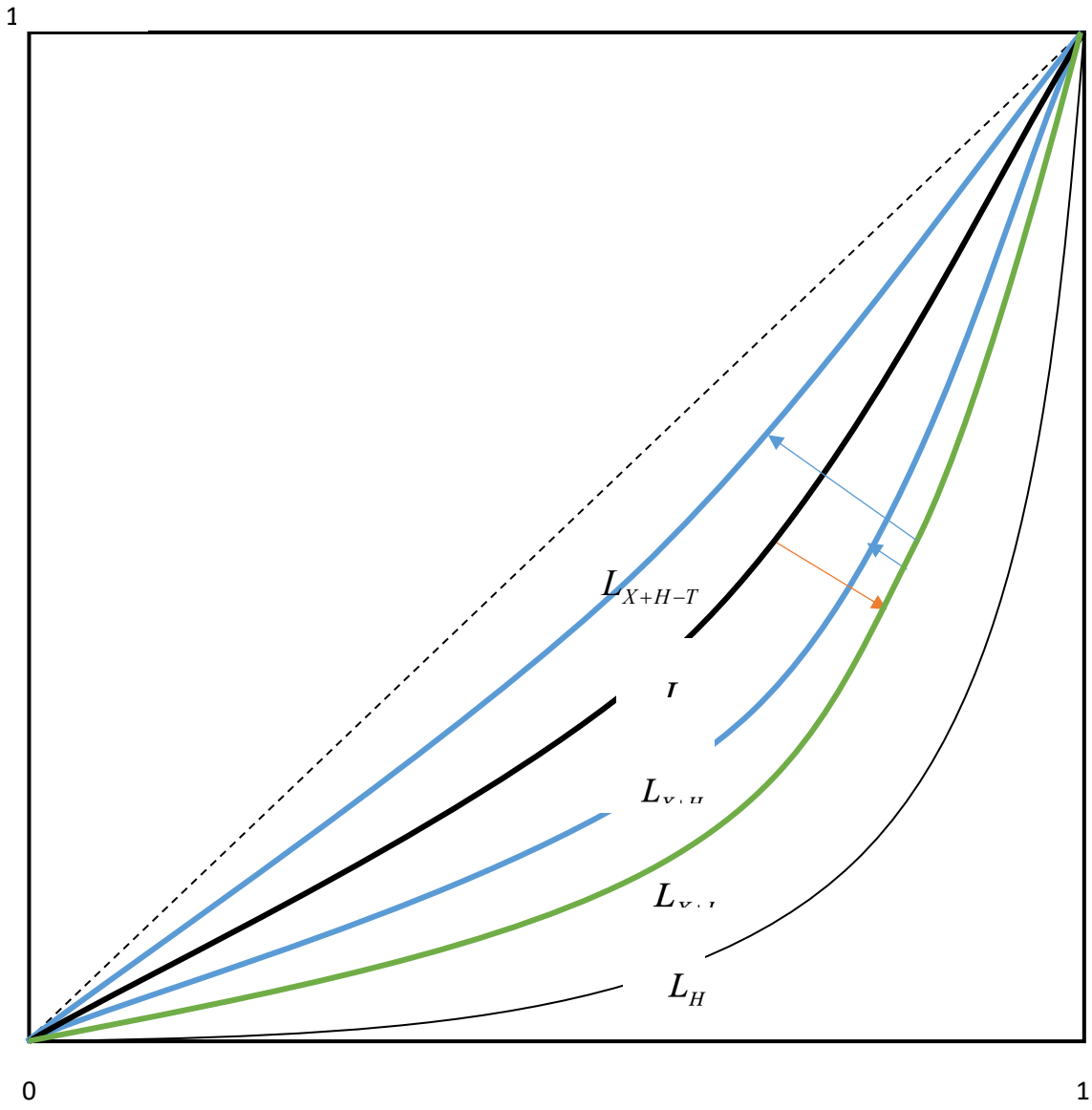


Figure 2. Lorenz curves. Wealth-disequalising Inheritances



5. Conclusions

If inheritances have an equalising effect on the previous wealth of heirs, the application of a progressive IGT to inheritances guarantees that the distribution of wealth after inheritance and the IGT is more equal than that of pre-inheritance wealth, but cannot guarantee that the (lower) inequality in the distribution of post-inheritance wealth will necessarily be reduced.

On the contrary, if inheritances have a disequalising effect on the heirs' previous wealth, the application of a progressive IGT to inheritances ensures a reduction of inequality in the distribution of post-inheritance wealth, but cannot guarantee that the (lower) inequality in the distribution of the heir's pre-inheritance wealth is necessarily reduced.

The above results call for the public decision-maker to design an Inheritance and Gift Tax that is not only progressive, but progressive enough to reinforce or reverse, as appropriate, the effect of inheritance on wealth inequality. The paper has shown the conditions for this requirement to be met.

Finally, it should be recalled that IGT revenues will be used to finance public services and benefits. As noted in the introduction of the paper, the distribution of IGT proceeds between individuals may have an effect on inequality in the distribution of wealth, again reinforcing or weakening the effect of the tax itself.

References

Bönke, T., M. Werder and C. Westermeier (2017), “How inheritances shape wealth distributions: An international comparison”, *Economics Letters*, 159: 217-220.

Boserup, S. H., W. Kopczuk and C. T. Kreiner (2016), "The Role of Bequests in Shaping Wealth Inequality: Evidence from Danish Wealth Records", *American Economic Review,* 106 (5): 656-61.

Cowell, F., D. Van de gaer y C. He (2018), “Inheritance Taxation: Redistribution and Predistribution”, in J. A. Bishop and J. G. Rodríguez, eds., *Inequality, Taxation and Intergenerational Transmission (Research on Economic Inquality, vol. 28)*, pp. 1-13, Leeds: Emerald Publishing Limited.

Elinder, M., O. Erixson and D. Waldenström (2018), “Inheritance and wealth inequality: Evidence from population registers”, *Journal of Public Economics*, 165: 17-30.

Jakobsson, U. (1976), “On the measurement of the degree of progression”, *Journal of Public Economics*, 5: 161-168.

Kakwani, N. C. (1977), “Applications of Lorenz Curves in Economic Analysis”, *Econometrica*, 45: 719-727.

Karagiannaki, E. (2017), “The Impact of Inheritance on the Distribution of Wealth: Evidence from Great Britain”, *Review of Income and Wealth*, 63: 394–408.

Lambert, P. J. (2001), *The distribution and redistribution of income*, Third ed., Manchester and New York: Manchester University Press.

Nekoei, A. and D. Seim (2023), "How Do Inheritances Shape Wealth Inequality? Theory and Evidence from Sweden", *The Review of Economic Studies*, 90 (1): 463-498.

OECD (2021), "Inheritance Taxation in OECD Countries", *OECD Tax Policy Studies*, 28, Paris: OECD Publishing.

Wolff, E. N. (2002), "Inheritances and Wealth Inequality, 1989–1998", *American Economic Review,* 92: 260–264.

Wolff, E. N. and M. Gittleman (2014), "Inheritances and the distribution of wealth or whatever happened to the great inheritance boom?", *Journal of Economic Inequality*, 12 (4): 439-468.