MoPAct

Mobilising the Potential of Active Ageing in Europe

WP8 Quantitative Report

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Informal vs. formal care: economic incentives and fiscal implications[3]

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Abstract

We consider the private economic incentives and the fiscal consequences related to informal and formal long-term care. We focus on the case where providing informal care implies less market work. In such cases, informal care reduces both private wage income and government tax revenue compared to formal care. On the other hand, the cost of formal care may be borne largely by the state. We provide a detailed quantitative analysis of the Finnish case. We describe how the private economic incentives and fiscal consequences relate to the wage level of the potential informal care provider and the income of the care receiver. We find that they vary greatly across individuals. It seems likely, however, that in most cases the fiscal cost of informal care is smaller than that of formal care. On the other hand, the private economic incentives often favor formal care over informal care. We also give a brief description of the situation in selected other EU countries. Because of different social security systems, it is clear that the fiscal implications of informal care vary a lot across countries.

Contents

1 Introduction

Population aging will increase the demand for long-term care (LTC) in many EU countries. This is bound to increase fiscal pressures in countries where formal LTC is largely financed by the government. In those countries, encouraging and supporting informal care is often seen as a way of mitigating the increase in the fiscal burden of LTC.

However, providing informal care to a close person may require moving from full-time to part-time work or leaving paid work entirely.[4] As a result, informal care is likely to reduce labour supply and tax revenues.[5] This is especially the case in countries where the female labour force participation rate is high, as informal carers are predominantly women (OECD, 2011). To the extent that informal care reduces market work, it also reduces government revenues stemming from income and consumption taxation. This should be taken into account when considering the fiscal implications of informal care.

The fiscal implications of informal care depend on which individuals choose to provide informal care. Naturally, in the case of retired people, there is no loss in tax revenue. In the case of working age people, the possible tax revenue loss depends on the earnings potential of the informal care provider. On the other hand, individuals' decisions to provide informal care are likely to be influenced by the economic incentives that they face and that are created by e.g. income taxation, informal care allowances, and the financing of formal LTC.

While there are several studies about the link between informal care and labor supply (see e.g. Crespo and Mira (2010) and Van Houtven et al. 2012), we have not found a detailed analysis of how the fiscal consequences or private incentives depend on individual characteristics. The aim of this paper is to partly fill this gap. We study the economic incentives and fiscal implications related to the choice between formal and informal care provision. By economic incentives we refer to the pecuniary incentives that relate to wages and pension accrual, taxes, and certain transfers. We take into account that informal care may imply less market work and consider individuals in different economic situations.

[4] The foregone wage earnings are part of the "opportunity costs of informal care" (Ettner, 1996).

[5] There are several studies about the link between informal care and labor supply. According to Van Houtven et al. 2012, most of the European studies have found a negative correlation between informal care provision and hours worked in the market sector. Related to this, Viitanen (2007) finds that higher government expenditure on formal care would decrease informal care giving and increase the labour market participation of women across Europe.

We want to be up front about the main limitations of our analysis. First of all, we are unable to take into account certain (dynamic) mechanisms which may influence either the private economic incentives or the fiscal implications related to formal and informal care. An example of such a mechanism relates to the possibility that temporary leaves from the labour market (due to informal care provision) affect care givers' future earnings potential adversely. (We discuss this type of caveats in section 3.5.) Secondly, it goes without saying that there are also many non-pecuniary issues that are relevant for individuals' decisions about informal and formal care. These include the consideration of the quality of different care forms. We will not have anything to say about such considerations.

We first discuss the various factors that should be taken into account in the analysis. We then provide a detailed quantitative analysis for one country, namely Finland. Finally, we briefly compare the Finnish case to some other European countries with a different social security system.

Finland is a particularly interesting and relevant case to consider for several reasons. First, like in other Nordic countries, the employment rate for women is quite high. At 70%, the female employment rate is very close to the male employment rate (72%)[6]. We also know that about half of all informal carers are in working age and that relatively few of them (about 20%) work full time when providing care (Voutilainen et al., 2007).[7] These observations suggest that providing informal care indeed often implies leaving market work.

Second, the cost of formal care is largely born by the government. The Finnish LTC system is a publicly funded and universal system that is open to all residents. Third, the client fees for publicly financed formal care as well as informal care allowances are determined by relatively clear and transparent rules.[8] This makes it possible to incorporate them into a quantitative analysis of the economic implications of formal and informal care.

In our quantitative analysis, we take into account earnings taxation, consumption taxes, informal care allowances, and the client fees for formal (institutional) care. We focus on the

[6] Statistics Finland, Labor Force Survey 2013.
[7] These figures relate to informal carers that receive an informal care allowance from their municipality.
[8] In Finland formal care is usually not just publicly financed but also publicly provided by municipal services and facilities.

situation where the potential informal carer is initially participating in the labour market and where the care demand is so intensive that she needs to leave her job in order to provide care. We treat the potential informal care provider and the care receiver (e.g. a child and his parent) as an economic unit in the sense that we consider their joint economic incentives. We describe first how the incentives depend on the gross wage income of the potential care provider (via lost earnings) and the gross total income of the care receiver (via earnings-tested client fees for formal care). We then describe how the fiscal implications of the choice between informal and formal care depend on the same attributes. We also briefly consider the case where informal care can be combined with part-time work.

It turns out that in the Finnish case both the private economic incentives and the fiscal implications related to the choice between informal and formal care depend strongly on the wage income of the potential informal carer and the total income (typically pension) of the care receiver. This is partly because of progressive earnings taxation and the income-testing of the client fees for formal institutional care.

One implication of this result is that it is impossible to accurately evaluate the fiscal implications of informal care without taking into account distributional information. The fiscal implications depend both on the labour market opportunities of the individuals that choose to provide informal care and also on the income level of those receiving informal care instead of formal care. The differences can be substantial. In some cases, the fiscal cost of informal care is likely to be much larger than that of formal care while in some other cases informal care is likely to reduce the fiscal burden of LTC substantially.

An interesting related question is whether the private incentives are aligned with the fiscal considerations in the sense that they encourage individuals to choose the option that is also the least costly for public finances. We display the private incentives and the fiscal implications for different combinations of potential care provider's wage income and care receiver's total income. We also assess which are the most likely cases by taking into account the actual income distribution.

We proceed as follows. In the next section, we discuss in general terms how the private economic incentives and the fiscal implications are determined. In section 3 we provide a detailed quantitative analysis of the Finnish case. In section 4 we briefly compare the Finnish

case to a few other EU countries with a different system of LTC financing. We conclude in section 5.

2 Defining the private economic incentives and fiscal consequences

Let us first discuss in general terms the private economic incentives that relate to the choice between informal and formal care. As we explained in the introduction, we focus on the case where the potential informal care provider would have to reduce market work to be able to give care. In that case, the most important private economic cost associated with informal care is likely to be the foregone wage income and possibly also the associated fall in future pension income. In some cases, informal care allowances reduce the loss in net income associated with giving up market work in order to provide informal care. Such allowances are sometimes paid directly to the informal care giver and sometimes to the person in need of care.

The economic benefits, on the other hand, consist of savings in client fees for formal care and possible informal care allowances. These costs and benefits may depend on individual characteristics. The foregone wage income obviously depends on the wage that the potential care provider would earn in market work. The client fees in turn are often means-tested. They may depend on both the income and wealth of the care receiver and her family.

As for the fiscal implications of informal care, the main component is likely to be the loss in tax revenue due to the decrease in market work. One should take into account both earnings taxation and consumption taxation. Naturally, possible informal care allowances should also be taken into account as part of the fiscal cost of informal care. On the other hand, informal care may reduce public expenditures if it reduces the need for formal care that is at least partly financed by the state.

Naturally, also formal carers pay income and consumption taxes out of their wage income. That would seem to be another mechanism through which increasing reliance on formal care increases government tax revenue: If we have more nurses providing formal care, we also have higher tax revenue. However, in the long run at least, most individuals that now work in the formal care sector, would have the option of doing some other market work with a similar wage. In other words, there is no reason to believe that employment or the aggregate wage bill would be increased permanently if the number of formal care workers

was increased (relative to some baseline scenario). Therefore, one should not take into account changes in the number of formal care workers when assessing the fiscal implications of informal vs. formal care.

In what follows, we compute separately the private cost of formal and informal care. We define the private cost of formal care as the net cost of formal care to the individuals relative to the case where there is no need for LTC. Similarly, we define the private cost of informal care as the net cost of informal care relative to the case where there is no need for LTC. We then compare the two costs. Similarly, we also compute separately the fiscal cost of formal and informal care. The fiscal cost of formal care, for instance, is defined as the net cost of formal care to the public sector relative to the case where no LTC is needed.

3 The Finnish case

In this section, we analyze in detail the economic incentives and fiscal effects of informal care in Finland. As discussed above, they depend, first of all, on the wage income that the potential care provider would earn in market work. We denote the annual gross wage income of the potential care provider by w_p. The income of the care receiver also matters because user fees for formal care are income-related. We denote the annual before tax income of the care receiver by w_r. We consider the fees and the tax rates that applied in 2013.

Given gross income, the net income is readily calculated using income tax tables for pensioners. We use function $at^e(w)$ to denote the after tax wage income given before tax wage income w. Pension income is taxed differently from wage income. We use function $at^p(w)$ to denote the after tax net pension income given before tax gross pension income w. These functions are determined so that they closely reflect the Finnish income taxation.

A fall in wage income will also decrease future earnings-related pensions. We take this into account by not incorporating the mandatory pension contributions when defining the function $at^e(w)$. In other words, we do not consider the pension contributions as taxes, but rather as a fee for future pensions. This increases the private cost of informal care relative to a calculation where the pension contributions are interpreted as taxes.

3.1 Private incentives

Private cost of formal care

The private cost of formal care consists simply of the user fee paid by the care receiver. In Finland the out-of-pocket client fee for formal government provided care depends on the net income of the resident (the person receiving formal LTC) and his/her possible spouse. As a general rule, the fee for formal institutional care in an old-age home or health-care center is 85% of the net income. However, the law stipulates that the fee should not exceed the true cost of care provision. There is also a guaranteed income of 99 € per month, or 1188 € per year, that is always left for the personal use of the resident.[9] [10] Importantly, while capital income may be taken into account in the income-test, as a general rule wealth is not taken into account. As we discuss later, in some other EU countries even housing wealth is taken into account in the determination of user fees for residential care.

Certain benefits, in particular housing benefits, are not taken into account when determining the fee. Moreover, if the resident is married and has higher income than his or her partner, the fee is 42.5% of the sum of the resident's and the spouse's net income. We abstract from housing benefits and focus on the case where the person in need of care lives alone.

Estimations for the true cost of institutional care vary a lot and depend on the type of the institution. In 2007, the cost of one day in an intensified sheltered accommodation (with over 0.4 nurses per customer) was estimated to be 93 € and the cost of one day in an old-age home was estimated to be 147 € (Väisänen and Hujanen, 2010). After adjusting these figures by consumption price index for the year 2012 and multiplying by 365, we get yearly costs of 37 930 € and 60 110 €. For the true cost of providing the institutional care, we use a

[9] Law on social and health care client fees, http://www.finlex.fi/fi/laki/ajantasa/1992/19920734 (referred: 25.11.2013).

[10] See also http://www.kunnat.net/fi/asiantuntijapalvelut/soster/asiakasmaksut-talous-rahoitus/asiakasmaksut/laitoshoito/pitka-aikaishoito/maksun_maarays/Sivut/default.aspx (referred 25.11.2013).

rough estimate between these, namely 50 000 € per year. The estimate of the true cost usually does not matter for private incentives, because most care receivers only pay a fraction of it anyway. The estimate does matter a lot for the fiscal implications, however.

Given care receiver's annual income w_r, the annual private cost of formal care (the earnings-tested client fee for institutional care) can be computed as follows:

$$pc^{formal}(w_r) = at^p(w_r) - \max(at^p(w_r) - \min(0.85 \cdot at^p(w_r), 50000), 1188) \qquad (1)$$

This formula takes into account the guaranteed income of 1 188 € per year, the upper limit of 50 000 €, and income testing at a rate of 85%.[11]

Private cost of informal care

The private cost of informal care consists of the lost net wage income of the care provider, deducted by the informal care allowance. We concentrate on the situation where informal care can substitute for formal care but requires the informal care provider does not participate in the labor market at the same time.[12] Hence, she naturally loses her initial wage income, if she is providing care. The allowance is provided by municipalities and there is some variation in the allowances. However, most municipalities pay the minimum allowance legislated by the central government. For informal care that is considered as "intensive", the minimum allowance is 749 € per month or about 9000 € per year.[13] The allowance is taxable income.[14] Hence, the annual private cost of informal care (in €) is closely approximated by the following formula:

$$pc^{informal}(w_p) = at^e(w_p) - at^e(9000). \quad (2)$$

Private incentives

[11] The formula assumes that net income exceeds 1188 €, i.e. $at^p(w_r) \geq 1188$.

[12] Of course, in some cases formal care is the only relevant option.

[13] Ministry of Social Affairs and Health, http://www.stm.fi/tiedotteet/kuntainfot/kuntainfo/-/view/1842779#fi (referred 5.2.2014)

[14] For sure, the income tax rate is very close to zero for an annual income of 9000 €.

Having defined the private cost of both formal and informal care, we can now consider the private economic incentives related to the choice between formal and informal care. By choosing informal care over formal care, the potential care provider and the care receiver jointly save the user fee for formal care but lose the wage income of the potential care provider. The net income loss depends on the earnings potential of the care provider while the user fee for formal care depends on the income of the care receiver. Hence, the private economic incentives are captured by the difference between the two costs

$$pc^{informal}(w_p) - pc^{formal}(w_r).$$

Figure 1 shows the difference between the two private costs of informal and formal care as a function of care provider's gross wage w_p and for different fixed income levels for the care receiver. A negative difference means that private cost of informal care is less than the private cost of formal care, and vice versa. The vertical-axis shows the difference in annual terms. When the wage level of the possible care provider is relatively low, informal care is cheaper than formal care, because the lost wage revenue is small. As the wage level increases, formal care becomes cheaper relative to informal care, because of the lost wage income. However, the incentives also depend strongly on the income level of the care receiver. The higher is the income level of the care receiver, the more likely it is that informal care is the less costly option. The figure also reveals that the difference can easily be tens of thousands of €. In other words, the private economic (or monetary) incentives related to formal and informal care are often quite large.

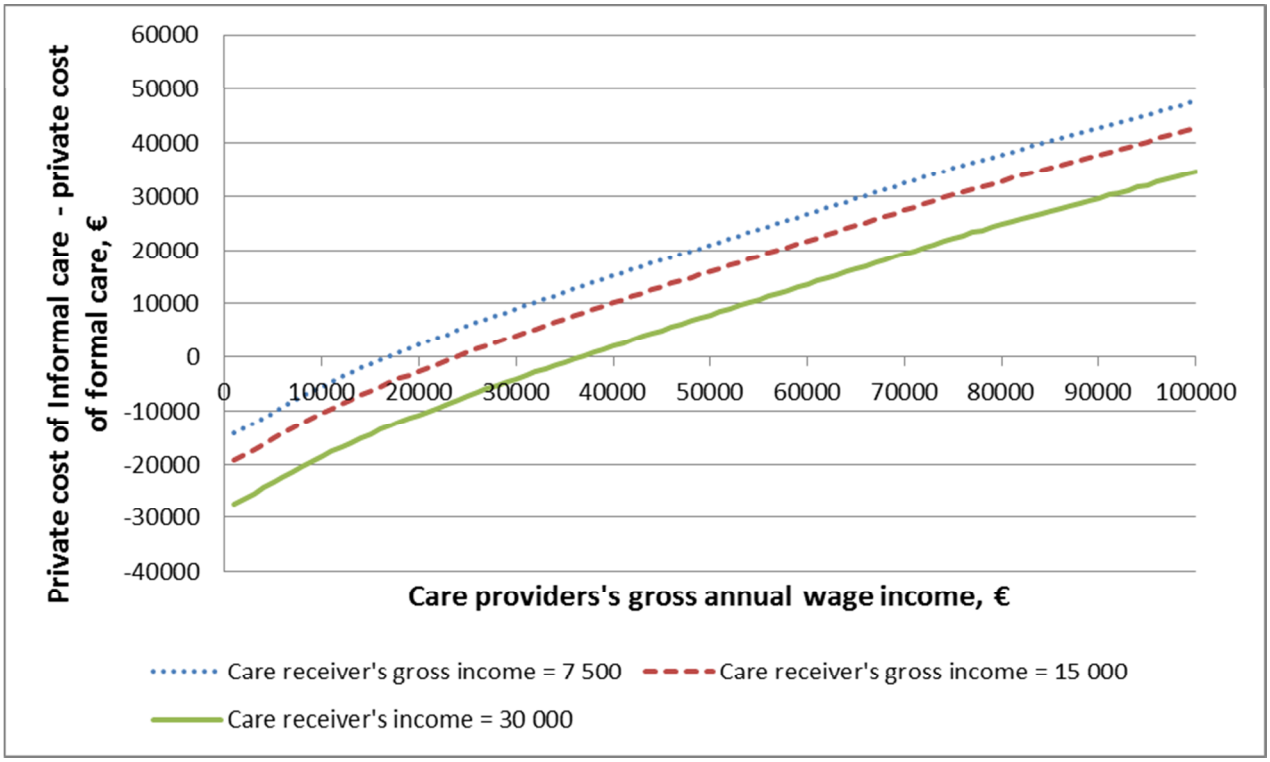

Figure 1. Difference between the private costs of informal and formal care. Note: The private cost of informal care is the wage income loss deducted by the informal care allowance. The private cost of formal care consists of the earnings-tested user fee. When the difference is negative (positive), the private cost of informal care is lower (higher) than that of formal care.

The curve in Figure 2 illustrates the incentives by showing the combinations of care receivers' and (informal) care providers' gross incomes such that $pc^{informal}(w_p) = pc^{formal}(w_r)$. For all the combinations below the curve, the private cost of informal care is less than that of formal care. For all the combinations above the curve, the private cost of informal care is larger than that of formal care. In general, if the care receiver's income is relatively low and the care provider's wage is high, they have incentives to choose formal care, and vice versa. This is because the private cost of informal care is increasing in the wage income of the potential care provider while the private cost of formal care is increasing in the income of the care receiver. The slope of the curve is mainly determined by the income tax progression and the income-test applied to the client fee.

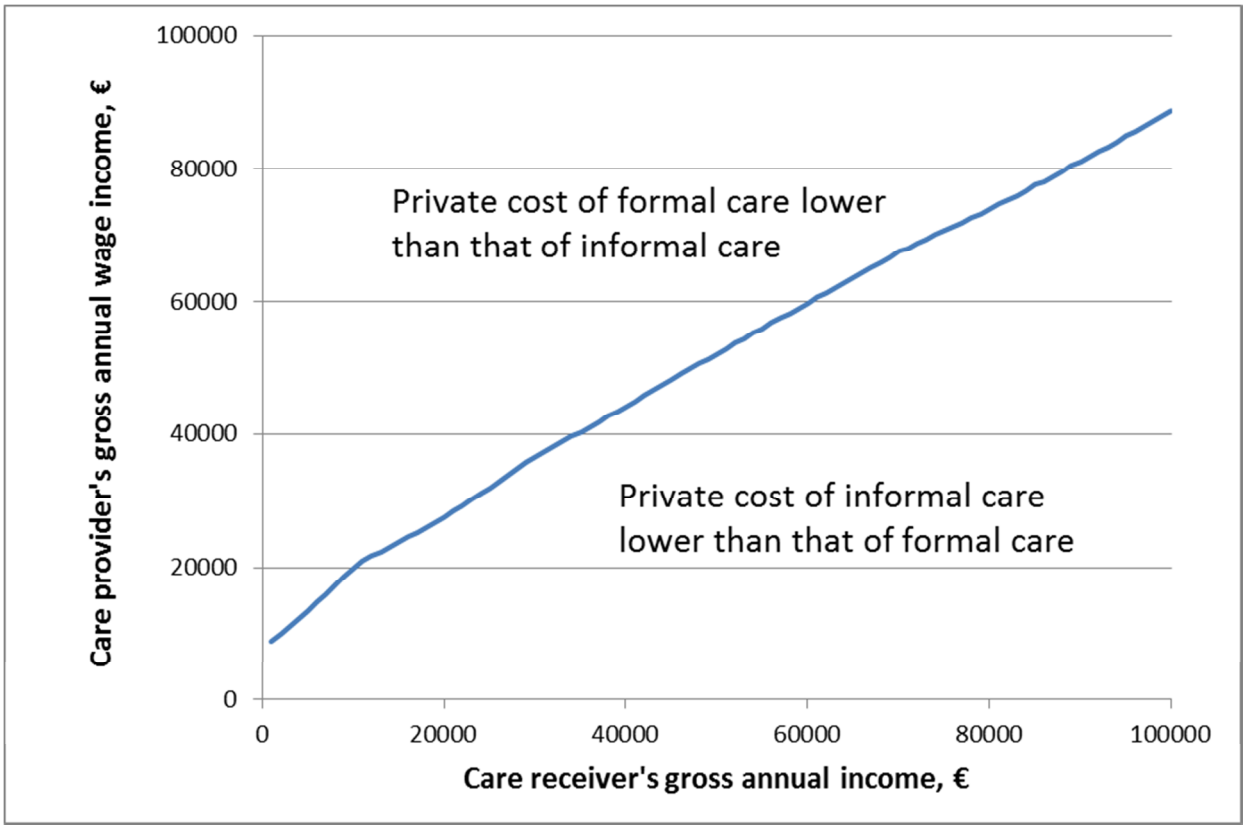

Figure 2. Private cost of informal care vs. formal care. Note: The curve depicts the combinations of care receiver's and care provider's incomes such that the private cost of informal care equals that of formal care. Under (above) the curve the private cost of informal care is lower (higher) than that of formal care and incentives favor informal (formal) care.

3.2 Fiscal implications

Fiscal cost of formal care

As discussed in section 2, the fiscal implications of informal and formal care are determined by the associated changes in the tax revenue and government transfers, as well as the cost of providing formal care. Regarding tax revenues, we need to take into account not just income taxes but also indirect taxes (consumption taxes).

As was already mentioned, for the total cost of formal care, we use the estimate of 50 000 € per year. The care receiver pays part of the cost via the income tested client fee described above. On the other hand, the client fee reduces private consumption possibilities, and thereby also consumption tax revenues for the government. The average Finnish

consumption tax rate is about 20%. Hence, a fee of 1000 €, for instance, would reduce the fiscal cost of formal care by 800 € relative to the case without a user fee.

The net fiscal cost of formal care (fc^{formal}) can thus be computed as follows:

$$fc^{formal}(w_r) = 50000 - 0.8 \cdot fee(w_r), \quad (3)$$

where $fee(w_r)$ denotes the income-tested user fee for formal care given a care receiver's before tax income w_r.

Fiscal cost of informal care

The cost of informal care for the public sector consists of the lost income and consumption taxes, as the care provider quits working, and of the informal care allowance. As mentioned above, the allowance amounts to 9 000 € in a year. We use function $t(w)$ to denote the income and consumption taxes that are paid for annual earnings of w. We also need to take into account that care allowances increase consumption tax revenues.

The government also provides three vacation days per month to the care provider. It is common that the care receiver is placed in an old-age home during vacation period. Three vacation days per month means that the care receiver is receiving institutional care for one tenth of the total time. If the true cost of the institutional care is the estimated 50 000 € a year, the overall cost of the care provider's vacations should be about 5 000 € a year.

Putting these elements together, we can compute the fiscal cost of informal care as follows:

$$fc^{informal}(w_p) = t(w_p) + 9000 - t(9000) + 5000, \quad (4)$$

where $t(w)$ refers to income and consumption taxes given before tax income w.

Fiscal consequences

Figure 3 shows the difference between the annual fiscal costs of informal and formal care, $fc^{informal}(w_p) - fc^{formal}(w_r)$, as a function of the potential care provider's annual gross wage level and for three different constant gross incomes of the care receiver w_r. A negative difference means that from the point of view of public finances, informal care is preferred over formal care. As the wage income of the potential care provider increases, the fiscal cost of informal care increases as well due to the loss of tax revenue associated with informal care. Naturally, the fiscal cost of informal care is likely to be smaller than that of formal care in a situation where the potential care provider would earn relatively little in market work (implying a small tax revenue loss) and the care receiver has a relatively low income (implying a small client fee for formal care). The figure also shows that the choice between formal and informal care is indeed a relevant for public finances. In annual terms, the fiscal costs of formal and informal care can easily differ by over 20 000 €.

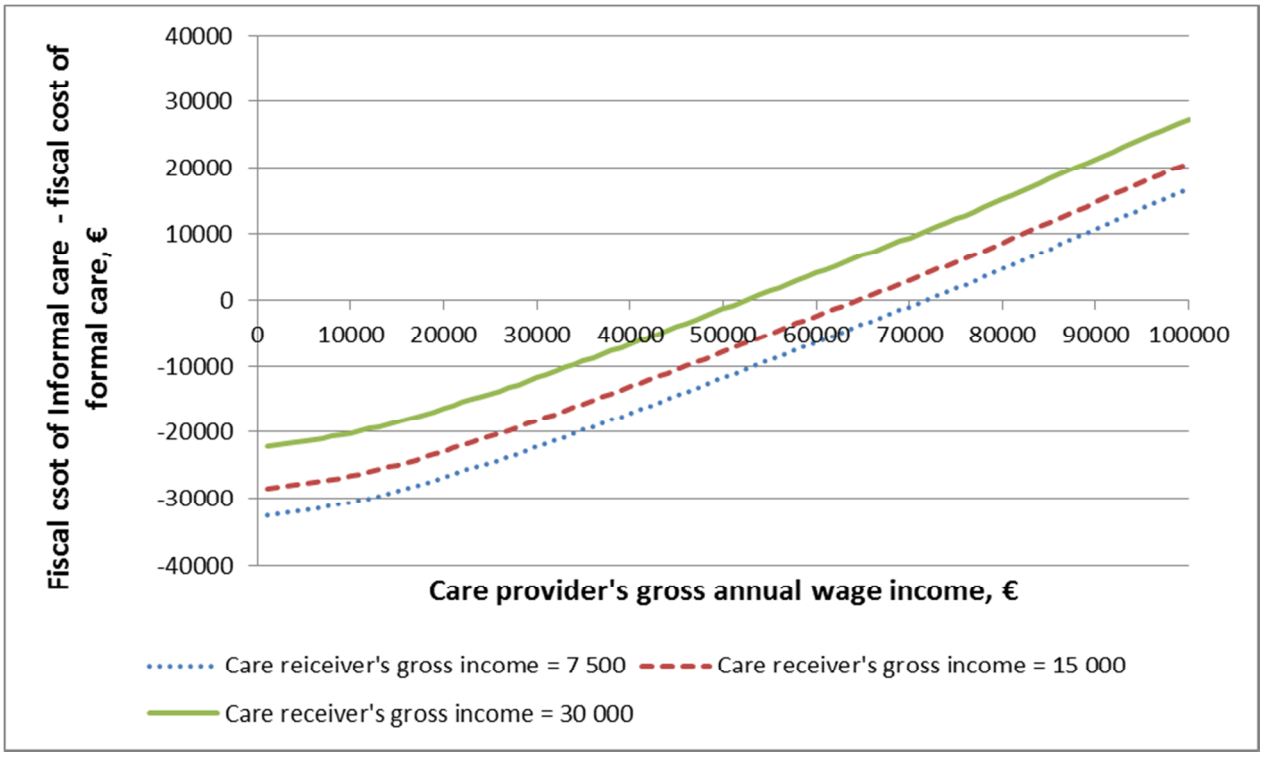

Figure 3. The difference between the fiscal cost of informal and formal care. Note: The figure plots the difference between the fiscal cost of informal care and that of formal care

for different combinations of care provider's and care receiver's incomes. When the difference is negative (positive), the fiscal cost of informal care is lower (higher) than that of formal care.

The curve in Figure 4 presents the combinations of the potential care providers' wage income and the income of the care receiver such that the fiscal cost of formal care equals that of informal care. Below the curve, the fiscal cost of informal care is smaller than that of formal care, and vice versa. The figure tells us, for instance, that if the care provider's gross wage income is 40 000 € per year (roughly the average wage income in Finland), the fiscal cost of informal care is smaller than that of formal care if and only if the care receiver's income is less than about 46 000 €. Since care receiver's tend to have a lower income than working age care provider's, this already suggests that in most cases informal care is likely to be less costly for public finances than formal care.

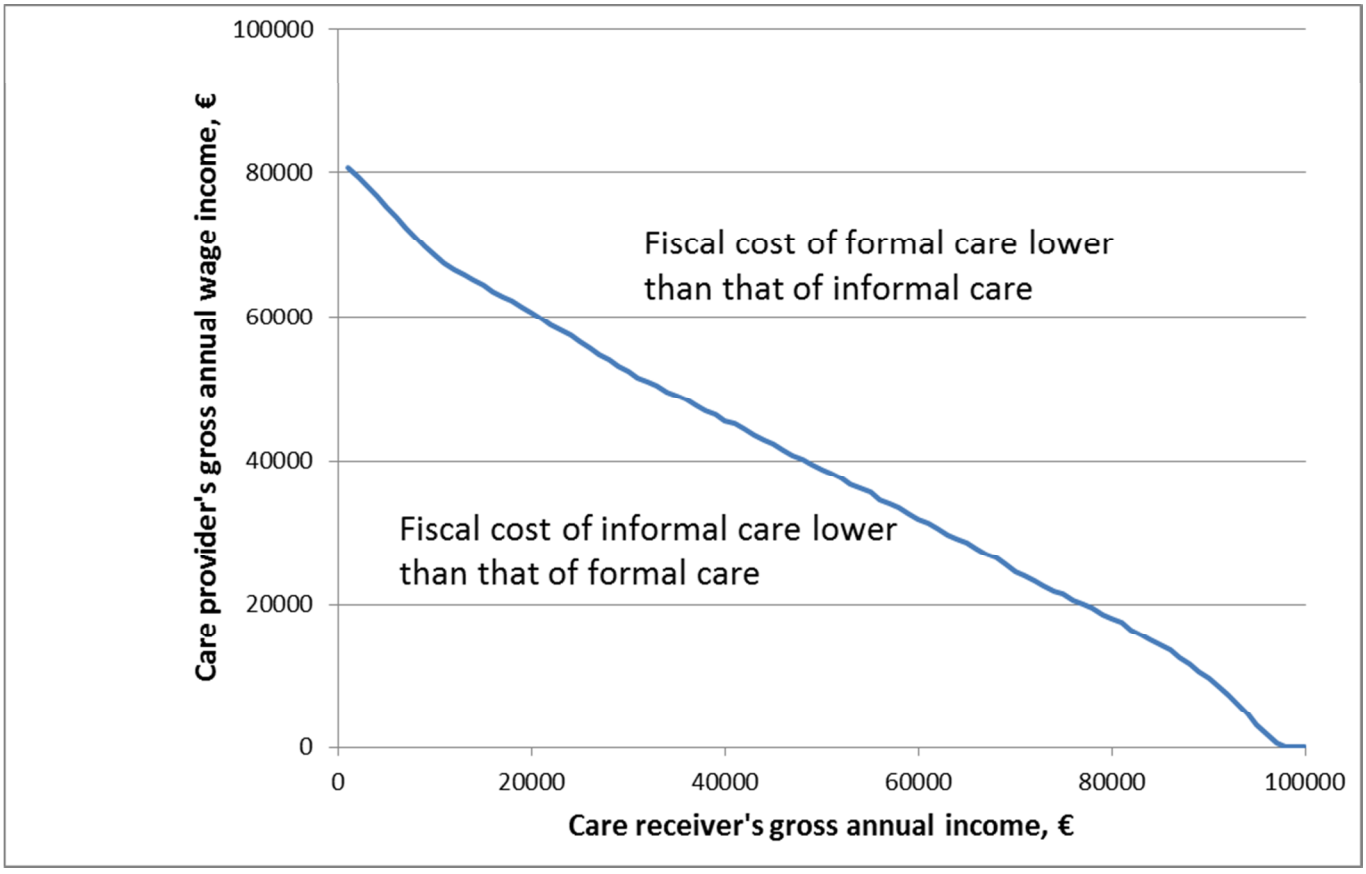

Figure 4. Fiscal cost of informal vs. formal care. Note: The curve depicts the combinations of potential informal care provider's and care receiver's incomes where the fiscal cost of formal and informal care are equal. Under (above) the curve the fiscal cost of informal care is lower (higher) than that of formal care

3.3 Private incentives vs. fiscal consequences

It is interesting to consider the private incentives and the fiscal implications jointly. Figure 5 does that by combining figures 2 and 4. The figure also displays the 10th and 90th percentile annual gross wage incomes for individuals that are working full-time and the 10th and 90th percentile annual total incomes for individuals older than 70 years. These percentiles were approximately 24 000 € and 57 000 € for the individuals working full-time and 7 500 € and 30 000 € for the 70+ individuals.[15] These percentiles mean, for example, that 80% of the 70+ individuals had an annual gross income somewhere between 7 500 and 30 000 €.

One issue here is whether the private incentives are generally aligned with the fiscal considerations in the sense that the private incentives favor the option (formal or informal care) that is less costly to the public sector (has a smaller fiscal cost). There are four distinct areas in the figure. In the leftmost area (below the downward sloping curve and above the upward sloping curve), for instance, the private economic incentives favor formal care over informal care whereas informal care would be less costly for public finances. In the rightmost area, this is reversed. The private incentives are aligned with fiscal considerations only in the upper and lower areas. In the upper area (above both curves) both the private and the fiscal cost of formal care are smaller than the private and the fiscal cost of informal care. That is, formal care is less costly both to the individuals and the public sector. In the lower area (below both curves), informal care is less costly both to the individuals and the public sector.

[15] Statistics Finland, Structure of earnings and Taxable incomes.

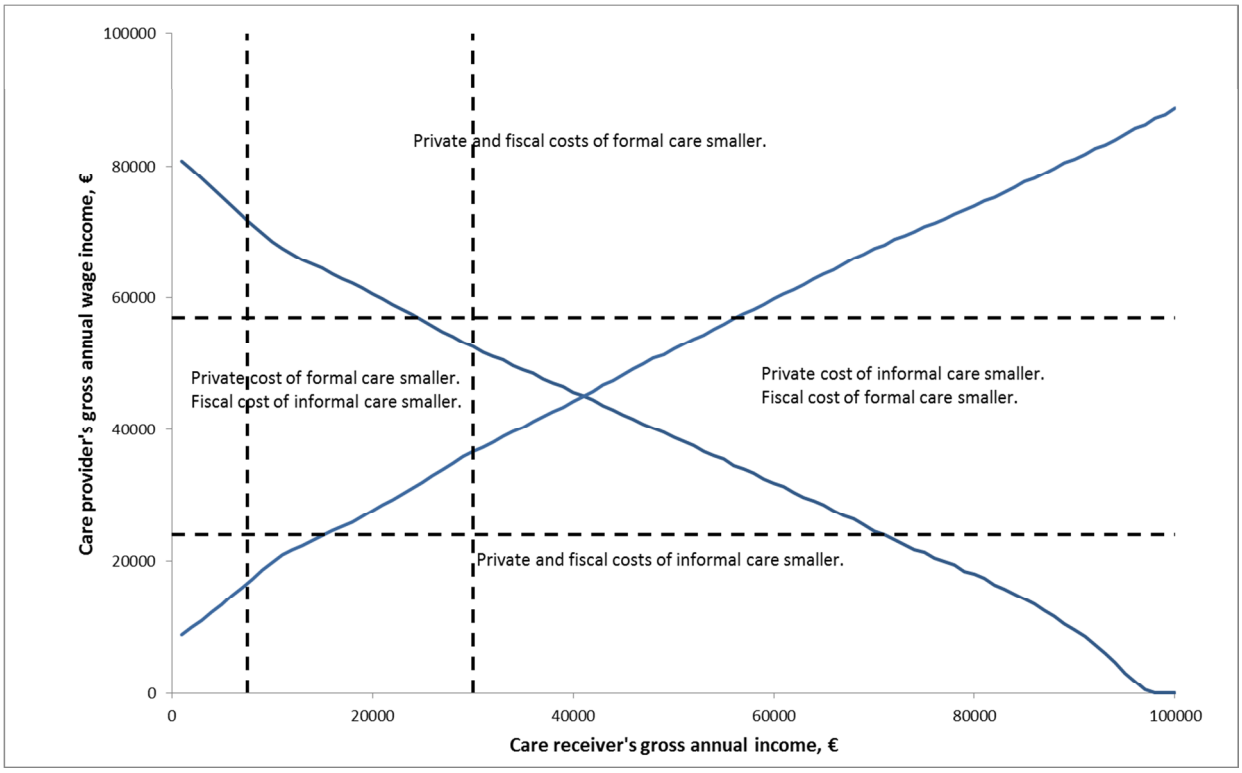

Figure 5. Private incentives and fiscal implications. Note: The upward sloping curve shows the combinations where the private costs of formal and informal care are equal. The downward sloping curve shows the combinations where the fiscal costs are equal. The dashed lines show the 10th and 90th percentile points of annual gross wages for individuals working full-time and annual gross incomes for individuals over 70 years old.

For sure, not all cases in Figure 5 are equally relevant. For instance, it is clear that very few Finnish individuals in need of long term care have an annual income above, say, 50 000 €. Most of the relevant cases are likely to be in the rectangle formed by the four dashed lines that represent the 10th and 90th income percentiles described above. As can be seen from the figure, the rectangle lies mostly in the left-most area where the private economic incentives are geared towards choosing formal care, even though its fiscal cost is larger than that of informal care.[16]

[16] As we discussed in the Introduction, we focus on the case where providing informal care implies reducing market work. Of course, many informal care providers are retired. In this case, informal care presumably does not reduce market work and so its fiscal cost consists solely of the informal care allowance. In terms of figure 5, this case corresponds to the situation where care provider's wage income is zero. Both the private and the fiscal costs of informal care are then very low.

This result suggests, first of all, that in Finland there is indeed scope for mitigating the fiscal pressures stemming from increasing demand for LTC by encouraging informal care. Our quantitative analysis suggests that this is true even if new informal carers give up full-time market work in order to provide care. In principle at least, this means that increasing the informal care allowance would benefit the public economy. This is possible if it induces sufficiently many individuals to choose informal care over formal care. Based on the present analysis, it should be clear that from the fiscal point of view, the government should encourage informal care especially in cases where the potential care provider has a relatively low (market) wage and the care receiver has a low income.

The framework developed here can also be used to analyse various policy changes. As an example, figure 6 compares the current situation to a situation where the informal care allowance is means-tested so that it depends on the income of the care receiver. In this new policy, the means-tested allowance is set to 30 000 € per year (2 500 € per month), if the care receiver has no income at all, and it decreases by 85 € for every 100 € of after-tax income of the care receiver until it reaches zero. Hence, if the care receiver's after-tax income is over 35 300 €, there is no informal care allowance. The motivation for this kind of means-tested informal care allowance would be to encourage informal care especially in those cases where formal care is particularly costly for the public economy.

As figure 6 shows, this policy change changes both the private incentives and the fiscal consequences significantly. In particular, when the gross income of the care receiver is less than about 33 000 €, this policy change makes it more likely that the private incentives favour informal care over formal care (the new upward sloping curve is above the original one). Therefore, if the care receiver's income is less than 33 000 €, these changes may induce some individuals choose informal care instead of formal care. Depending on the income of the care provider, this may reduce the fiscal burden of LTC. However, the net effect of on public finances is ambiguous. A higher informal care allowance obviously increases the fiscal cost of informal care thereby making it more likely that formal care is actually less costly for public finances (the new downward sloping curve is below the original one). When the gross income of the care receiver reaches 33 000 €, the informal care allowance becomes smaller than before the policy change making it more likely that the private incentives favour formal care (the new upward sloping curve is below the original

one). On the other hand, a smaller informal care allowance also decreases the fiscal cost of informal care (the new downward sloping curve is above the original one).

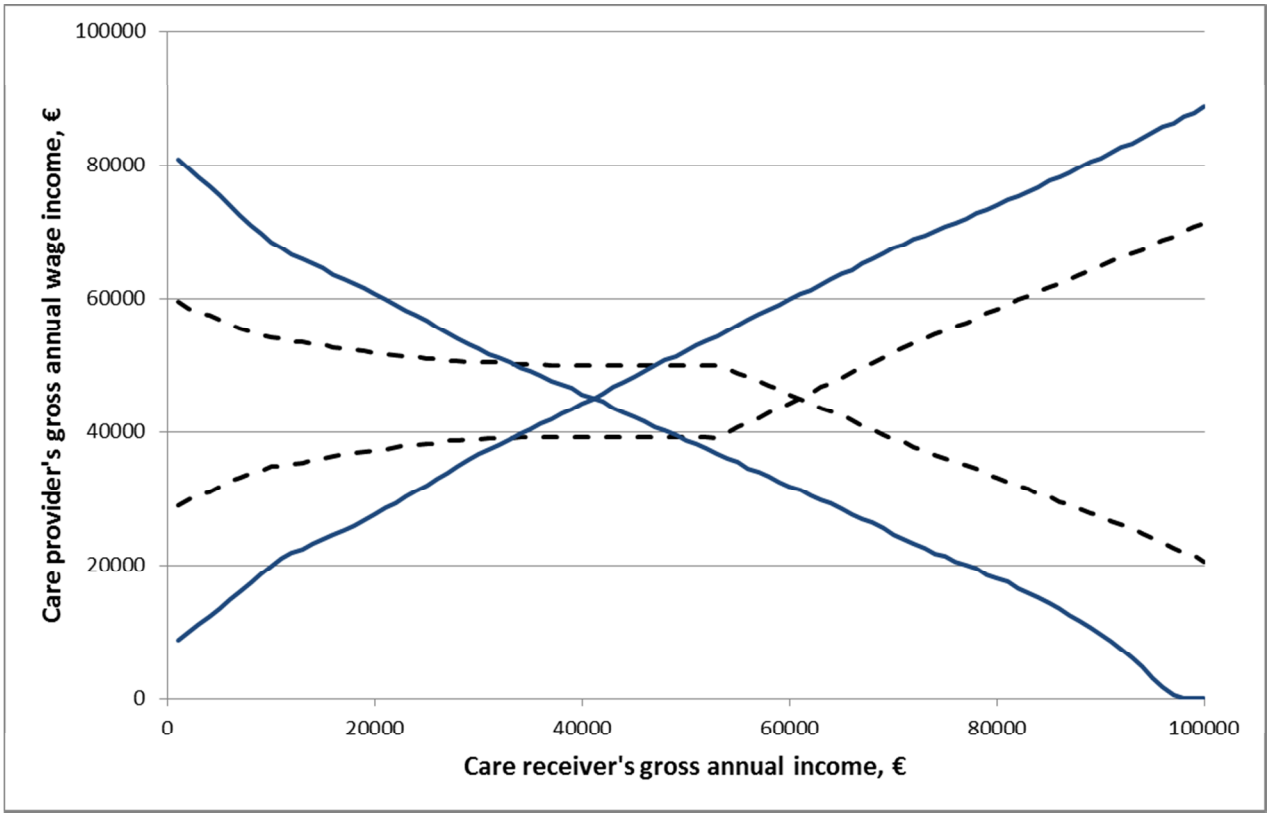

Figure 6. Private incentives and fiscal implications, current situation (solid curves) vs. means-tested informal care allowance (dashed curves). Note: The means-tested allowance is 30 000 € per year, when the care receiver has no income at all, and it decreases by 85 € for every 100 € of after-tax income until it reaches zero. The upward sloping curves show the combinations where the private costs of formal and informal care are equal. The downward sloping curves show the combinations where the fiscal costs are equal. The dashed lines refer to the case with means-tested informal care allowance.

More generally, the analysis also shows that the fiscal implications of the choice between formal and informal care are quite sensitive to the income of both the potential care provider and the care receiver. One implication of this observation is that the fiscal implications of informal care depend on distributional features and cannot be reliably estimated based on aggregate data alone.

3.3 Part-time retirement and informal care

If the required care is not too intensive, the informal care provider may be able to work part-time. The Finnish pension system actually encourages people aged 61-67 to work part-time by providing a part-time pension for those who move from full-time to part-time work. The amount of the part-time pension is 50 percent of the difference between full-time and part-time earnings. Part-time pension does not reduce the future old-age pension. We now consider the economic incentives as well fiscal implications related to the choice between formal and informal care in the case where informal care implies moving from full-time work to part-time pension.

We assume that the true cost of providing formal care is the same as above, i.e. 50 000 € per year.[17] As a result, the private and fiscal costs of formal care are the same as in the previous case. The private cost of informal care, in contrast, is now smaller, because the part-time pension partly compensates for the loss in wage income. We consider the case where the care provider loses half of her wage when moving from full-time work to part-time work. When we take the part-time pension into account, the care provider loses only 25% of the full-time wage. The progressivity of the income taxation further reduces the private cost of informal care. In addition, the informal care provider receives an informal care allowance. However, the care receiver's need of care must be considered less intensive than in the case where the care receiver is not able to participate in market work at all. Hence the allowance is also likely to be smaller. In our calculations, we consider the minimum allowance which is 375 € per month or about 4 500 € per year.[18]

With these assumptions, the private cost of informal care is given by

[17] Because now the care need of the care receiver is less intensive than in our previous case, it could be possible to arrange formal care with smaller cost. On the other hand, public institutional care may be inflexible in this matter so, that the true cost of the institutional care for a person with intensive care need and for a person with less intensive care need are quite close to each other.

[18] Ministry of Social Affairs and Health; http://www.stm.fi/tiedotteet/kuntainfot/kuntainfo/-/view/1842779#fi [referred: 5.2.2014]

$$pc^{infomal}(w_p) = at^e(w_p) - at^e\left(\frac{3}{4}w_p + 4500\right). \quad (5)$$

The fiscal cost of informal care is different than in the case where the care provider is not able to participate in market work. First, the part of the cost that is due to the loss in tax revenue is smaller, because the informal care provider still works part-time. Second, the informal care allowance is smaller. Third, we need to take into account the part-time pension.

Similarly to figure 5, figure 7 shows how the private incentives and fiscal implications depend on the potential care provider's wage income and care receiver's total income. Again, the upward sloping curve shows the combinations where the private costs of formal and informal care are equal while the downward sloping curve shows the combinations where the fiscal costs of formal and informal care are equal. The figure also shows the same 10th and 90th percentile annual gross wages and incomes as figure 5.

The upward sloping curve representing the private incentives is now much steeper than in the previous case represented by figure 5. This means, for instance, that compared to the original situation without part-time retirement, for a given level of care receiver's income, the private incentives are more likely to favor informal care over formal care. Due to the possibility of working part-time and the part-time pension, informal care is much less costly in terms of foregone income. The figure 7 also reveals that in this case most of the individuals are in the area where both private economic incentives and fiscal considerations should lead to informal care being preferred over formal care. Intuitively, the possibility to work part-time while providing informal care makes informal care less costly both to the individuals and the public economy. The part-time pension further reduces the private cost of informal care. While the part-time pension in itself increases the fiscal cost of informal care, the fiscal cost of informal care is nevertheless smaller than in the previous case because care providers still work part-time.

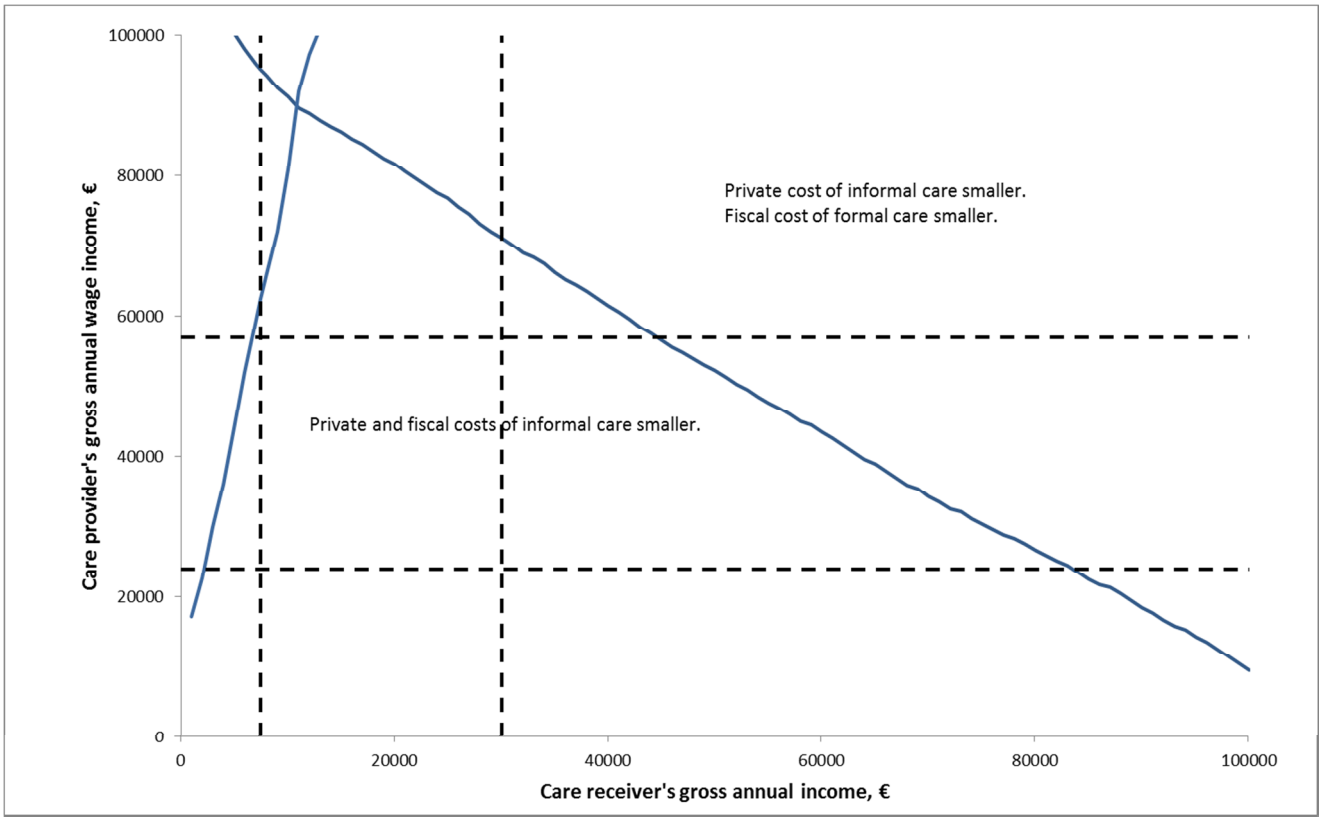

Figure 7. Private incentives and fiscal implications with part-time retirement. Note: The upward sloping curve shows the combinations where the private costs of formal and informal care are equal. The downward sloping curve shows the combinations where the fiscal costs are equal. The dashed lines show the 10th and 90th percentile points of annual gross wages for individuals working full-time and annual gross incomes for individuals over 70 years old.

Naturally, these results do not necessarily imply that the current part-time pension scheme is fiscally beneficial. Most individuals in part-time retirement do not provide informal care. Moreover, at least some of those that provide informal care while being in part-time retirement might be willing to work part-time and provide informal care even in the absence of the part-time pension scheme. A better way of encouraging informal care might be to further develop government financed home care services that make it easier to combine informal care with part-time market work.

3.5 Some further issues

In this subsection, we briefly discuss some mechanisms that are missing from our quantitative analysis but may be relevant either for the private incentives or for the fiscal effects considered.

One issue relates to the fact that part of the costs of formal care consist of food and shelter. In Finland, food and shelter are included in the client fee for formal care. From the individual's point of view, this makes formal care somewhat less expensive (as the care receiver can reduce her own expenditure on food and shelter) relative to informal care than what our analysis would suggest. In practice, however, the difference is unlikely to be very large. In particular, casual evidence suggests that old individuals usually keep their (owner) houses even when moving to a nursing home. As a result, their housing costs do not fall. In some other EU countries, citizens are required to use also housing wealth to cover residential care costs.

Another issue relates to the foregone wage earnings associated with informal care. In our analysis, we assumed that this is simply equal to the current wage earnings potential (however, as discussed above, our analysis does take into account pension accrual). As we mentioned in the Introduction, it is possible that temporary leaves from the labour market affect future earnings potential adversely. That would increase both the private and public costs of informal care relative to those presented above making formal care more attractive. The relevance of this mechanism is likely to vary a lot across individuals. For instance, while it can be important for younger individuals providing informal care, it cannot be very relevant for those informal carers that are about to retire anyway.

Finally, the quality of formal and informal care may be different in a way that will also have pecuniary implications. This would be the case if formal and informal care affect the future care needs of the care receiver differently.

4 Selected examples from other EU countries

In this section, we briefly apply a similar analysis to some other EU countries. However, we do not try to provide results that would be fully comparable with our results concerning the Finnish system. Rather, we aim to highlight some key differences between EU countries.

4.1 Austria

Whereas Finland pays an allowance to informal carers, Austria pays a long-term care allowance to all citizens that are in need of long term care irrespectively of whether they choose formal or informal care. The allowance (*Pflegegeld*) is a non-taxable monthly benefit that can be used to purchase services or to pay informal carers (in the latter case no employment contract is required, so the benefit can be passed on directly to informal family carers). The eligibility for the benefit is based on assessed needs only (no means-test) and the amounts depend on the level of needs (i.e. on the assessed monthly hours of care) and are fixed for the whole of Austria. Table 1 depicts the monthly values of the LTC allowance in 2012.

Level of care	Monthly amount	Eligibility threshold (monthly hours of care)
I	154,20	60
II	284,30	85
III	442,90	120
IV	664,30	160
V	902,30	180
VI	1.262,00	180
VII	1.665,80	180

Table 1. LTC allowance in Austria.

In Austria, the user fee for formal care depends on both potential assets and income of the care receiver, including the LTC allowance. The users pay the cost of formal care out of their income but there are upper limits to what they need to pay, i.e. the users always keep some pocket money. The user always keeps 44 € per month from the LTC allowance (this is a flat

rate irrespective of the care level and income) and about 30% of the pension income.[19] The difference between the costs and the user's ability to pay are covered by the state (taking account also of potential assets). Naturally, Austria also has progressive income taxation.

Annual costs of providing institutional care depend on the care level but are estimated to be somewhat higher than in Finland. For a typical nursing home in Vienna the daily costs in 2012 for care levels 3 to 7 (the most intensive care) vary between about 140 € and 210 € a day or between about 51 000 € and 77 000 € a year.[20] In 2012, the average wage for full-time workers in Austria was about 39 000 €[21].

Let us first consider the case where the person in need of care has little assets to cover the cost of formal care. Because of the means-tested user fee for formal care (and income and consumption taxation), both the private economic incentives and the fiscal implications of formal vs. informal care are determined in a way that is at least qualitatively similar to the Finnish case analysed above.

To see this, notice first that the fiscal cost of formal care is clearly decreasing with the income of the care receiver: The higher is the income of the care receiver, the smaller is the share of the cost of formal care provision that is borne by the government. The fiscal cost of informal care in turn increases with the wage income of the potential informal care provider: The higher is the wage income of the potential care provider the higher is the lost tax revenue. The private cost of formal care is increasing with the income of the care receiver, again because of the means-tested user fee. The private cost of informal care in turn increases with the wage of the potential care giver.

One important difference between the Finnish and Austrian systems is that Austria pays a long-term care allowance to all citizens that are in need of long term care irrespectively of whether they choose formal or informal care. This matters for the economic incentives and fiscal implications we are interested in. Compared to the Finnish case (with an informal care allowance), it decreases the private cost of formal care and increases its fiscal cost.

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[19] In Austria, pensions are paid 14 times in a year. The user keeps 20% of the first 12 pension payments as well as the full value of the additional 13th and 14th pension payments.
[20] Stadt Wien – Häuser zum Leben available at http://www.kwp.at/startseite.aspx, accessed 11 June 2014.
[21] OECD.stat, average annual wages.

Another important difference between Finland and Austria is that in Austria, the means-testing of formal care fees also takes into account assets. In cases where the care receiver has substantial assets, this lowers the fiscal cost of formal care drastically (for a given level of care receiver's income). At the same time, the private cost of formal care is increased.

4.2 Estonia

In Estonia, the role of social security in financing LTC is much more limited than in Finland and many other EU countries. Normally, institutional care is supposed to be covered by the care receiver and his or her family. Hence, in those cases, the fiscal cost of formal care (as defined above) is zero. However, municipalities are responsible to provide the care if the care receiver is unable to cover the costs and has no family.

As the institutional care in Estonia is not regulated by the state, the true annual cost of formal care per person varies a lot by service-provider. According to the Ministry of Social Affairs, as of 2011, the monthly fee for institutional care varied from 287 € per month (municipal retirement home) to 1050 € or higher (in luxury level private institutions).

The public support for informal care in the form of a wage to the care provider is decided by local government. In Tallinn, for instance, the maximum care allowance, which depends on the assessed care needs, has been just 25.6 € per month since 2010[22].

Since the state does not usually finance formal care, both the fiscal effects and the private incentives depend in most cases only on the market wage of the potential care provider. Moreover, it seems clear that the fiscal cost of formal care is smaller than that of informal care whenever the market wage of the potential care provider is non-zero (implying a loss in tax revenue) unless the care receiver is unable to cover the formal care costs and has no family. Private incentives, in contrast, may favour informal care over formal care. This happens when the loss in market wage is less than the cost of formal care (taking also into account the care allowance). Intuitively, even in cases where the cost of formal care is borne directly by the citizens, the private incentives may not be aligned with the fiscal

[22] https://www.riigiteataja.ee/akt/424052013060.

considerations because individuals have no reason to take into the loss tax revenue that may be associated with informal care.

In short, in Estonia both the fiscal implications and private economic incentives related to formal and informal care are in general very different from those in Finland. An example calculation may help to further illustrate the Estonian case.

Let us take 6000 € as a rough estimate of the annual cost of formal care provision and consider an informal care allowance of 26 € per month (see above) or 312 € per year. Assuming that the care receiver or his or her family would be able to cover the full cost of formal care, the private cost of formal care is now directly given by the total cost of formal care (6000 €). The private cost of informal care is determined as:

$$pc^{informal}(w_p) = at^e(w_p) - 312.$$

where again w_p stands for the market wage of the potential care provider. The private cost of formal care is less than that of informal care when $at^e(w_p) - 312 > 6000$. Using Estonian income tax rates, we can solve that this is the case when the market wage (w_p) is at least about 8000 € per year. In 2013, the average annual wage for full-time workers in Estonia was about 11 800 €[23].

4.3 Portugal

In Portugal, institutional care is mainly arranged by publicly subsidized private institutions. As of 2014, there is a reference value of 938 € monthly (11 261 € annually) for the cost of institutional care in publicly subsidized institutions. The actual payment may vary between institutions, but the overall monthly contributions received by the institution are not allowed to exceed that value per resident plus 15%.

There are no strict rules governing the out-of-pocket fee. However, the Institute of Social Security proposes that the individual payment corresponds to 70% (or up to 85%, when there is some level of dependency) of the care receiver's (per capita household) income. It is also suggested that on top

[23] OECD.stat, average annual wages.

of the individual fee, an additional fee should be paid by the elderly person's descendants or other family members, according to their financial capacity. In 2012, the average annual wage for full-time workers was about 16 000 €[24].

There is no direct allowance for informal care. Nevertheless, there is an indirect cash benefit, or "dependency allowance", paid to persons in need of care. The benefit is contingent on the person's level of dependency and income. There are two dependency levels. Benefits for persons in dependency level 1 are only paid to persons with income lower than 600 € month. As of 2014, the benefit is about 100 € per month. The benefits for persons in dependency level 2 are about 180 € per month. Those benefits are not means-tested. The government also financially supports vacation days for informal carers (up to 90 days per year).

The existence of a means-tested user fee for formal care makes the Portuguese case qualitatively similar to the Finnish case. However, the fact that the dependency allowance is also paid to persons choosing formal care decreases the private cost of formal care relative to the Finnish case where a similar allowance relates to informal care only.

5 Conclusions

We have studied the private economic incentives related to informal care provision and its fiscal implications. Importantly, we took into account that in order to provide care, an informal care provider may have to give up market work. We focused on the Finnish case but also discussed the situation in a number of other EU countries.

In the Finnish system, both the private incentives and the fiscal implications depend on the economic characteristics of the potential informal care provider and care receiver. It is clear that in some cases informal care actually increases the overall fiscal cost associated with long-term care needs.

Our analysis suggests, however, that in most cases informal care is likely to be less costly for the public economy than formal care. This is true even if informal care requires giving up full-time market work completely. At the same time, the private incentives tend to encourage

[24] OECD.stat, average annual wages.

individuals to choose formal care rather than informal care. The main reason for this outcome is that unless the care receiver has very high income, formal care is mainly financed by other taxpayers. In other words, the private cost of formal care is usually only a fraction of the overall cost of formal care. At the same time, income taxation means that individuals pay only part of the overall opportunity cost of informal care that relates to reducing wage income.

These results show that in most cases informal care indeed mitigates the fiscal burden of LTC in Finland. Related to this, it may make sense to further encourage informal care. From the public finances point of view, however, possible additional subsidies for informal care should be targeted for specific individuals. Of course, there are other considerations that need to be taken into account as well. In particular, encouraging informal care may be seen problematic in terms of gender equality as informal care providers are predominantly women.

It also needs to be stressed that the policy conclusions related to the Finnish case do not carry over to all the other EU countries. For instance, in Estonia the bulk of the formal care costs are born by care receivers and their families. Therefore, formal care is trivially the less costly option for public finances. Moreover, in some other countries, the user fees for formal care effectively increase with household wealth. Again, this is likely to decrease the fiscal cost of formal care relative to the Finnish case. More generally, whether or not informal care reduces the fiscal burden of LTC depends on both the individual characteristics of the potential care provider and the care receiver, as well as the country specific features of LTC financing.

References

Crespo, L. and P. Mira (2010), Caregiving to Elderly Parents and Employment Status of European Mature Women, CEMFI Working Paper No. 1007.

Ettner, S.L. (1996), The Opportunity Costs of Elder Care, *The Journal of Human Resources*, 31, 189-205.

OECD (2011), Help wanted? Providing and paying for long-term care, OECD.

Van Houtven, Courtney H., Norma B. Coe and Meghan Skira (2013), The Effect of Informal Care on Work And Wages, *Journal of Health Economics* 32(1), 240-52

Viitanen, Tarja K. (2007), Informal and Formal Care in Europe, IZA DP No. 2648.Voutilainen, Päivi.

Eija Katainen and Reija Heinala (2007), Selvitys omaishoidon tuesta ja sen vaihtelusta 1994-2006, Ministry of Social Affairs and Health. (In Finnish.)

Väisänen, Antti and Timo Hujanen (2010), Sosiaalihuollon yksikkökustannukset Suomessa vuonna 2007. Terveyden ja hyvinvoinnin laitos, Avauksia 1/2010. (In Finnish.)