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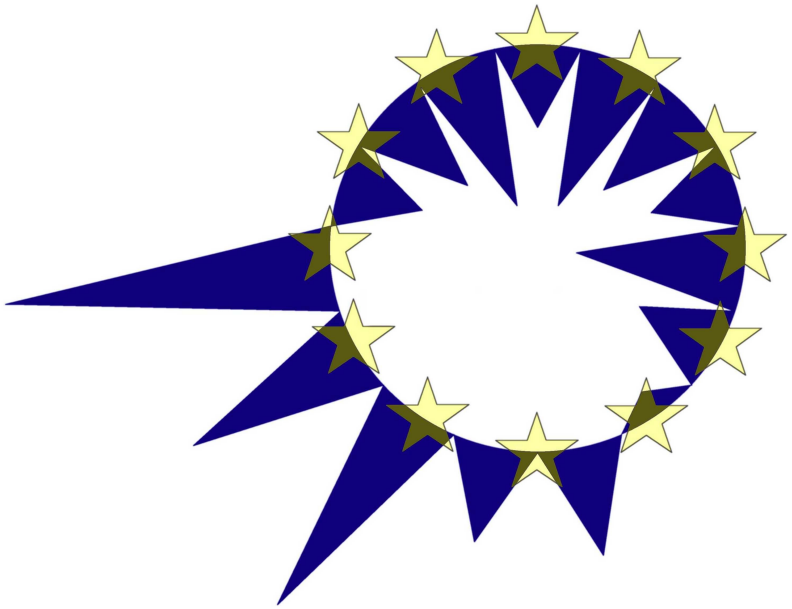

EUROMOD Working Paper No. EM3/01

THE IMPACT OF TAX-BENEFIT SYSTEMS ON LOW-INCOME HOUSEHOLDS IN THE BENELUX COUNTRIES. A SIMULATION APPROACH USING SYNTHETIC DATASETS

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July 2001

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Abstract

Computing the tax-benefit position of similar "typical" households across countries is a method widely used in comparative fiscal- and social policy research. These calculations provide convenient summary pictures of certain aspects of tax-benefit systems. They can, however, be seriously misleading because they reduce very complex systems to single point estimates. Using an integrated European tax-benefit model (EUROMOD), we substitute the typical household by a synthetic dataset, which can be used across countries. By varying certain important household characteristics (notably income), this dataset captures a much larger range of household situations. The calculations performed on this range of households not only show the tax-benefit position of many individual households but also demonstrate which household characteristics determine taxes and benefits in each country. Hypothetical calculations such as those presented here do not exploit the ability of EUROMOD to determine the impact of social and fiscal policies on *actual* populations. Nevertheless, they can be a valuable contribution to understanding tax-benefit systems since they allow us to separate the effects of tax-benefit rules from those of the population structure. We compute and compare disposable incomes for a large range of pre-tax-and-benefit income (so called budget constraints) of households in the Benelux countries. Disposable incomes are then decomposed to separately show the effects of each simulated tax and transfer payment. Based on these results, we illustrate the performance of the three tax-benefit systems in terms of ensuring a minimum level of household income.

JEL Classification: D31; D63; C81

Keywords: Microsimulation; European Union; Benelux; Average Production Worker; Poverty

The Impact of Tax-Benefit Systems on Low-Income Households in the Benelux Countries. A Simulation Approach Using Synthetic Datasets.

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1. Introduction

Simplification is an aim that often features prominently in proposals aiming to reform social and fiscal policy instruments. Nevertheless, due to the wide range of functions ascribed to them and the multitude of interests involved, tax systems and other instruments remain inherently complex. This complexity makes international comparisons difficult, especially where a large number of countries are involved. Depending on the purpose of the study it is, for example, often not sufficient to analyse the tax system in isolation. Institutional diversity between countries often requires the adoption of some concept of effective taxation encompassing also tax-like payments such as social insurance contributions as well as "negative taxes" such as universal or income tested state benefits. It is for these reasons that computing tax-benefit positions of similar typical households across countries is a method widely used in comparative fiscal- and social policy research (e.g., Commission of the European Communities, various years; OECD, 2000; OECD, various years; Nordic Statistical Secretariat, various years; Hansen, various years).

These calculations provide easy-to-grasp summary pictures of certain aspects of tax-benefit systems. Complementing country-specific information such as the distribution of taxes and benefits and their aggregates, they contribute to a better understanding of different tax-benefit systems by showing the effects of taxes and transfer payments on similar households in different countries. This convenience comes at the price of potentially being seriously misleading since very complex systems are reduced to single (or a few) point estimates. Single-point calculations, however, “do not reflect the effects of varying income. This is

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important because [...] 'income related systems' have different characteristics when income varies."[2] However, the point made here about income can be extended to all household characteristics that play a role in determining taxes and benefits. Even though many of these characteristics are of a discrete nature, computing the taxes and benefits for each combination of characteristics quickly becomes very time consuming. If one would in addition want to extend these calculations to a number of different countries then, for many studies, the only feasible alternative is to rely on calculations that are already available. As Hansen (1998) points out, "even if some of the limitations concern the APW [Average Production Worker] as such, it should not be forgotten that OECD's APW is the only existing operational framework for this kind of international comparison."[3] Yet, as will become apparent by the type of analysis performed in this paper, what has been considered a typical household in one given context may not be the appropriate household situation for the research question at hand in other studies.

The apparent solution to these drawbacks - computing the tax-benefit position of a wide range of households specific to the research question - has so far been inhibited by the lack of a suitable tool to perform conceptually consistent calculations within a reasonable time frame. However, a new integrated European tax-benefit microsimulation model, which provides a consistent conceptual framework and permits the use of identical household-datasets across countries, allows comparable tax-benefit calculations to be performed on any desired number of households. In this paper, we use this model to compute a set of budget constraints (i.e., disposable incomes as a function of pre-tax-and-benefit incomes) for a range of household types in the three Benelux countries. The calculations are performed for the same set of households in each country. We believe that this type of presentation of the mechanics of tax-benefit systems can be used in a multitude of research contexts. In this paper we concentrate on a group of households (low-incomes) that is not normally the subject of studies employing hypothetical household calculations. We show how this methodology can be used to assess the potential of tax-benefit systems to reduce financial poverty.

It should be noted that the simulation results presented here show the *immediate* effects of social and fiscal policy. That is, the calculations show the tax burdens and transfer payments that households would experience for a given set of characteristics. Any behavioural consequences of these policy instruments do thus not enter the analysis. While such a "static" perspective may limit the scope of analysis for certain research questions, the very short-term is often the appropriate assessment period. For example, even though longer-term considerations are highly relevant when considering ways to reduce poverty, it is the immediate income situation that poor households will normally be most concerned about.

The paper proceeds as follows. The model and the synthetic micro-data are explained in the following section. In section 3, the budget constraints of each household type are presented and compared across countries. For each household type, we then focus on low-income households. The impact of each tax-benefit system on these households is discussed in section 4. The last section concludes.

[2] Hansen (2000), p. 20.
[3] p. 91.

2. Methodology and Data

In order to compare the impact of different tax-benefit systems, we construct a set of synthetic households. A European tax-benefit model (EUROMOD) is then used to compute taxes and benefits for each of the households enabling us to compute disposable incomes. By plotting disposable incomes on pre-tax-benefit incomes, we can construct so-called budget constraints and compare them across countries. These graphs show the effects of the tax-benefit system in terms of the difference between household incomes before and after taxes and benefits. Having computed budget constraints for the various household types, we analyse in more detail what determines household disposable incomes. This is done by decomposing total income in order to separately show the impact of each individual tax and benefit instrument simulated by the model.

The simulations are performed for the three Benelux countries. The synthetic dataset used as an input for the tax-benefit calculations consists of five different household types: A single "production worker" (PW), a single parent PW with 2 children, a single earner married couple with two children, a two-earner married couple with two children and a married couple of pensioners. For each household type there are 160 households representing different levels of income. Along with income, we vary other characteristics, such as hours of work, employment status, housing costs, etc., in an attempt to capture, for each level of income, a "typical" household situation. Naturally, all income variables in this synthetic input dataset are gross since the purpose of the paper is to compute taxes and benefits based on gross incomes and other relevant characteristics. Table 1a provides a detailed account of all characteristics relevant for the simulation of taxes and benefits. Note that the first four household types are equivalent to those used by the OECD for tax-benefit calculations. Instead of focusing on one particular level of income, however, we are able to explore the impact of the tax-benefit system at a range of different income levels (subject to assumptions made about associated characteristics as spelled out in table 1a).

Even though the five household types do represent a large part of the national populations, we are aware that the choice is to some extent arbitrary. For specific types of analyses, different household types will be more appropriate. In addition, we are constrained by the scope of our model in what types of households we can analyse.[4] Nonetheless, the characteristics of our five groups of households do allow us to assess the most important effects of the tax-benefit systems considered here. As a result, even if we do not explicitly take into account other important household structures (e.g., families with more than two children), many of the mechanisms relevant for them (e.g., family benefits) will be illustrated by the analysis of our limited number of household types. Yet, in interpreting the results, it is important to remember that the limited range of household types falls short of doing justice to the heterogeneity of actual populations.

Table 1b provides a summary picture of the relevance of the chosen household types in each of the three countries. The top part of the table shows the number of single, single parent,

[4] For example, EUROMOD does not currently simulate contribution based instruments such as unemployment benefits for all countries. While we are able to simulate taxes and benefits for inactive people (as well as unemployed people who are not eligible for unemployment benefits), this paper does not, therefore, consider households where one or more members are recipients of unemployment benefits.

married couple (working age) and married couple (retirement age) households as a proportion of the total number of households in each country. An additional column shows the composition in terms of these types of the low-income population. We see that the four types encompass the majority of households ("Other" households are less than 50% throughout). This also holds among low-income households where, with the exception of Belgium, the four types represent a significantly larger part of households than for the population as a whole. In the lower part of the table, we consider narrower definitions, which more closely resemble some of the household types described in table 1a. The numbers illustrate the unavoidable disadvantage of tax-benefit calculations based on hypothetical households. The more precise the definition the harder it is to capture the situation of households which actually exist in the population. This qualification is important in interpreting results from hypothetical calculations, including those presented below. The approach used in this paper does not solve this problem but, by permitting household characteristics to be varied, provides a method for assessing the influence of household characteristics on taxes and benefits.

To compute taxes and benefits for each household represented in the synthetic dataset, we use a tax-benefit microsimulation model. National static microsimulation models exist in most countries of the EU and the rest of the OECD. However, to explore the effects of taxes and benefits in a comparable manner across different European countries, we need a model that operates at the European level and permits the use of consistent concepts and definitions. EUROMOD is such a model. It provides us with a Europe-wide perspective on social and fiscal policies that are implemented at European, national or regional level. It is also designed to examine, within a consistent comparative framework, the impact of national policies on national populations or the differential impact of co-ordinated European policy on individual Member States. Details on EUROMOD can be found in Immervoll et al. (1999).

The simulations are based on the systems of tax and benefit rules current in June 1998. The model simulations are of a "static" nature and, as such, do not incorporate behavioural responses (such as reduced work-effort) that may result as a consequence of social and fiscal policy measures. While incorporating behavioural changes can be a worthwhile exercise, its usefulness depends on the questions to be addressed. For example, for the purpose of understanding the interactions between different tax-benefit instruments a model, which does not mix immediate effects with longer-term behavioural dimensions will often be preferable.

One of the advantages of an integrated European tax-benefit model is that consistent income concepts can be used across countries. Since we want to draw household budget constraints, we need to compute disposable incomes for a range of pre-tax-benefit incomes ("original income"). For household types who earn income through employment, original income mainly consists of employment income. However, since we also analyse the effects of the tax-benefit system on pensioner households, pensions are also a component of original income. For these households, we vary pensions to see what role taxes and benefits (other than pensions) play in determining disposable incomes of people with different levels of retirement income. Table 2a shows the definition of disposable and original income in terms of the income concepts used in this exercise. For the present analysis we simulate, for each household type and for each level of original income, income taxes, social insurance contributions, child benefits and other family benefits, housing benefits and social assistance

benefits. For the Netherlands, we also simulate the state pension, which is not contribution related and is received by all residents aged 65 and over.[5]

3. Comparing 'budget constraints' across countries

The graphs in figure 1 illustrate the potential of the approach introduced in the previous section. For the five household types chosen, we compare the relationship between original and disposable income (the budget constraints) in the three Benelux countries. In principle, a tax benefit model such as EUROMOD allows these graphs to be produced for an unlimited number of household types. Instead of focusing on one APW (the approximate position of an APW is indicated by the dashed vertical line in figure 1a) we can compare households of varying size and composition and with different levels of original income, with potentially very different results. This is documented by the results for our five household types presented in figures 1a to 1e. In these figures, the main focus is on cross-country comparison. Contrary to the country specific graphs 2-4, where "official" Euro exchange rates are used, we therefore use purchasing power adjusted exchange rates to convert disposable incomes into Euro amounts.[6]

Since figures 1a-1e plot income after taxes and benefits (disposable income) against pre-tax and benefit income (original income), they also provide a useful picture of effective tax rates. For each household, the net taxes (income taxes plus social insurance contributions minus benefits) are equal to the vertical distance of disposable income from the 45-degree line. Households with disposable incomes above this line are net benefit recipients while those below are net taxpayers. By relating this distance to original income, the average effective tax rate (AETR) can be found. The marginal effective tax rate (METR) is represented by the slope of the (imaginary) line connecting the disposable incomes of two households, the difference in original income between those households being the "margin".[7] The METR is zero if this slope is 45 degrees and 100% if it is horizontal. A negative slope represents METRs in excess of 100%.

We see that AETRs in Luxembourg are clearly the lowest among the three countries. The difference is very substantial for all household types except the pensioner couple where, for higher levels of original income, Dutch AETRs are similar. For all other household types, AETRs in Belgium and the Netherlands are remarkably similar with the Netherlands showing marginally lower METRs (steeper budget constraints) than Belgium. With the exception of the single parent household, Luxembourg also has the lowest METRs of all three countries.

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[5] See Berger and Borsenberger (2001), Lumen and Scholtus (2001) and de Vos (2001) for a detailed description of the instruments modelled in EUROMOD.

[6] We use 1997 "national currency/PPS" figures taken from Eurostat (1999). Approximations of 1998 PPP adjusted exchange rates are computed by taking into account the differential changes of the Harmonised Consumer Price Index (HCPI) between 1997 and 1998 in the respective countries (and using the German Mark as the "anchor" currency). The resulting PPP exchange rates are BEF 37.057, NLG 1.976 and LUF 39.450 per Euro.

[7] In the graphs, we show the individual data points rather than a continuous line in order to emphasise that income is not the only characteristic that varies between households in our synthetic dataset. Rather, each household is assigned characteristics which are considered "typical" (hours of work, housing costs, etc.) for this level of income (see previous section). The most appropriate interpretation of the slope of the budget constraint is therefore as a longer-term METR (assuming that following income changes, rent and other characteristics do in fact change in line with the assumptions made for constructing the dataset of synthetic households).

We also see several interesting kinks in the budget constraints. Most of them occur at low levels of income where benefit withdrawal rates often cause METRs to be 100% (the exception is Luxembourg). In addition, the phase-out of certain benefits (notably housing benefits) sometimes lead to METRs in excess of 100% giving rise to so-called poverty traps with strong dis-incentives against increasing earnings above a certain level.

We will now take a closer look at the budget constraints of each of the five household types. Starting with single persons (figure 1a), we find that for original incomes of about 200 to 2,800 Euro per month, disposable incomes in Belgium and the Netherlands are approximately the same, while one person households in Luxembourg are clearly better off. At very low income levels, single persons in Belgium appear to be worse off than in the Netherlands, and the same holds at income levels above about 2,800 Euro. It is important to note that the latter is partly caused by the fact that in the Netherlands persons with high incomes do not have to pay statutory health insurance contributions. In the results presented here, we only deduct *compulsory* payments (taxes and contributions) from disposable income.[8] Hence, any private health insurance premiums paid by the Dutch are not taken into account. Another interesting phenomenon is that Dutch households on low incomes (less than about 800 Euro per month) all end up with the same level of disposable income, i.e., the METR is 100%. While in Belgium, this rate is also 100% except at very low income levels, the budget constraint in Luxembourg is slightly upwards sloping (METR < 100%).

The graph for single parent families (figure 1b) confirms the picture that the tax-benefit system leaves households in Luxembourg with higher disposable incomes than in Belgium and the Netherlands. Similar to one person households, the Dutch take up an intermediate position at high income levels, while at low income levels, Belgian single parent families now end up with markedly higher disposable incomes than their Dutch counterparts. Among the factors leading to these observations are fairly generous amounts of child benefits received by Belgian low-income single parents, and the favourable tax treatment of working single parents with children younger than 12 in the Netherlands. These features of the Belgian and Dutch tax-benefit systems are also reflected in the numbers of single parent households in table 1b. In Belgium, we see the lowest number of "low-income" single parent households. The favourable tax treatment of Dutch single parents, on the other hand, can only be fully exploited by higher income single parents (see section 4.2.2). As a result, these tax advantages do not benefit low-income single parents who, in the Netherlands, make up a very large part of the low-income population.

For single earner couples with two children (figure 1c), the picture is somewhat different: the lines for Belgium and the Netherlands are quite close, especially at high income levels, and show the largest differences at the lowest income levels, where Belgian households are clearly worse off. Disposable incomes of households with similar levels of original income in Luxembourg are again clearly higher, so much so that in Luxembourg a single earner with

[8] There are two reasons for this. One is merely data related – we currently do not have information on the distribution of private insurance premia between income groups. On a more conceptual level, the definition of disposable income as the cash income that people have control over is a pragmatic choice in order to avoid comparability issues between the services that compulsory taxes and contributions 'buy' in different countries. In any case, the focus in the paper is on lower income groups for whom the problem of no compulsory health insurance contributions usually does not arise (an exception are pensioner households: see section 4.2.5 below).

two children becomes a net payer of taxes and contributions only with original income exceeding 3,300 Euro per month, while in Belgium and the Netherlands households become net payers with original incomes of less than half this amount.

For two-earner couples with two children the picture (figure 1d) is rather similar to that of one-earner families, with Belgian and Dutch households ending up in very similar positions and Luxembourg households having clearly higher disposable incomes on the basis of the same original income. The main exception to this similarity between figure 1c and 1d concerns the comparison of Belgian and Dutch households with low original incomes. With original incomes between about 300 and 1,700 Euro, the disposable income of two-earner Belgian families appears to be approximately equal to that of comparable Dutch families, and, at very low levels of original income, noticeably higher than that of Belgian single-earner families with similar original incomes.

Graph 1e shows that in the case of pensioner couples, incomes of Luxembourg households are no longer clearly higher than those of their Belgian and Dutch counterparts. In fact, Dutch and Luxembourg pensioner families with the same original incomes are almost equally well off in terms of disposable incomes, except at levels of original incomes between approximately 1,250 and 1,800 Euro where Dutch households end up with disposable incomes quite close to Belgian pensioners. Below and above this income range, Belgian pensioners have the lowest levels of disposable income of the three countries. It should be noted that the Dutch curve is not drawn for original incomes below 1,250 Euro because virtually all Dutch pensioners (all residents aged 65+) receive the flat rate state pension (which is, as all pensions, included in original income).

Clearly, we see different characteristics of the tax-benefit systems depending on the level of original income and the household type in question. By producing comparable results for many different levels of original income, the graphs are particularly useful for comparing important income related features of tax-benefit systems across countries which cannot be captured using traditional APW results. For example, the slope of the curves and their distance from the 45-degree line provide a quick and comprehensive picture of marginal and average effective tax rates. In the next section, we extend the analysis by evaluating which tax-benefit instruments are responsible for shaping the budget constraints discussed above. In particular, we will analyse the tax-benefit position of the five different household types at low levels of original income. The goal here is to compare the potential of the three countries' tax-benefit systems to provide a minimum level of financial security for low-income households.

4. Tax-benefit systems and low-income households

In this section we show to what extent the tax-benefit systems in the three Benelux countries can be seen to be devised with the purpose of ensuring a minimum income level for low-income households. To this end, we present graphs 2 to 4, which provide a detailed picture of the various income components. Focusing on the lower range of original income, they decompose disposable incomes into original income, taxes, contributions and various benefits. Since the majority of instruments relevant for low-income households are simulated in EUROMOD, the mechanics of the tax-benefit system relevant for this income group are

well captured by these graphs (see section 2 for details on which instruments are simulated by EUROMOD).

We use a national poverty line in each of the countries as a reference income level for identifying 'low-income' households. The poverty thresholds relevant for each type of household are shown in the graphs (dashed line). They are calculated on the basis of 60% of median per-capita income as described in table 2b. As before, both original and disposable incomes are displayed in the graphs. In reading the graphs, note that since the horizontal axis is original income, the horizontal position (the 'x-value') of each bar is the same as the value of original income in that bar. As hinted above, we now use market exchange rates to convert national currencies into the Euro amounts shown in the graphs.[9]

Complementing the graphs, tables 3a to 3d show the components of household income as a fraction of disposable income for four different extents of "low income": households with *disposable* incomes equal to the poverty line and households with *original* incomes of approximately 1/1, 2/3 and 1/3 of the national poverty lines. These tables thus provide information on how the tax-benefit system affects people experiencing different extents of financial poverty.

4.1. Belgium

The evidence of recent poverty headcounts in Belgium points to an increase during the years preceding 1998 (CSB, 1999; Cantillon *et al.*, 1994; Gevers and van Kerm, 1998; Delhausse and Perelman, 1998). The Belgian tax-benefit system plays a very important role in reducing poverty rates. For example, Förster and Pellizzari (2000) find that while, in the mid-1990s, the poverty rate before taxes and benefits was the third-highest in a sample of 14 OECD countries, after taxes and transfer payments only four of these countries had a poverty rate lower than Belgium. It is therefore interesting to investigate how the tax-benefit system achieves this performance.

4.1.1. Single persons (working age)

While no housing cash benefits comparable to the systems in Luxembourg and the Netherlands exist in Belgium, families with low original incomes receive social assistance ("Minimex"). For single persons who receive it, the amount of this benefit is sufficient to ensure a disposable income above the poverty line once original income reaches about 120 Euro (figure 2a). Below that amount disposable income is below the poverty line (613.8 Euro). In table 1b, we see that persons of working age living alone make up a smaller proportion of the "low income" population than in the Netherlands or Luxembourg. However, the share among "low income" households is still higher than the share in the population overall. Since, similar to our hypothetical calculations, the numbers in table 1b also assume that everybody entitled to a benefit does in fact claim it, it must therefore be the case that a substantial number of single households have no or only very little income other than benefits (in which case Minimex is not sufficient to move them across the poverty threshold).

[9] The reason is that instead of focusing on a comparison across countries we now analyse incomes as well as low-income thresholds in national terms. In particular, we are interested in the income situation of low-income households relative to national concepts of low income or financial poverty. The cash amounts of each tax-benefit instrument in each country have a more direct interpretation if shown in terms of nominal Euros.

Minimex is a supplementary (or "top-up") benefit: it is reduced by the amount of any earned income. However, in order to promote the professional re-integration part of the earned income is not taken into account in computing the Minimex amount. This is the reason why the budget constraint is upwards sloping (until the point - at around 240 Euro - where original income exceeds the exempted amount). From this point onwards, the amount of social assistance decreases, keeping disposable income constant (and the budget constraint flat). Persons with original income between 240 and 870 Euro end up with similar disposable incomes close to but above the poverty line (718 Euro or about 117% of the poverty line).

4.1.2. Single parent families

Single parent households with low original incomes (figure 2b) are entitled to social assistance and to "guaranteed" family benefits. The "guaranteed" family benefit is one of several family benefit regimes. The employment status of the claimant (the father by default) determines which of the regimes is relevant for the family. "Guaranteed" family benefits are available if the claimant works less than 20 hours per week and if the family income does not exceed certain limits. In our analysis, only the working hours condition is relevant since all low-income households are below the income limits.

Table 3 reveals that these families receive between 19% and 25% of their disposable incomes in the form of family benefits. If received, the generous level of these benefits causes disposable incomes for this household type to be markedly higher than the poverty line at all levels of original income. Relative to the poverty line, low-income single parents in Belgium achieve the best position of all household types and country scenarios studies here. At the point where the budget constraint flattens out, disposable income is approximately 50% above the poverty threshold. It is important, however, to keep in mind that in order to construct the graphs, we have assumed that single parents receive alimony payments for their children (which is why the lowest original income in figure 2b is about 330 Euro). Since these payments are included in original and disposable income but (unlike in the other two countries) not in the 'means' relevant for computing social assistance, Minimex payments are unaffected by the receipt of these payments. Yet, while receipt of maintenance payments is fairly common for single parent households, it is not universal. As a result, some single parent households with very low incomes may, even if in receipt of social assistance and family benefits, fall just below the poverty line. Despite this qualification and keeping in mind that benefit non-take up is likely to be an important issue, the results of our hypothetical calculations tend to be confirmed by table 1b.[10] We see that despite the largest number of single parents overall (5.1% of all households), single parents in Belgium make up a much smaller proportion of the poor population (3.0%) than in the other two countries.

One noteworthy feature of the budget constraint is the sudden drop in disposable income at a level of original income of about 900 Euro. As hinted above, this is due to the transition from the more generous "guaranteed" family benefit to "ordinary" family benefit. This transition is,

[10] Note that incomes underlying the "low income" classification in table 1b include simulated transfer payments. Results may therefore be affected to the extent that people do not in fact claim benefits which they are entitled to (i.e., if single parents do not "take up" social assistance benefits, more such households will be affected by "low incomes" than the 3% in table 1b would indicate).

in fact, not triggered by the level of original income but by the number of working hours (which, in our model families, increase in line with earnings; see table 1a). Since after this drop the budget constraint is, again, flat (up to the point where the household is no longer eligible for social assistance), it takes a considerable increase in original income (to 1,470 Euro) in order to regain the same level of disposable income as before the 'drop'. This large increase is necessary since, once incomes become taxable, disposable incomes rise rather slowly because of higher marginal tax and contribution rates (they sum up to about 46%) than in the other two countries.

4.1.3. Single earner and two-earner married couples with two children

As the graphs relating to these two household types (figures 2c and d) have similar characteristics, we comment on them together (where comments or amounts are different for the two household types, the ones in brackets relate to the two-earner family). In the two-earner family, the wife is assumed to earn 33% of the husband. Note that, as a result, the scale on the original income axis is different in each of the two figures because earnings for the two-earner family grow increase at a faster rate (30 + 30/3 = 40 Euro increments) than in the single earner case (30 Euro increments).

For very low original incomes, we see the same upward sloping budget constraint as for the previous household types. However, disposable incomes stay below (slightly above) the poverty line even in the 'flat' section of the budget constraint. Recipients of social assistance have disposable incomes of between only 81% and 95% (106%) of the poverty threshold. Given the much better position of single parent families discussed above, it appears that the equivalence scale implicit in the Belgian Minimex benefit puts, in relation to the OECD equivalence scale used for computing the poverty line, much too little weight on the second adult in a household. This finding is worth emphasising since, usually, the modified OECD scale gives similar or lower weights to additional household members than many national social assistance schemes. Despite being closer to the poverty threshold than single parents, however, the last column of table 3 shows that, relative to the poverty line, Belgian low-income families with children still tend to be better off than their Dutch and Luxembourg counterparts.

As was the case for the single parent household, there is a 'drop' in disposable income at the point where earned income exceeds the upper income limit of the 'guaranteed' family benefit (see explanations above). To make up for that drop, the original income has to rise to more than 1,110 (1,300) Euro, an increase of 480 (520) Euro. The difference is due to the different tax treatment of one- and two earner couples. On one hand, two earner couples are at an advantage due to an earnings related deduction (with a regressive rate structure) which is supposed to cover any work-related expenses. On the other hand, one earner couples and couples where one partner earns less than 30% of the couple's earnings benefit from a transfer of taxable income from the higher to the lower earning spouse. Since the tax system in Belgium is one of individual taxation, any transfer of taxable income from the higher to the lower earning partner reduces the couple's overall average tax rate.

In the two-earner family explored in figure 2d, the lower earning spouse earns 25% of the couple's overall earnings (1/3 divided by 1+1/3) and, as a result, still benefits from a small

transfer which is, however, clearly smaller than in the one-earner case. Despite this disadvantage the two-earner family still ends up with lower tax burdens for a given level of original income since the earnings related deduction more than compensates for the difference in earnings transfers (at least for the levels of original income shown in the graphs).

Turning to table 3, we see that single earner (*PW, 0SP, 2ch*) families are generally worse off than two-earner (*PW, 33SP, 2ch*) families. The social assistance benefit is unable to lift single earner families with very low original incomes out of poverty (bottom two tables).[11] Another noteworthy feature is the large difference between single- and double earner families in the case where disposable income is equal to the poverty threshold (first table). The poverty cut-off is first reached with original income of about 1,170 Euro in the single earner family while in the two-earner case, the same disposable income is achieved with original income of only 340 Euro. Inspection of the relevant graphs (figures 2c and 2d), however, reveals that this enormous difference is caused by small differences in the benefit amounts.[12] These are magnified by the flatness of the relevant section of the budget constraints and their proximity to the poverty threshold.

4.1.4. Pensioner couples

Our hypothetical tax-benefit calculations in figure 2e indicate that, similar to other households with more than one adult, pensioner couples receiving social assistance face a high risk of poverty and the household composition of the actual Belgian population confirms that this is indeed the case (table 1b). As for the single earner family in figure 2c, the amounts of social assistance are again not sufficient for lifting low-income households out of poverty. Disposable incomes of this group of pensioner couples are only 81% to 92% of the poverty threshold. Compared to working-age couples, however, fewer pensioner couples whose income is too high to still be eligible for social assistance, are 'poor'. This is due to the fact that before liability to pay income tax kicks in at an original income of about 1,250 Euro, no social insurance contributions are payable either. As a result, disposable incomes increase one for one with original income (as illustrated by the budget constrain being parallel to and, indeed, identical with, the 45 degree line).

Another feature of graph 2e is the slight drop in disposable income at an original income of about 2,260 Euro which coincides with an increase of the marginal effective tax rate 40% to over 51%. Both phenomena can be explained by the availability of an income tested income tax reduction available (in the form of a tax credit) for replacement incomes.

Table 3 reveals that for cases where disposable income or original income is equal to the poverty line (top two tables) the tax-benefit system does not have any impact on pensioner

[11] A larger part of the two-earner family's "resources" is disregarded for the purpose of computing the social assistance top-up benefit (Minimex): Each earner can claim a so-called "professional integration bonus" which basically allows benefit recipients to increase their earnings (up to a certain limit) during the first three years of a new job without reducing their benefit levels. Hence, for a given level of household earnings, social assistance benefits are higher for the two-earner family.

[12] In addition to the differences in the social assistance benefit, the "drop" in family benefits caused by the transition from "guaranteed" to "ordinary" benefit occurs at different levels of original income for the single- and two-earner families (because it only depends on the working hours of the claimant; see the discussion in section 4.1.2).

couples' disposable incomes (row *Pen, 33Pen*). In the cases of the very low-income households (bottom two tables), the only influence is through social assistance.

4.2. The Netherlands

Among the member countries of the European Union, the Netherlands is usually found to have fairly low poverty rates (see e.g., Hagenaars et al., 1994; Eurostat, 2000) which is confirmed by the poverty figures we derived using EUROMOD (table 2b). However, looking at the actual Dutch population by household type (table 1b), we find that one person households and single parents are particularly likely to end up with incomes below the poverty threshold: Their share of the "low income" population is markedly higher than of the population as a whole.

4.2.1. Single persons (working age)

Dutch transfer payments fail to lift single persons with low original incomes out of poverty. Original income is supplemented by social assistance such that after deduction of income taxes and employee social insurance contributions the resulting 'social minimum' is approximately equal to 70% of the net minimum wage. Even if all people entitled to social assistance would in fact claim it, we see that their disposable incomes do not exceed our low-income cut-off (figure 3a). In addition, the person may be entitled to housing benefits ("rent subsidy") of which the level depends on the gross rent and net income including social assistance. Given the assumptions on the gross monthly rent (see table 1a), the resulting housing benefit is almost negligible. All in all, disposable income for single persons with low original incomes is, on a monthly basis, about 20 Euro below the poverty line relevant for single persons. It should be noted that the full social assistance amounts are only awarded to single persons living alone (i.e. not 'sharing their front door') aged 21 or more, who are not in full-time education and not self-employed. Eligibility also depends upon being "sufficiently active" in looking for work. While all these conditions are assumed to be satisfied here this is will clearly often not be so in reality. Moreover, except for persons having never worked, social assistance entitlement often starts once entitlement to other benefits (such as unemployment benefits) expires. Since none of these benefits are received by any of our model households, they have not been taken into account in the calculations.

It can be seen from figure 3a and from table 3 that, unlike in any of the other countries, single persons on social assistance already pay considerable amounts of income tax, and in particular, social insurance contributions (summing to a level of more than 25% of disposable income). Similar to earnings, where any taxes and contributions are normally withheld by the employer, social assistance is also paid out as a net amount, in addition to which the municipalities pay taxes and contributions to the relevant authorities.

4.2.2. Single parent families

In the Netherlands, low-income single parent households are entitled to benefits which lift disposable incomes above the poverty line assumed to be relevant for this household type (figure 3b). In addition to social assistance which, in the case of single parents, supplements disposable income to about 90% of the net minimum wage, these households are entitled to flat rate child benefits, as well as to housing benefits. However, housing benefits, and thus the housing related assumptions in our model households, do play a decisive role. Without rent

subsidy, disposable incomes of low-income households collapse below the poverty line. Other assumptions on the rent would lead to the conclusion that single earners with two children are guaranteed disposable incomes higher or lower than the poverty line relevant for their household type (obviously, the same holds if the poverty line would be computed on a different basis). This is one important factor explaining why table 1b shows single parent households making up a much larger proportion of "low-income" households than figure 3b would suggest. Other reasons why single parents will frequently be less well off than the model family in figure 3b are that self-employed persons are not eligible to receive regular social assistance (although they may be eligible for a different benefit) and a relatively stringent capital test which prevents single parents from receiving social assistance if the value of any assets exceeds about 4,400 Euro.

As mentioned in section 3, single parent families with children younger than 12 benefit from a relatively generous tax free allowance at higher income levels. It should be noted that higher income single parents would be even better off if the costs of childcare (which in the Netherlands is rather heavily subsidised and/or tax deductible) would be taken into account. The generous tax free allowances (also relevant for computing the base of most social insurance contributions) are also visible in tables 2b-d where we see that single parents with low incomes do not pay income tax and a very limited amount of social insurance contributions.

4.2.3. Single earner married couples with two children

In terms of the generosity of transfer payments, low income single parents are, relative to the poverty threshold, better off than couples with children (figure 1c, 1d). In essence, this is a consequence of the fact that the Dutch tax-benefit system assumes that single parent families with two children require more than 90% of the resources of couples with two children (90% of social assistance + 100% of child benefits + 100% of rent subsidy) to reach the same welfare level, whilst the modified OECD scale on which the poverty line is based assumes that single parent households with two children need 76% (1.6 divided by 2.1) of the resources of couples with two children.

In our simulations, low income single earner couples with two children end up with a level of disposable income which is about 150 Euro below the poverty line. In addition to social assistance, which, for couples with children, supplements disposable income to about 100% of the net minimum wage, these households receive the same flat rate child benefits as single parent families, as well as housing benefits.

For low-income couples with two children, child benefits account for about 12% of disposable income. Income taxes and social insurance contributions sum to approximately the same fraction, which puts them about halfway between the very low tax and contribution burden we saw for single parents and the fairly high percentage for single persons. This is a direct result of the different tax free allowances (pertaining to income tax and part of the employee social insurance contributions) available for the various household types.

4.2.4. Two earner married couples with two children

While higher income two-earner households benefit from slightly more favourable tax and contribution rules[13] than single earner couples, these differences are not relevant for households receiving social assistance. As a result, essentially the same results are found as for single earner couples, basically because for social assistance it makes no difference whether one or two earners are active to earn original income. In fact, it is clear that given the 100% claw-back of social assistance for every additional Euro earned, households receiving social assistance do not have a strong incentive to marginally increase their labour supply. Their disposable income would only increase if they increased their earnings to well above the minimum wage. It should be noted that municipalities in the Netherlands have some legal opportunities not to apply the full 100% claw-back rate for selected groups of households. They can also award certain lump-sum benefits to persons who stop receiving social assistance after accepting a job offer.

4.2.5. Pensioner couples

Essentially, the flat rate state pension guarantees an income level slightly higher than the 'social minimum' or social assistance level, which for this household type is higher than the poverty line (figure 3e). Note that, since pensions are included in original income, this means that the latter is always above the poverty threshold. As in the other two countries, social insurance contributions are markedly lower for pensioners than people of working age. In the Netherlands, compulsory contributions decrease further once original income exceeds 1,640 Euro. At this point, we see a kink in the budget constraint because health insurance contributions are no longer compulsory. (A similar upper contribution threshold exists for working age individuals albeit at a higher income level. See section 3 and in particular footnote 8.)

4.3. Luxembourg

While we find a relatively small number of households living in poverty (table 2b), analysis of recent Luxembourg specific income micro-data (Socio-Economic Panel Living In Luxembourg, CEPS/Instead) shows that the previous years have seen small but steady year-on-year increases of the number of households with disposable incomes below the poverty threshold as defined before. Between 1995 and 1998, the overall increase was 1.5 percentage points. Looking more closely at households in poverty (table 1b), we find particularly high rates among single parent families, one person households (working age) and single-earner families with children.

4.3.1. Single persons (working age)

As shown in figure 4a, benefits fail to lift low income single persons of working age across the poverty line. However, while the shortfall is about 200 Euro for those with no original income, those with some original income benefit from a withdrawal rate of less than 100%. This is in contrast with both Belgium and the Netherlands where budget constraints of social assistance recipients are mostly flat. Apart from social assistance ("Revenu Minimum Garanti", RMG), housing benefits play an important role in supplementing single persons' disposable incomes (subject, again, to the assumptions made about rent expenses – see table 1a). Income taxes are not payable as long as original income of a single person remains below

[13] Spouses with low or zero incomes can transfer their tax free allowance to the higher earning spouse.

1,180 Euro – exactly the income level where single households manage to cross the poverty threshold. Social insurance contributions (2.55% of income from social assistance and 13.05% of any income from employment) are payable at all income levels. The overall reduction of disposable incomes of poor persons by these payments is, however, much lower than in the Netherlands (and comparable in size to Belgium).

The amount of social assistance depends on household size and composition and on household gross income. This income concept excludes many transfer payments such as family benefits. In addition, up to 20% of earnings and replacement incomes are excluded. This disregard of a part of the professional and replacement incomes in computing the "means" is the reason why the budget constraint is upwards sloping for recipients of social assistance: Social assistance benefits are withdrawn at 80% as earnings increase, leaving 20% of any additional income as an incentive to take up low-paid jobs or increase hours worked. Housing benefits are conditional upon receiving social assistance. The amount of the housing benefit is determined as the difference between the rent paid and the amount corresponding to 10% of the maximum social assistance amount with an upper limit of about 123 Euro.[14] The fact that housing benefits are tied to social assistance explains the sudden drop in the budget constraint at the point where households stop receiving the latter. By causing marginal effective tax rates well in excess of 100%, this discontinuity is, at certain income levels, the source of a potential "poverty trap" where there are strong disincentives to increase earnings beyond a certain level.

It is important to note that social assistance may not be available to a substantial proportion of single households. Those who are not eligible include persons younger than 30, those who have spent less than 10 years in Luxembourg and those with capital exceeding certain capital limits. In addition to the amounts which, as discussed above, are insufficient to lift single households out of poverty, these factors explain the relatively high fraction of one person households among the "low income" population (table 1b). Similar observations can also be made about the next household type.

4.3.2. Single parent families

As in the Dutch case, figure 4b shows single parents always above the poverty line despite the fact that table 1b has identified them as a groups facing very high risks of poverty. Also similar to the Netherlands, housing benefits do play an important role. As a result, different housing-related characteristics of the model family may lead to incomes being below or very close to the poverty line. (While in the Dutch case, different assumptions may lead to lower as well as higher rent subsidies, the level of housing benefits shown in figure 4b are already at their maximum.) Social assistance is also subject to several conditions which a substantial number of single parents may not satisfy (see section 4.3.1 above).

The generosity of family benefits is similar to Belgium (table 3). Family benefits provide about 19% of the income of low-income single parents with two children. For very low incomes, however, Luxembourg single parents are not as well-off as their counter parts in Belgium where the "Guaranteed" family benefits regime provides up to 23% of total income

[14] Since the maximum social assistance amount is a function of household size and composition, this is also true for housing benefits.

(bottom table). On the tax and contribution side, a similar remark can be made as for the single person household type. Here, income becomes taxable once original income reaches a level of about 2,500 Euro.

4.3.3. Single earner married couples with two children

Compared to the single parent household type, social assistance does not increase sufficiently to make up for the higher poverty threshold (+31% vis-à-vis single parents in terms of unadjusted household income), resulting from the equivalence scale used (figure 4c).[15] The *maximum* amount for social assistance (i.e., before the subtraction of any "means") is, in fact, 40% higher than the maximum amount in the single parent case. The *actual* social assistance payment is, nevertheless, lower relative to the poverty line since family and housing benefits, which are not included in the "means", are the same as in the single parent case (housing benefits are unchanged because, given the assumptions made about rent, housing benefits reach their allowable maximum of 123 Euro in all cases). As a result, low-income single earner couples with two children end up with disposable incomes that are between 345 and 145 Euro below the poverty line.

4.3.4. Two earner married couples with two children

In Luxembourg, married couples pay income taxes on a joint basis. As a result, income taxes are the same regardless whether income is earned by one or both spouses. The same holds for social assistance, which is computed on the basis of income earned at the household level. Social insurance contributions, however, are individual based and not proportional (as is common, they are subject upper contribution limits). As a result, high income single earner couples will, for a given level of earnings, pay less contributions than double earners. For the income ranges analysed here, however, social insurance contribution schedules are proportional. Comparison of figures 4c and 4d therefore shows that, for a given level of total original income, two earner couples end up with *exactly* the same disposable incomes as single earner couples.

A similar picture emerges from table 3. In all four cases we see that the different components are exactly the same regardless whether income is earned by both spouses (*PW, 33SP, 2ch*) or only one (*PW, 33SP, 2ch*).

4.3.5. Pensioner couples

The social assistance system in Luxembourg does not distinguish between pensioners and non-pensioners: Any replacement incomes are treated exactly the same as earnings. As a result, the social assistance amounts shown in figure 4e apply for any married or cohabiting couple, whether pensioner or not. For low-income couples, the only elements of the tax-benefit system which distinguish between pensioners and earners of employment/self-employment incomes are social insurance contributions. Pensioners only contribute to health insurance (2.55%) while blue-collar workers pay for health insurance (5.05%)[16] and for pension assurance (8%).

[15] The modified OECD scale assumes 1.6 (1+0.3+0.3) adult equivalents for the single parent household while for the couple with two children the adjustment factor is 2.1 (1+0.5+0.3+0.3).
[16] The rate for white collar workers is 2.7% (all figures for 1998).

5. Summary and Conclusion

We have used a new European tax-benefit model to produce detailed tax-benefit calculations on a set of synthetic households in the three Benelux countries. Similar to "Average Production Worker"-type calculations, we use household definitions which are consistent across countries. Rather than providing a single (or a few) point estimates, however, we vary income and related characteristics for each household type and are thus able to derive so called "budget constraints" which are comparable across countries. In a second step, we take a closer look at the different components of each country's tax-benefit system, unpicking the effects of each type of instrument on households' disposable incomes. Lastly, we analyse these effects focusing in particular on low-income households in order to gain an understanding of the performance of each tax-benefit system in securing minimum levels of income.

As we have shown, it is clearly important to carefully delineate the effects of various parts of the tax-benefit system and their interactions in order to be able to address issues that call for reforms. However, it is equally important to keep in mind that not all relevant features of tax-benefit systems can be shown using hypothetical calculations. For example, while failing to protect all household types from financial poverty, the tax-benefit systems in the Netherlands and Luxembourg ensure that the household types considered here always have disposable incomes that are above 80% (and often 100%) of the poverty line. Yet there are, of course, some important reasons why, in looking at actual poverty statistics, we find substantial poverty rates and households with incomes much below minimum incomes provided by the social assistance schemes analysed in this paper.

1. Certain categories of households are not entitled to social assistance. Moreover, for some households (young people, etc.), social assistance amounts are lower than in the cases analysed here. In Luxembourg, applicants must be 'available' for work and accept an appropriate employment assigned to them by the labour authorities (except for old, sick or disabled persons or persons who are looking after a child or a disabled person). In addition, they must be at least 30 years of age (does not apply to persons 'unable' to work and those looking after a child or a disabled person) and must have been resident in Luxembourg for at least 10 of the last 20 years.[17]
2. Non-take up of social assistance. Especially households who would be entitled to small amounts of social assistance next to other sources of income are likely not to bother with the application procedure.
3. As mentioned above, especially for couples with children, the amount of rent subsidy may be lower, causing disposable income for households receiving social assistance to fall below the poverty line.
4. The measurement of income can be subject to errors. Measurement errors inherent in the data source underlying our calculation of poverty lines may have caused us to compute poverty lines which are either too high or too low. When incomes are close to the poverty threshold, the statistics may be rather sensitive to the exact location of the poverty line.

With these qualifications in mind, several conclusions can be drawn from our study.

[17] Note that some of these rules have been relaxed in 2000. The age limit has been reduced from 30 years to 25 and, for EU citizens, residence conditions do no longer apply.

The existing EU-wide tax-benefit model permits quick and informative comparisons to be made. By using a single synthetic dataset across different countries, we can vary any household characteristic of interest and explore the sensitivity of taxes and benefits to changes in this characteristic in each country. If the characteristic which is varied is income, we obtain easy to grasp "budget constraints" which, among other things, provide an intuitive picture of effective average and marginal tax rates and are able to reveal potential "anomalies" (e.g., poverty traps) caused by interactions of interrelated tax and benefit rules.

In the simulations underlying the analysis of the present paper, we focus on the role of tax-benefit systems in the Benelux countries in providing a minimum level of financial security for low-income households. We find that in all three countries, the systems of taxes and transfer payments ensure that all selected household types have disposable incomes that are close enough to the poverty line to render conclusions sensitive to alternative assumptions about household characteristics (e.g., the level of housing costs in relation to earnings) or definitions of poverty thresholds. The frequent proximity of the poverty line to the minimum level of disposable incomes provided by state transfers is particularly interesting. On one hand, it highlights the danger of relying on one single poverty line in evaluating tax-benefit reforms. We have, for example, illustrated the different importance of components of the tax benefit system at different extents of poverty (table 3). Also, the clustering of low-income households within a small range of disposable incomes demonstrates the potentially large (and misleading) impact on poverty headcounts of making marginal changes to benefit levels. We would like to stress that exploring these sensitivities is a strength of the approach presented here since household characteristics as well as poverty thresholds can be varied in order to see which changes would affect the analysis and which would not. For example, in the graphs presented here, the reader can easily evaluate the effect of adopting different poverty thresholds.

Hypothetical calculations such as those presented here do not exploit the ability of EUROMOD to determine the impact of social and fiscal policies on *actual* populations. It is clear that analysing the impact of tax-benefit systems on hypothetical households, can only be part of the story. The ‘real’ situation can only be captured by looking at micro-data which is representative of the relevant country’s population. It is, therefore, planned to complement the present analysis with empirical work based on the EUROMOD micro-database. Nonetheless, the hypothetical calculations provide a focus on the mechanics of the tax-benefit system, which cannot be matched by analysing household micro-data. Hypothetical tax-benefit calculations allow us to separate the effects of tax-benefit rules from those of the population structure. In doing so, they can play an important role not only in international comparisons but also in gaining a better-grounded understanding of national fiscal and social policies and their potential impact on peoples’ incomes and economic behaviour.

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Table 1a. Household types.

	Adults	Marital Status	Children	Age(s)	Gender	Employment Status	Occupation	Earnings	Interest Income	Savings	Private Transfers received	Maintenance Income
PW	1	single	0	35	m	empl.	blue	x	10	2400	20	0
PW, 2ch	1	single	2	35/6/12	m/f/m	empl./stud./stud.	blue	x/0/0	10/0/2	2400/0/480	20/0/0	0/150/150
PW, 0SP, 2ch	2	married	2	35/35/6/12	m/f/f/m	empl./inactive/stud./stud.	blue/n.a.	x/0/0/0	10/10/0/2	2400/2400/0/480	20/20/0/0	0
PW, 33SP, 2ch	2	married	2	35/35/6/12	m/f/f/m	empl./empl./stud./stud.	blue/blue	x/0.33*x/0/0	10/10/0/2	2400/2400/0/480	20/20/0/0	0
Pen, 33Pen	2	married	0	68/68	m/f	pensioner/pensioner	n.a./n.a.	x/0.33*x	10/10	2400/2400	20/20	0

Notes: **PW** stands for 'production worker', **SP** for spouse and **ch** for children. All monetary amounts are in Euro per month. *x* means that for this person, earnings are varied. Depending on the employment status, *x* represents either employment income or pensions. For each household type, *x* is incremented in steps of 30 Euros. As a result, we get 160 different households in each category. For employed people, working hours rise in discrete steps (0, 5, 10, 20, 30, 40) as a function of employment income. They are determined by dividing gross employment income (*x*) by average gross hourly earnings of an APW. The annual income of an APW is taken to be *apwY* = 26,550 Euro. Persons shown as "employed" have status "inactive" as long as they work no more than 5 hours per week. "Inactive" people are assumed not to be eligible for unemployment benefits. For pensioners, *x* represents state pensions up to 75% of *apwY*. That part of *x* which exceeds 75% of *apwY* is 'earned' as a private/occupational pension. In the Netherlands, *x* only consists of private/occupational pension (because the state pension is a flat amount which is paid to all residents aged 65 and older and is not related to own earnings). Rented accommodation is assumed throughout. We assume that 20% of total household income is spent on rent. This is subject to a minimum which is assumed to be 150 euro for a single household. For the other four household types, a 'square root of household size' equivalence scale is used to adjust the minimum: Monthly rent = max(150*sqrt(household size), (gross household earnings)/5). Monthly service charges = rent/10. Note that some transfer payments simulated in this paper are quite sensitive to the amount of rent paid. Yet, these benefits are only available for low-income households (in which case only the parameters determining our "minimum rent" are relevant). In any case, even though we realise that a rent function estimated on micro-data would, if difficult to implement, be methodologically more satisfactory (see, e.g., CPB 1995), the emphasis in this paper is on 'typical' households which are 'plausible' rather than strictly representative of the actual population.

Table 1b. Country population by household type.

	BE		NL		LU	
household types as a proportion of all households, %	*all*	*"low income"*	*all*	*"low income"*	*all*	*"low income"*
Single (male, <65 or female, <60)	13.1%	15.2%	21.6%	41.7%	14.0%	16.2%
single parent	5.1%	3.0%	2.7%	9.6%	3.9%	9.6%
married couple with children	27.8%	19.6%	24.9%	17.6%	29.2%	33.4%
married couple (both >59, one >64)	11.9%	16.3%	8.9%	7.0%	9.8%	7.4%
Other	42.1%	45.9%	41.9%	24.1%	43.1%	33.4%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
single parent, two children	1.7%	1.5%	0.9%	3.6%	1.1%	1.9%
married couple, two children	12.3%	9.7%	12.2%	9.0%	12.7%	12.9%
one earner married couple (both <65), children	9.2%	5.8%	10.1%	10.7%	17.0%	22.7%
one earner married couple (both <65), two children	3.7%	3.8%	5.0%	5.4%	7.6%	8.5%
two earner married couple (both <65), children	15.6%	0.7%	13.3%	2.0%	10.4%	5.8%
two earner married couple (both <65), two children	7.5%	0.2%	6.5%	1.2%	4.7%	2.6%

Source: EUROMOD.

Notes: households are "low income" if their income is below 60% of the median adjusted household income. Incomes have been adjusted for household size using the "modified" OECD scale (with weights 1 for the first adult, 0.5 for further adults and 0.3 for children under 14).

Table 2a. Income concepts.

Disposable Income:	Original Income
wages/salaries	wages/salaries
+ self-employment income *	+ self-employment income *
+ interest income	+ interest income
+ alimony and child maintenance	+ alimony and child maintenance
+ private transfers	+ private transfers
+ occupational/private pension	+ occupational/private pension
+ state pension	+ state pension
+ unemployment benefits *	
+ other cash benefits (universal and social assistance benefits)	
- social insurance contributions paid by the employee or benefit recipient	
- income taxes	

* Self-employment income and unemployment benefits are not relevant for any of the household types we are looking at since none of the persons in these households is self-employed or unemployed. The reason why these components are included here is because they do enter the disposable income used for determining the poverty lines (table 2b).

Table 2b. 1998 poverty thresholds (Euro per month).

	poverty line (per-capita income)	**'poor' households**	**'poor' individuals**	**poverty thresholds by household type** (household income)			
				1 adult	2 adults	1 adult 2 children	2 adults 2 children
BE	613.8	16.2%	14.8%	613.8	920.6	982.0	1,288.9
NL	683.2	10.7%	9.9%	683.2	1,024.8	1,093.1	1,434.7
LU	1,074.8	10.9%	11.3%	1,074.8	1,612.3	1,719.7	2,257.1

Source: EUROMOD.

Notes: All monetary amounts are in Euro per month. Poverty lines in the left column are 60% of median adjusted disposable household income. The equivalence scale used for adjusting household incomes for household size and composition is the 'modified' OECD scale (see notes to table 1b). Official Euro exchange rates (*not* PPP adjusted) are used for the conversion. Individuals are considered 'poor' if they live in 'poor' households (i.e., in households with adjusted incomes below the poverty line). The poverty line in terms of adjusted income has then been translated into actual incomes by multiplying with the equivalence scale appropriate for each household type.

Table 3. Income components of low-income households.

A. Disposable Income = Poverty Threshold

	% of disposable income	original income	income tax	social insurance contributions	family benefits	social assistance benefits	housing benefits	disposable income, euro	disposable income relative to poverty threshold
BE	*PW*	19.1%	0.0%	-1.7%	0.0%	82.6%	0.0%	613.8	100.0%
	PW, 2ch	n/a (all have disp. income above poverty line)						982.0	100.0%
	PW, 0SP, 2ch	91.5%	0.0%	-10.3%	19.5%	0.0%	0.0%	1,288.9	100.0%
	PW, 33SP, 2ch	26.6%	0.0%	-2.6%	23.8%	52.2%	0.0%	1,288.9	100.0%
	Pen, 33Pen	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	920.6	100.0%
NL	*PW*	n/a (all recipients of SAB have disp.income approx. equal to poverty line)						683.2	100.0%
	PW, 2ch	n/a (all have disp. income above poverty line)						1,093.1	100.0%
	PW, 0SP, 2ch	112.8%	-4.2%	-21.3%	10.6%	0.0%	2.3%	1,434.7	100.0%
	PW, 33SP, 2ch	103.5%	-3.4%	-16.4%	10.6%	0.0%	5.6%	1,434.7	100.0%
	Pen, 33Pen	105.6%	0.0%	-10.5%	0.0%	0.0%	6.4%	1,024.8	100.0%
LU	*PW*	97.6%	0.0%	-10.2%	0.0%	1.5%	11.1%	1,074.8	100.0%
	PW, 2ch	n/a (all have disp. income above poverty line)						1,719.7	100.0%
	PW, 0SP, 2ch	93.7%	0.0%	-9.7%	16.1%	0.0%	0.0%	2,257.1	100.0%
	PW, 33SP, 2ch	93.7%	0.0%	-9.7%	16.1%	0.0%	0.0%	2,257.1	100.0%
	Pen, 33Pen	83.6%	0.0%	-2.3%	0.0%	11.3%	7.7%	1,612.3	100.0%

Source: EUROMOD

B. Original Income = Poverty Threshold

	% of disposable income	original income	income tax	social insurance contributions	family benefits	social assistance benefits	housing benefits	disposable income, euro	disposable income relative to poverty threshold
BE	*PW*	87.8%	0.0%	-10.0%	0.0%	22.6%	0.0%	717.9	117.0%
	PW, 2ch	68.6%	0.0%	-5.4%	17.3%	19.6%	0.0%	1,446.6	147.3%
	PW, 0SP, 2ch	94.6%	-2.2%	-10.7%	18.3%	0.0%	0.0%	1,365.3	105.9%
	PW, 33SP, 2ch	94.3%	-1.7%	-10.7%	18.1%	0.0%	0.0%	1,381.0	107.1%
	Pen, 33Pen	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	900.0	97.8%
NL	*PW*	99.6%	-4.5%	-21.2%	0.0%	25.9%	0.3%	673.0	98.5%
	PW, 2ch	81.7%	-0.3%	-2.3%	11.3%	0.0%	9.6%	1,339.2	122.5%
	PW, 0SP, 2ch	103.3%	-3.4%	-17.2%	10.9%	0.0%	6.4%	1,388.3	96.8%
	PW, 33SP, 2ch	101.3%	-3.2%	-15.5%	10.7%	0.0%	6.7%	1,424.5	99.3%
	Pen, 33Pen	105.6%	-1.4%	-10.5%	0.0%	0.0%	6.4%	1,073.7	104.8%
LU	*PW*	111.6%	0.0%	-11.6%	0.0%	0.0%	0.0%	967.6	90.0%
	PW, 2ch	89.0%	0.0%	-7.7%	18.7%	0.0%	0.0%	1,924.6	111.9%
	PW, 0SP, 2ch	94.7%	0.0%	-9.9%	15.2%	0.0%	0.0%	2,378.0	105.4%
	PW, 33SP, 2ch	94.7%	0.0%	-9.9%	15.2%	0.0%	0.0%	2,378.0	105.4%
	Pen, 33Pen	103.5%	-0.9%	-2.5%	0.0%	0.0%	0.0%	1,565.7	97.1%

Source: EUROMOD

Table 3. Income components of low-income households (cont'd)

C. Original Income = 2/3 Poverty Threshold

	% of disposable income	original income	income tax	social insurance contributions	family benefits	social assistance benefits	housing benefits	disposable income, euro	disposable income relative to poverty threshold
BE	*PW*	58.5%	0.0%	-6.5%	0.0%	48.0%	0.0%	717.9	117.0%
	PW, 2ch	44.1%	0.0%	-2.6%	20.3%	38.2%	0.0%	1,502.0	153.0%
	PW, 0SP, 2ch	74.7%	0.0%	-8.3%	21.4%	12.2%	0.0%	1,168.1	90.6%
	PW, 33SP, 2ch	65.5%	0.0%	-7.2%	19.0%	22.8%	0.0%	1,316.8	102.2%
	Pen, 33Pen	74.4%	0.0%	0.0%	0.0%	25.6%	0.0%	833.1	90.5%
NL	*PW*	67.8%	-4.7%	-21.9%	0.0%	58.5%	0.3%	673.0	98.5%
	PW, 2ch	64.0%	0.0%	-1.1%	13.4%	12.5%	11.3%	1,137.1	104.0%
	PW, 0SP, 2ch	73.9%	-1.6%	-8.7%	11.9%	12.2%	12.4%	1,280.5	89.3%
	PW, 33SP, 2ch	73.9%	-1.6%	-8.7%	11.9%	12.2%	12.4%	1,280.5	89.3%
	Pen, 33Pen	n/a (due to universal state pension ori. income always above 66% pov. line)							
LU	*PW*	74.8%	0.0%	-8.3%	0.0%	26.5%	7.1%	963.1	89.6%
	PW, 2ch	60.6%	0.0%	-5.1%	19.1%	18.8%	6.6%	1,886.0	109.7%
	PW, 0SP, 2ch	72.4%	0.0%	-7.7%	17.4%	12.0%	6.0%	2,075.8	92.0%
	PW, 33SP, 2ch	72.4%	0.0%	-7.7%	17.4%	12.0%	6.0%	2,075.8	92.0%
	Pen, 33Pen	69.9%	-0.2%	-2.4%	0.0%	26.8%	5.9%	1,516.5	94.1%

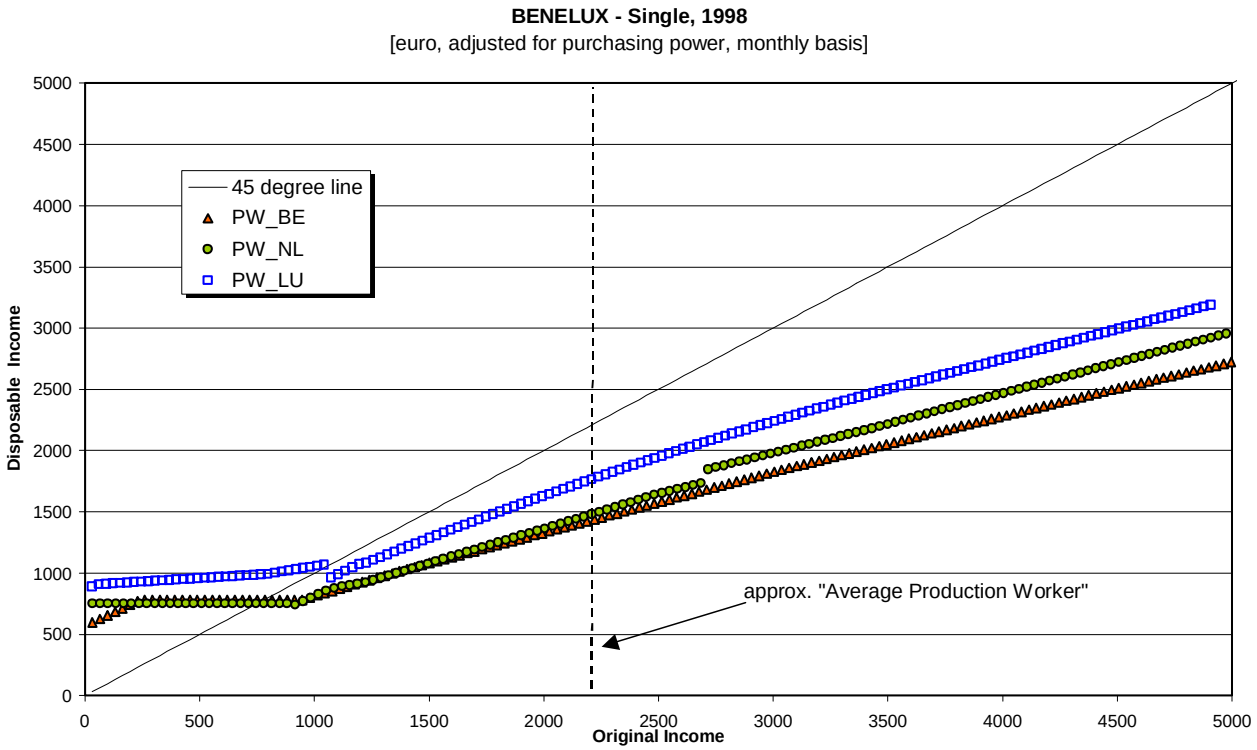
Source: EUROMOD

D. Original Income = 1/3 Poverty Threshold

	% of disposable income	original income	income tax	social insurance contributions	family benefits	social assistance benefits	housing benefits	disposable income, euro	disposable income relative to poverty threshold
BE	*PW*	29.7%	0.0%	-3.0%	0.0%	73.3%	0.0%	707.0	115.2%
	PW, 2ch	25.0%	0.0%	0.0%	23.0%	52.0%	0.0%	1,327.4	135.2%
	PW, 0SP, 2ch	34.5%	0.0%	-3.5%	25.0%	44.0%	0.0%	1,223.4	94.9%
	PW, 33SP, 2ch	32.4%	0.0%	-3.3%	23.4%	47.5%	0.0%	1,302.7	101.1%
	Pen, 33Pen	37.4%	0.0%	0.0%	0.0%	62.6%	0.0%	801.1	87.0%
NL	*PW*	31.1%	-4.8%	-21.9%	0.0%	93.8%	0.3%	683.2	100.0%
	PW, 2ch	31.9%	0.0%	-0.7%	13.4%	44.2%	11.3%	1,137.1	104.0%
	PW, 0SP, 2ch	38.2%	-1.9%	-9.8%	11.9%	49.4%	12.4%	1,280.5	89.3%
	PW, 33SP, 2ch	36.6%	-1.9%	-9.8%	11.9%	50.9%	12.4%	1,280.5	89.3%
	Pen, 33Pen	n/a (due to universal state pension ori. income always above 33% pov. line)							
LU	*PW*	39.0%	0.0%	-5.3%	0.0%	58.9%	7.4%	922.3	85.8%
	PW, 2ch	31.4%	0.0%	-2.5%	19.8%	44.6%	6.8%	1,821.3	105.9%
	PW, 0SP, 2ch	37.8%	0.0%	-4.8%	18.1%	42.7%	6.2%	1,990.8	88.2%
	PW, 33SP, 2ch	37.8%	0.0%	-4.8%	18.1%	42.7%	6.2%	1,990.8	88.2%
	Pen, 33Pen	38.1%	0.0%	-2.3%	0.0%	57.9%	6.3%	1,418.1	88.0%

Source: EUROMOD

Figure 1a.



Source: EUROMOD

Figure 1b.

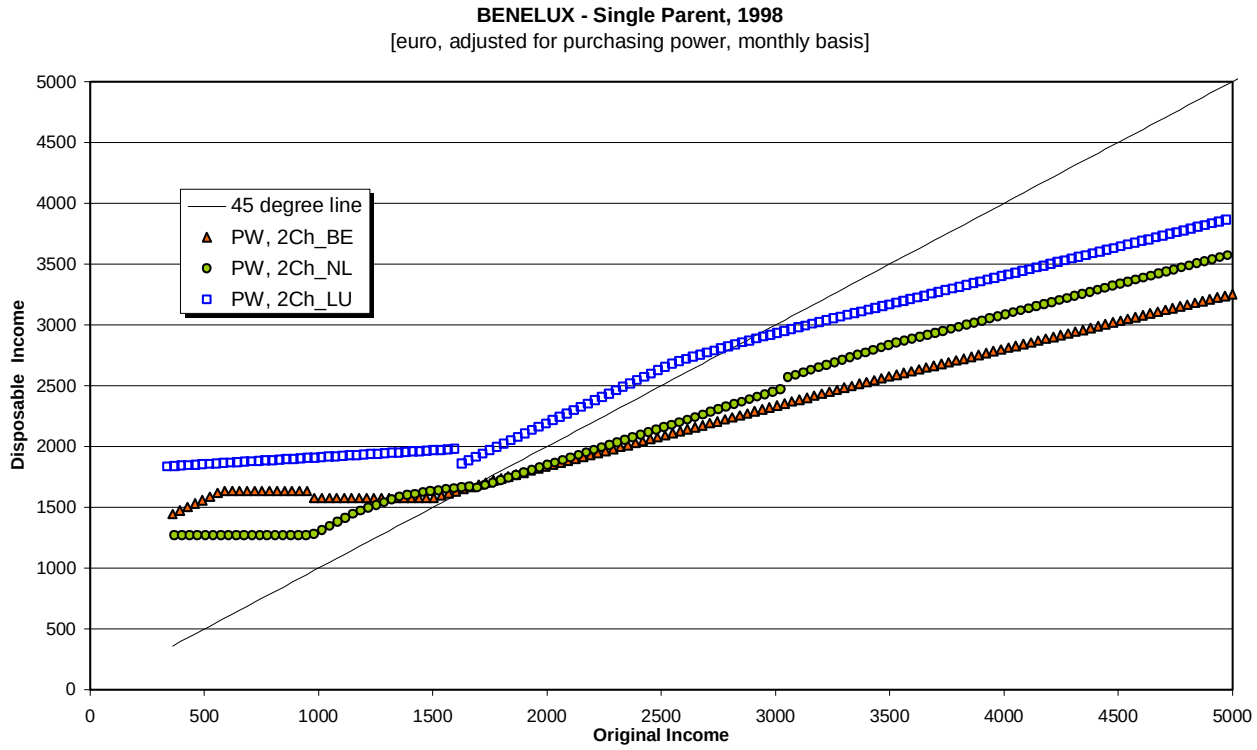


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Figure 1c.

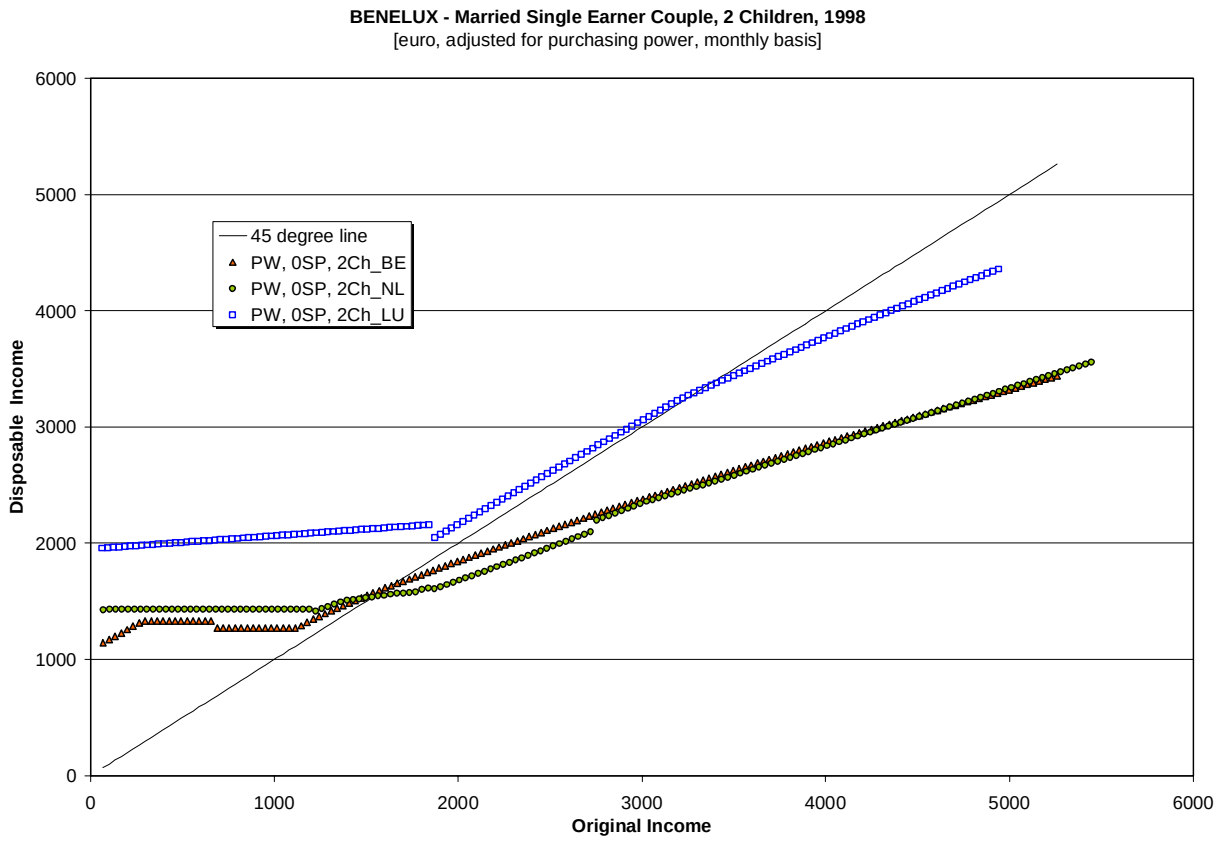

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Figure 1d.

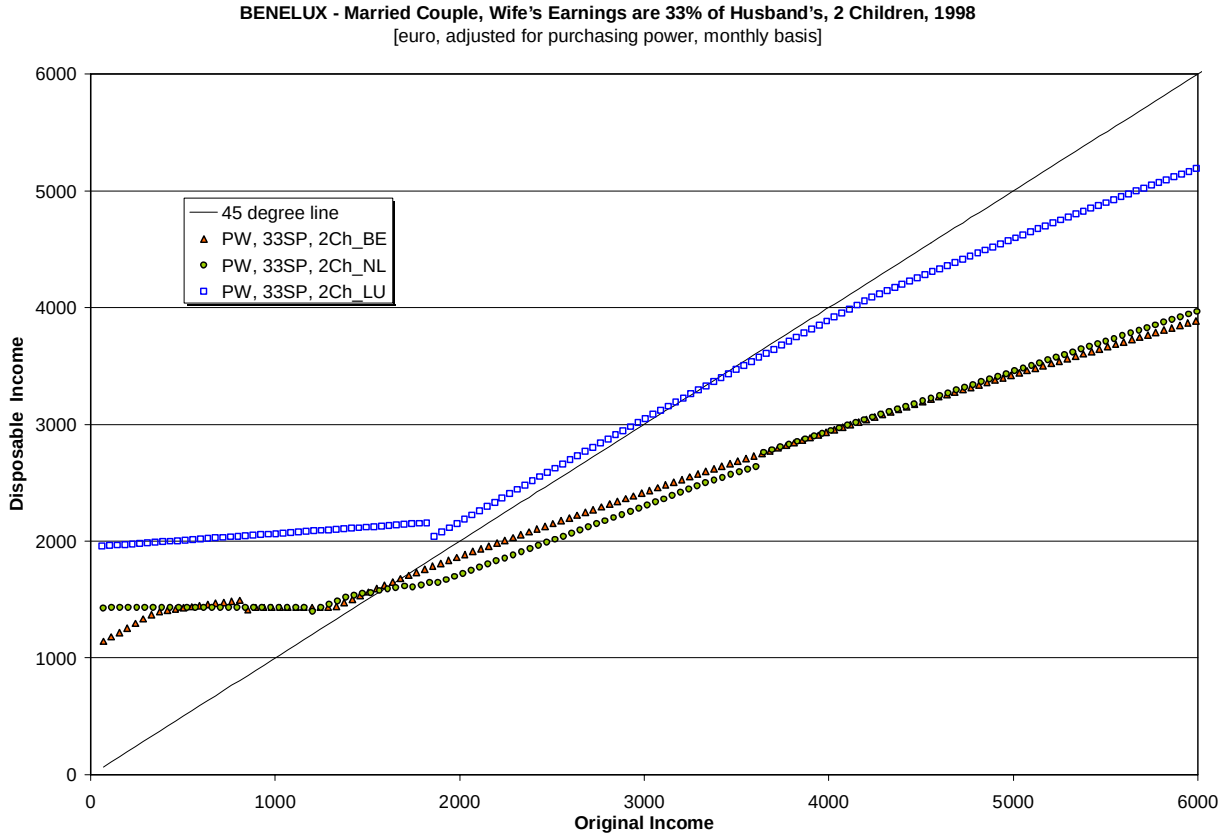

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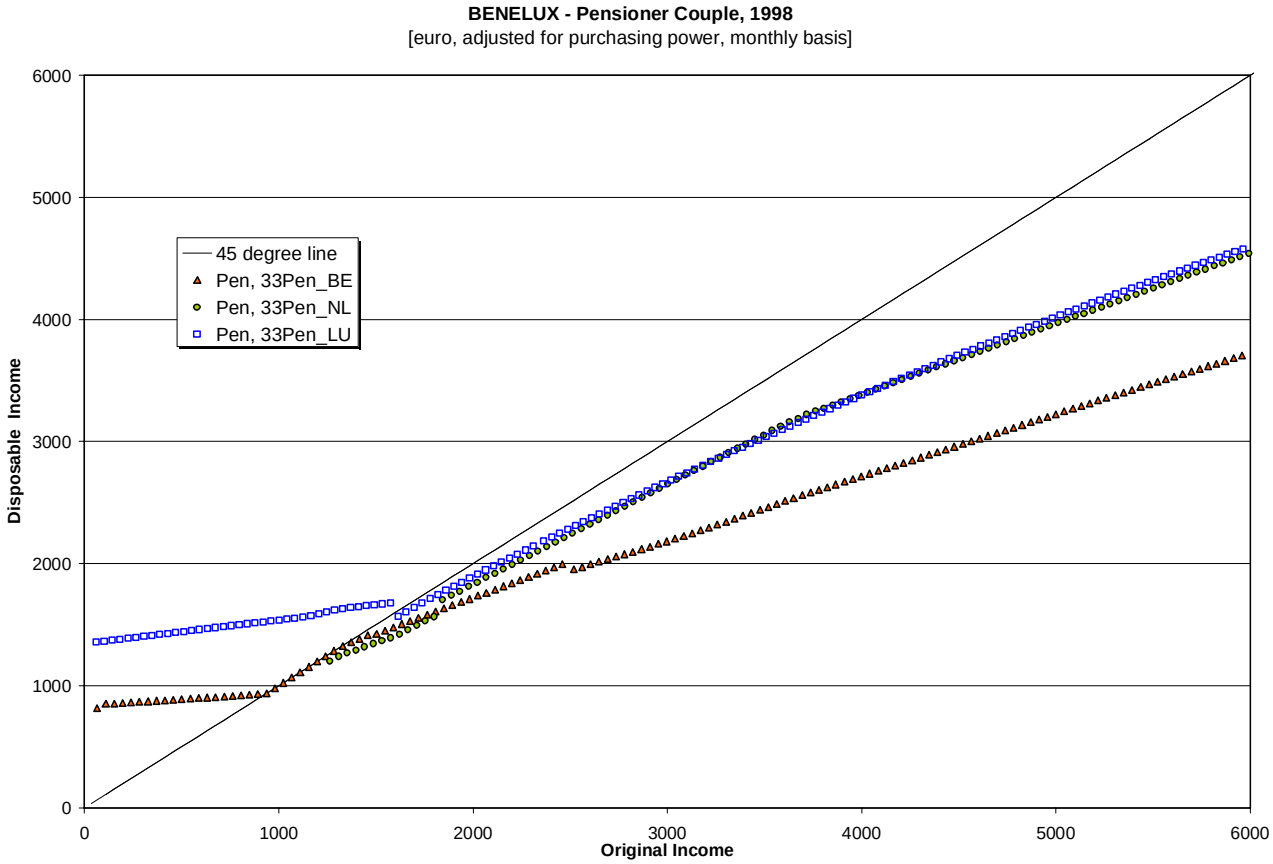
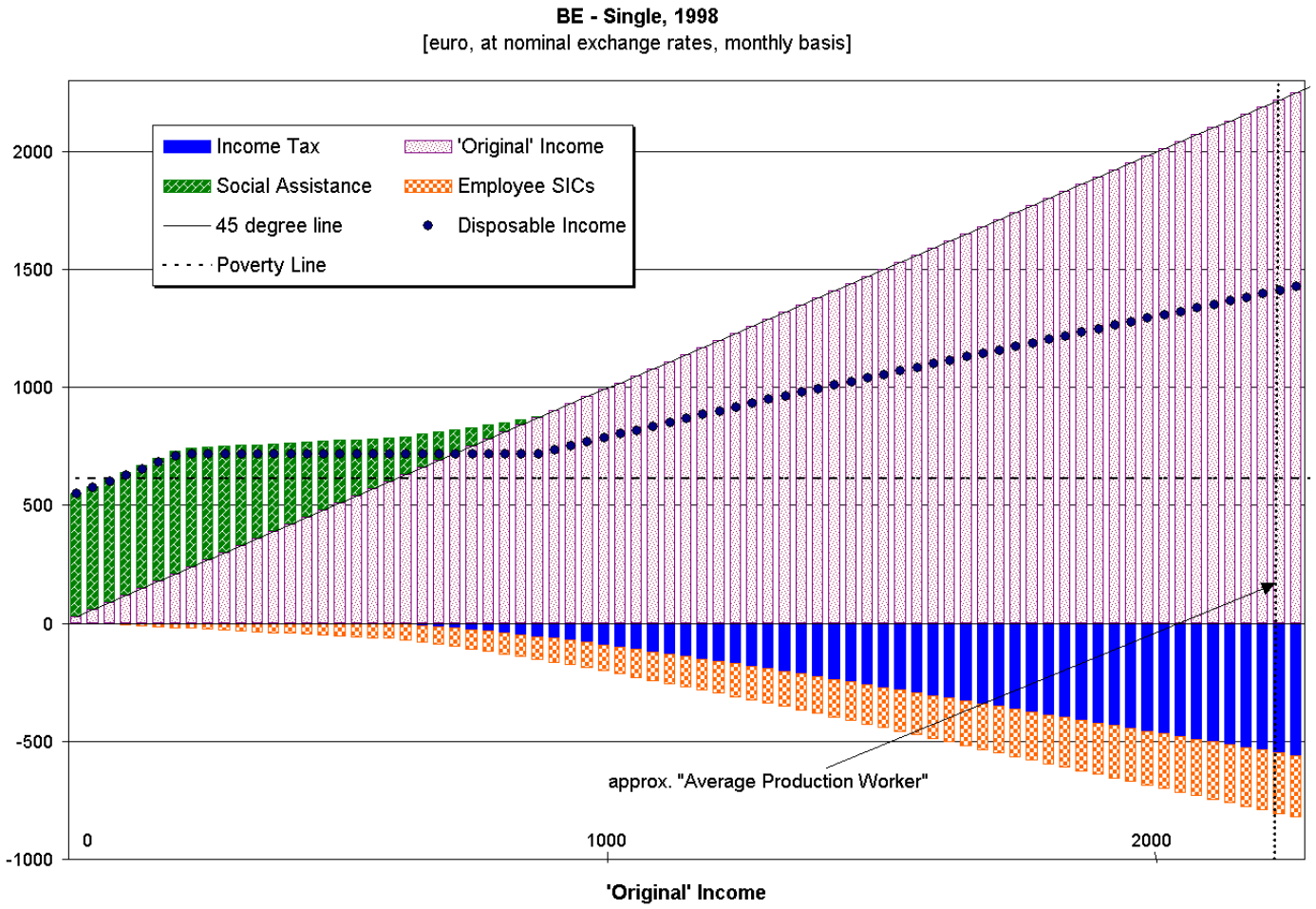
Figure 1e.



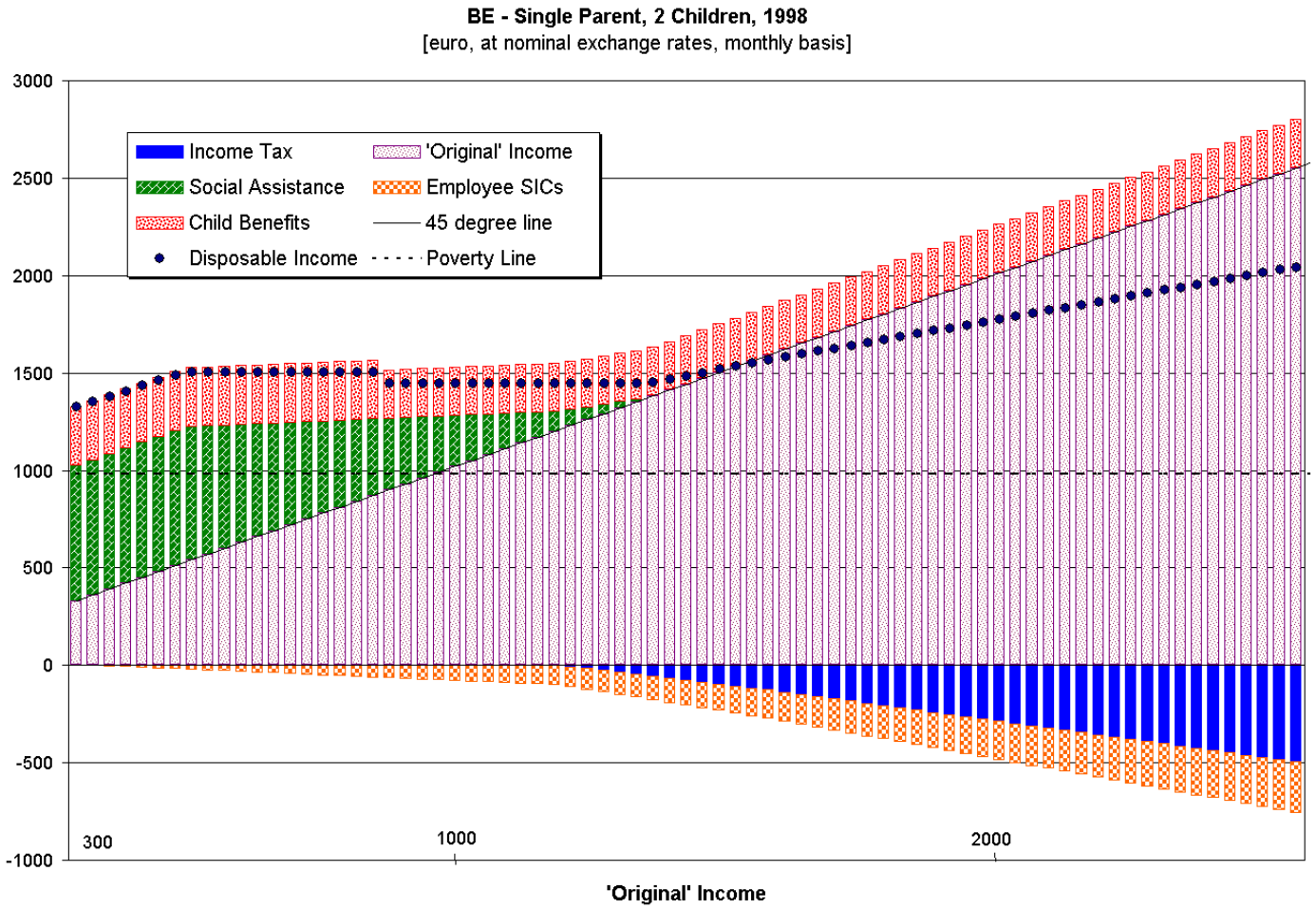
Source: EUROMOD

Figure 2a.



Source: EUROMOD

Figure 2b.



Source: EUROMOD

Note: The lowest original income here is 300 Euro since for this household type we assume maintenance income (included in original income) of 150 Euro per child (see table 1a).

Figure 2c.

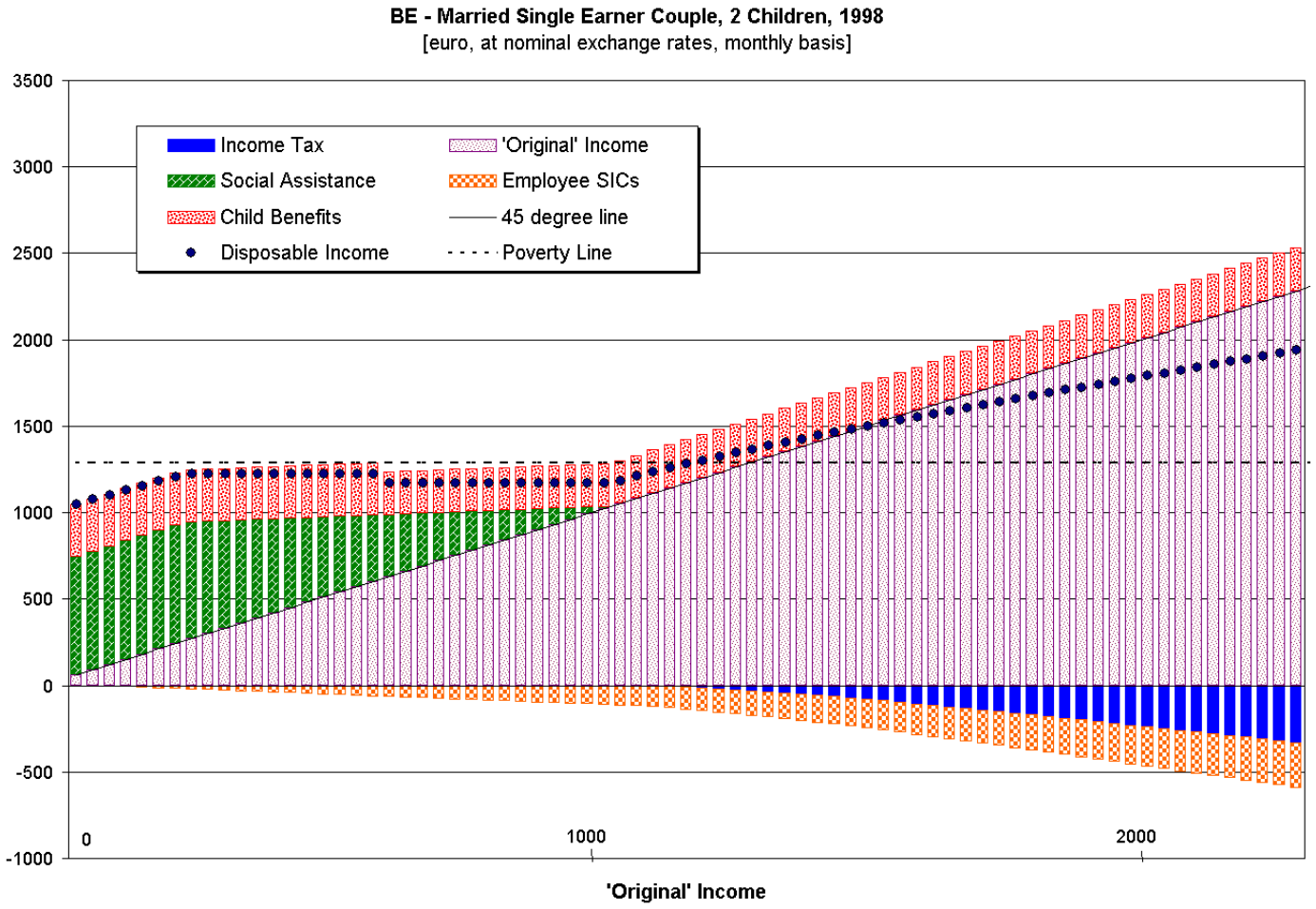


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Figure 2d.

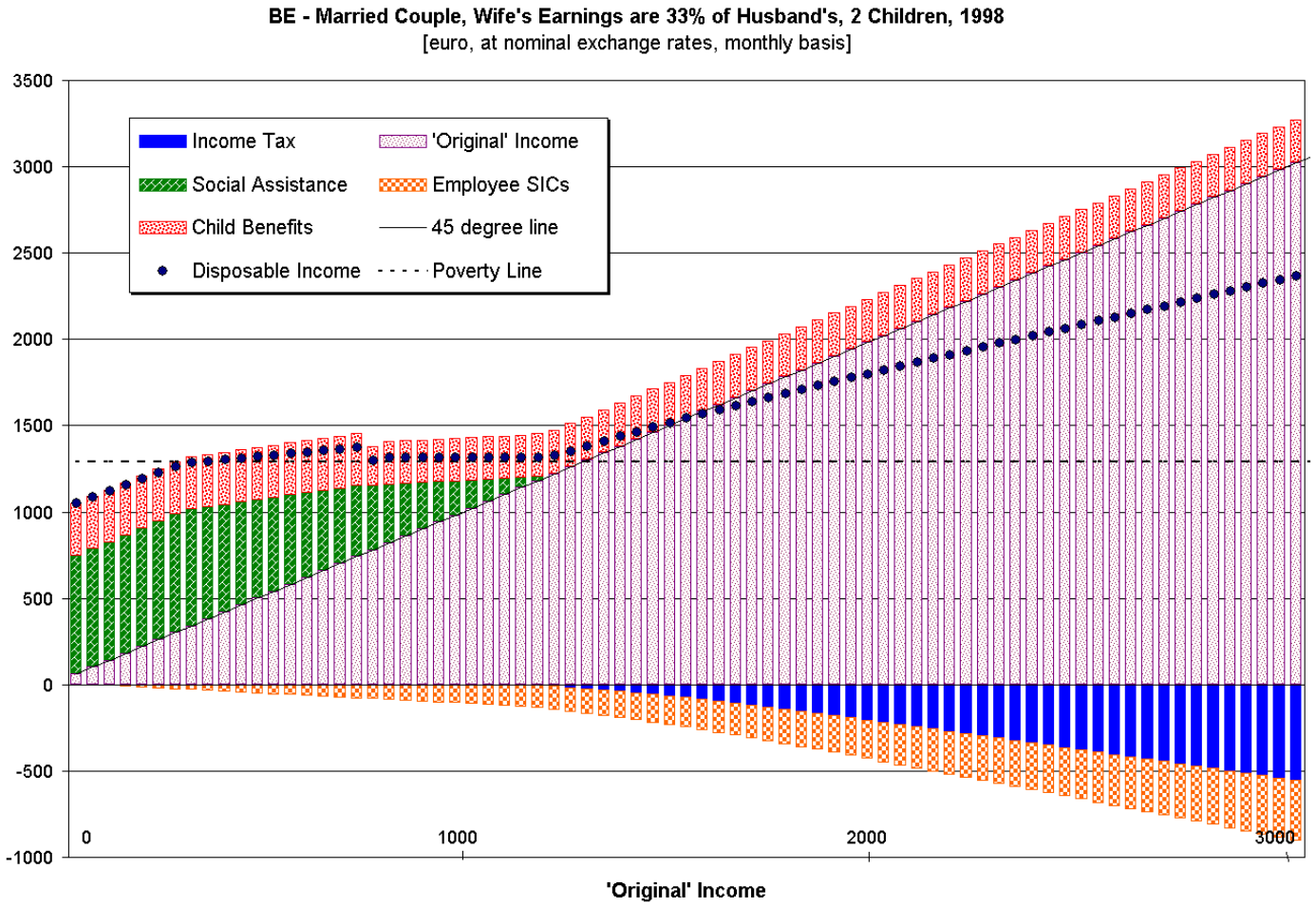

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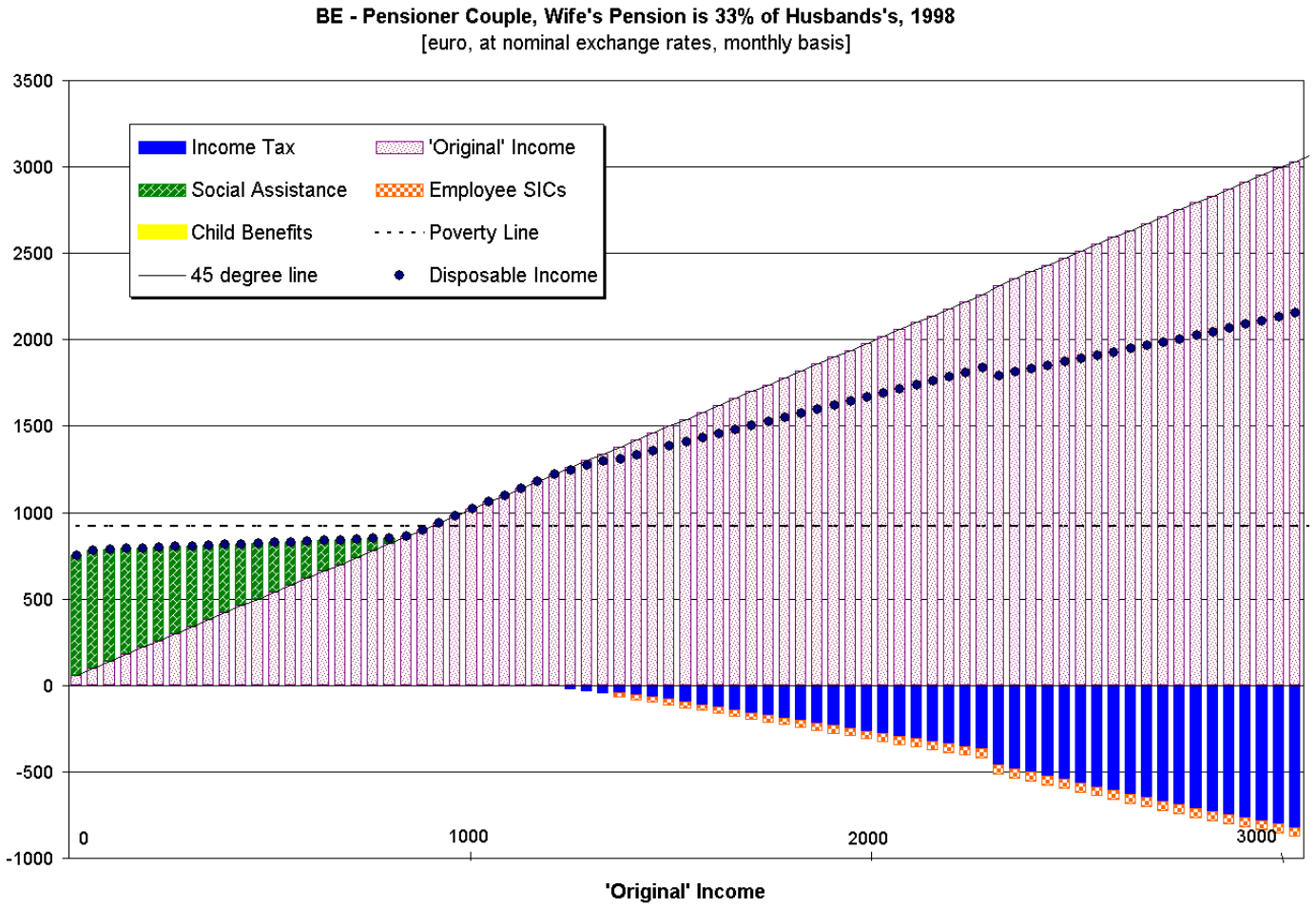
Figure 2e.



Source: EUROMOD

Figure 3a.

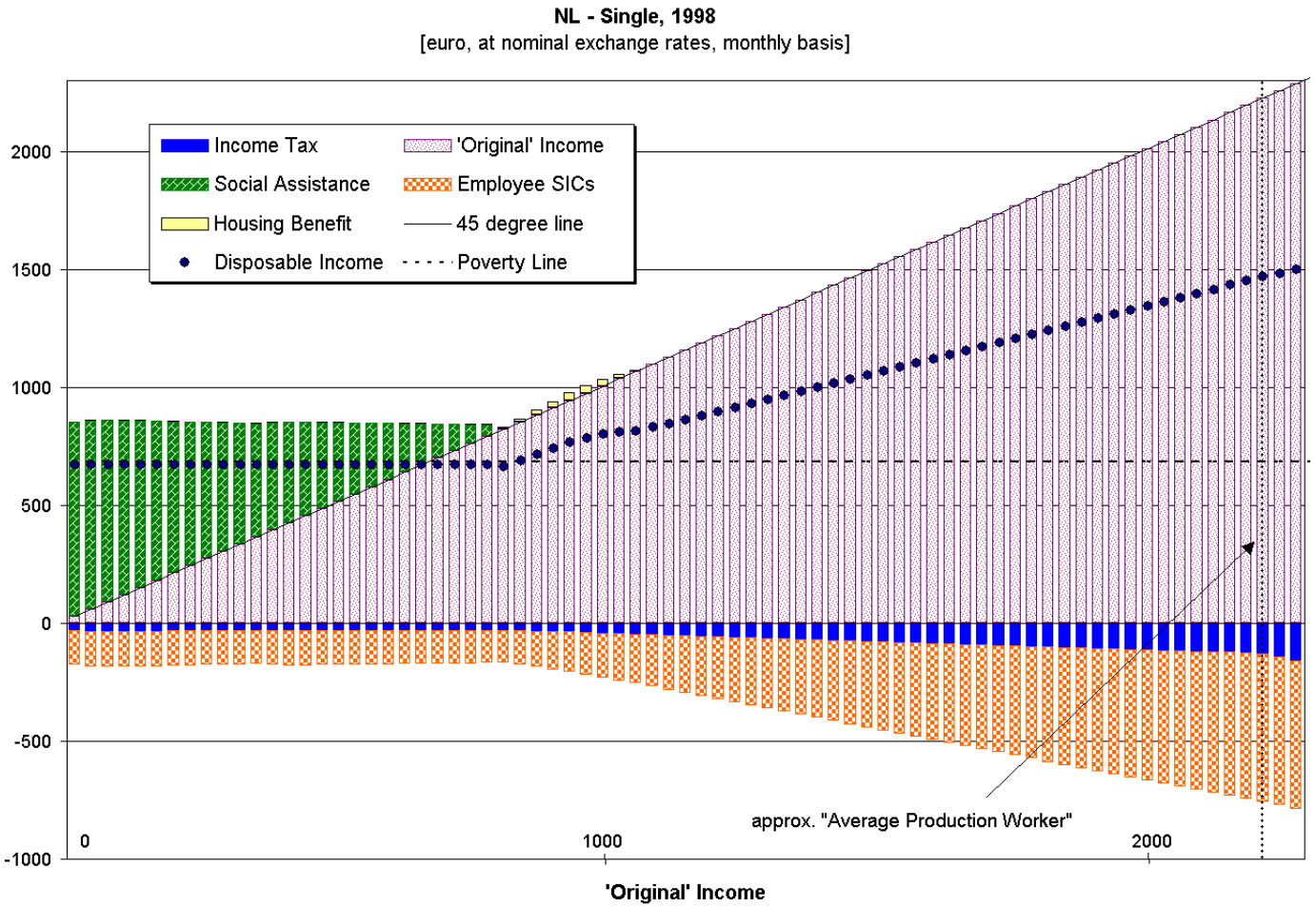


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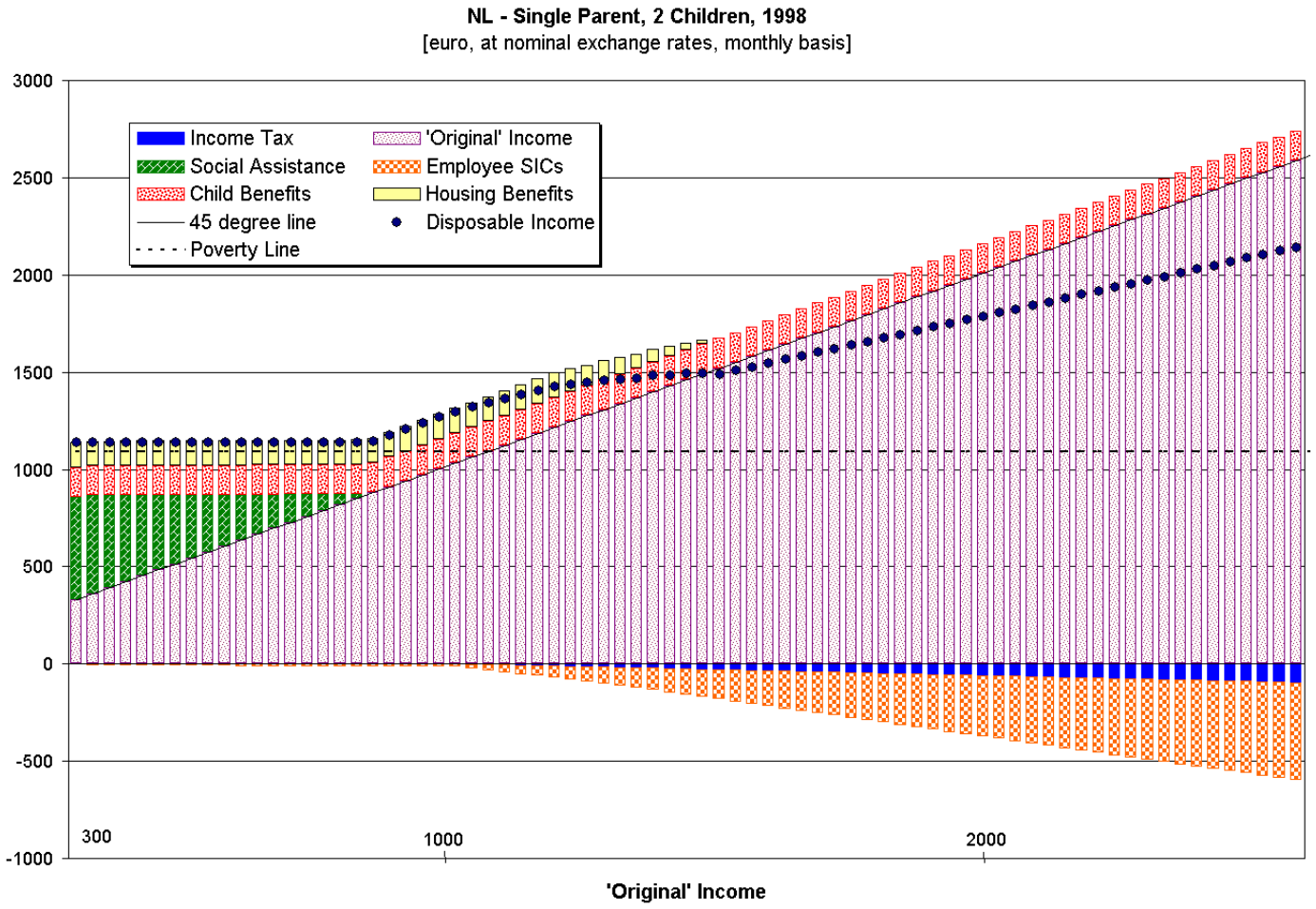
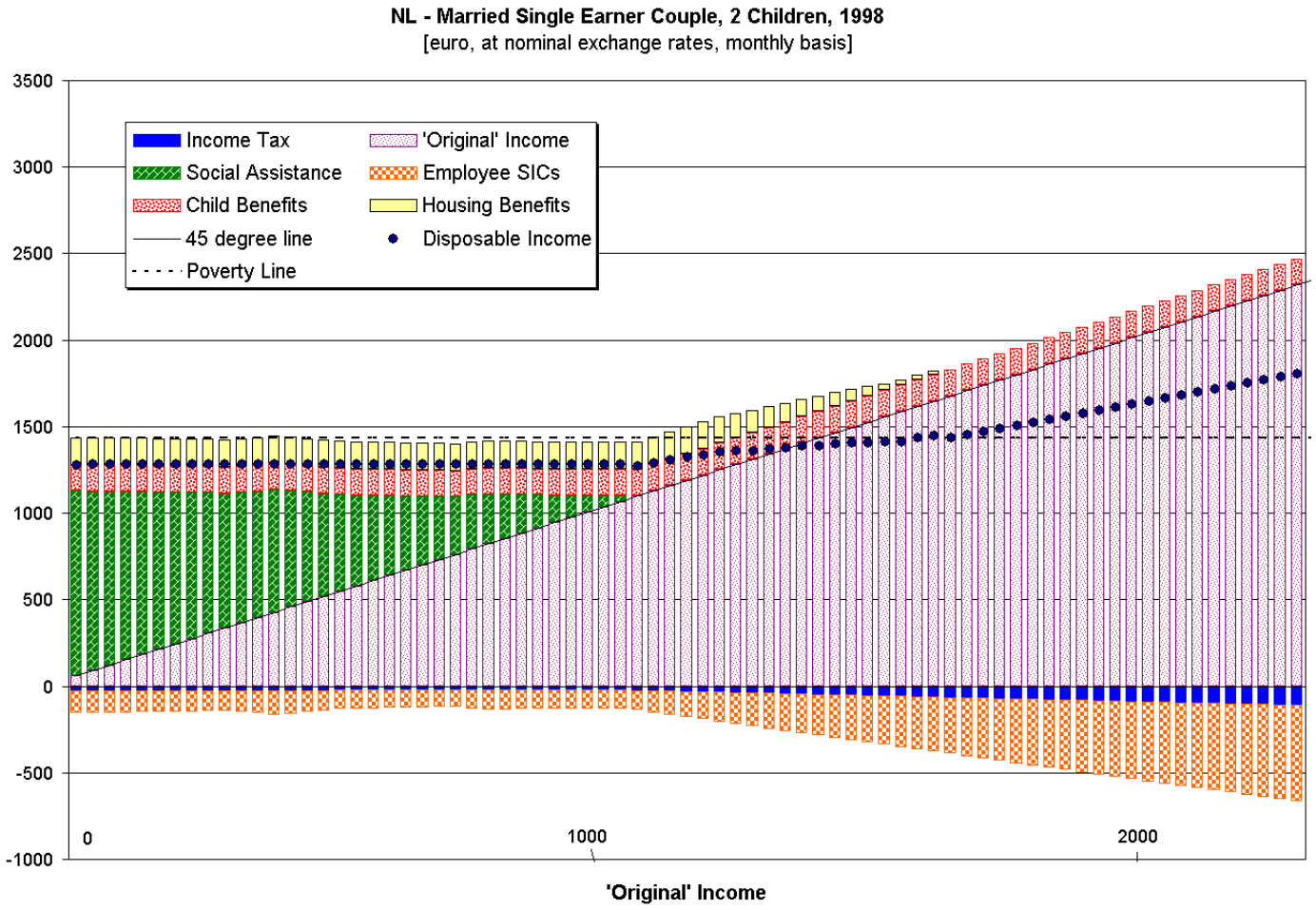
Figure 3b.



Source: EUROMOD

Note: The lowest original income here is 300 Euro since for this household type we assume maintenance income (included in original income) of 150 Euro per child (see table 1a).

Figure 3c.



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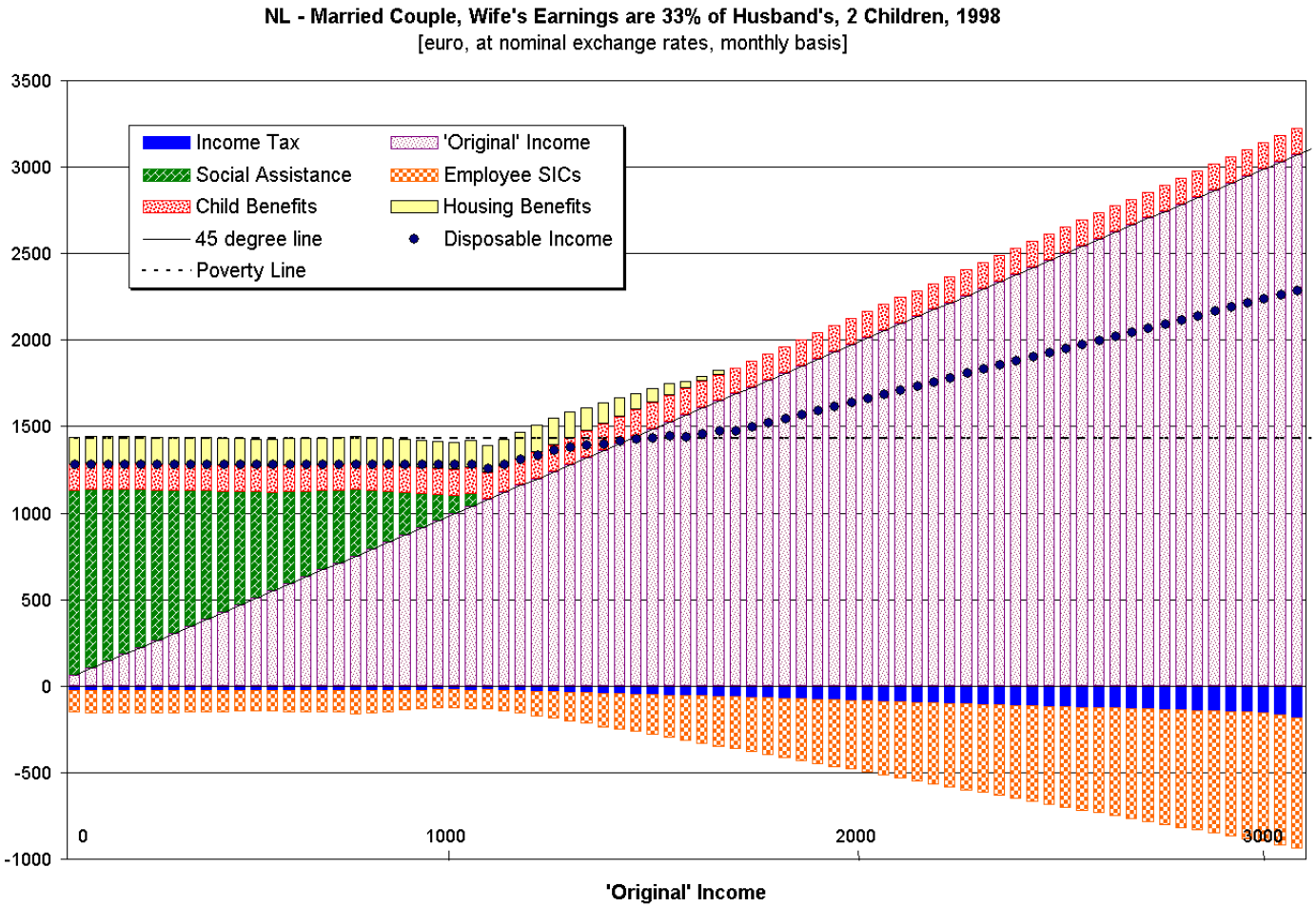

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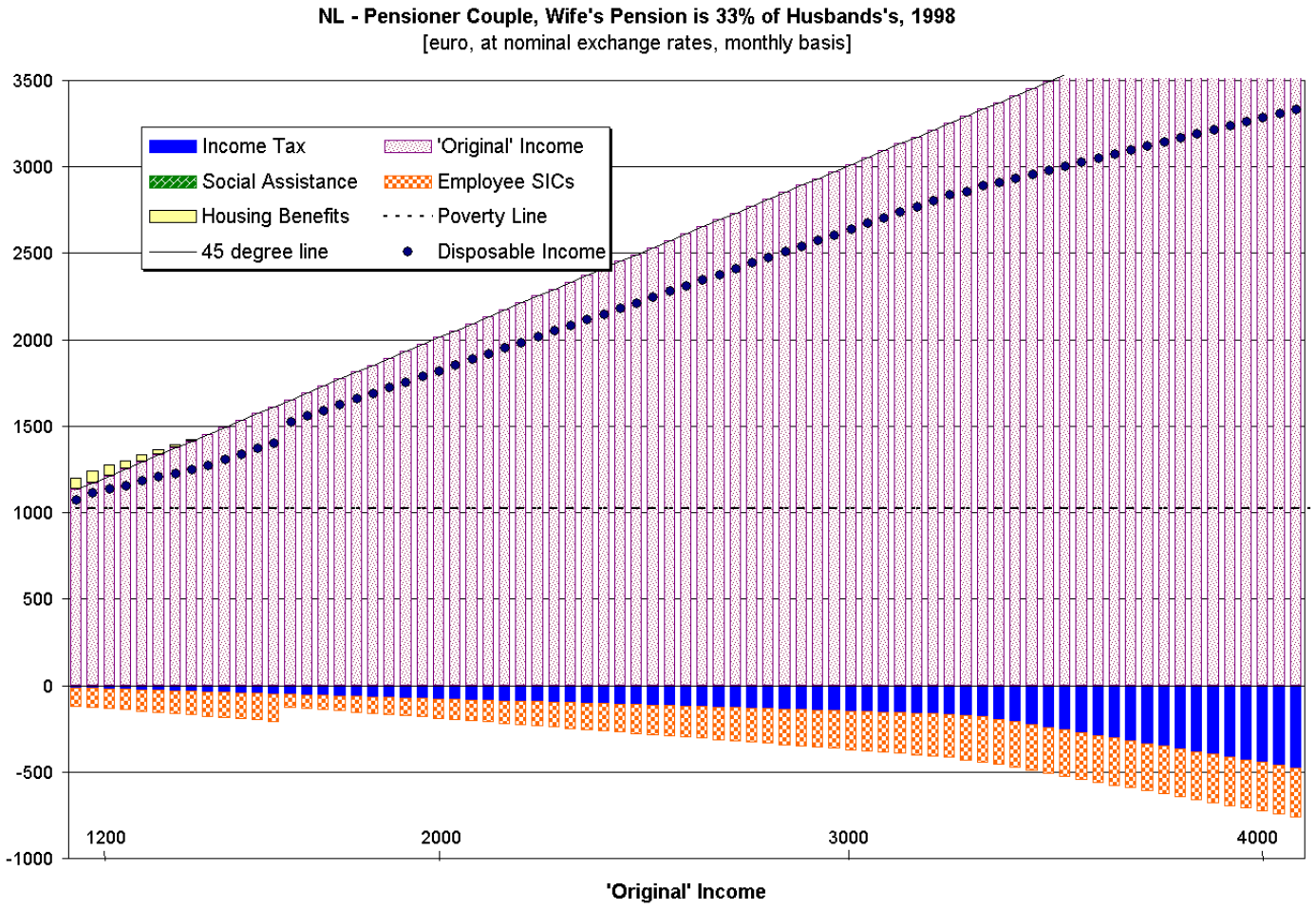

Source: EUROMOD

Note: The lowest original income here is about 1,100 Euro since all Dutch residents past the age of 65 are entitled to a flat rate state pension (included in original income). See table 1a.

Figure 4a.

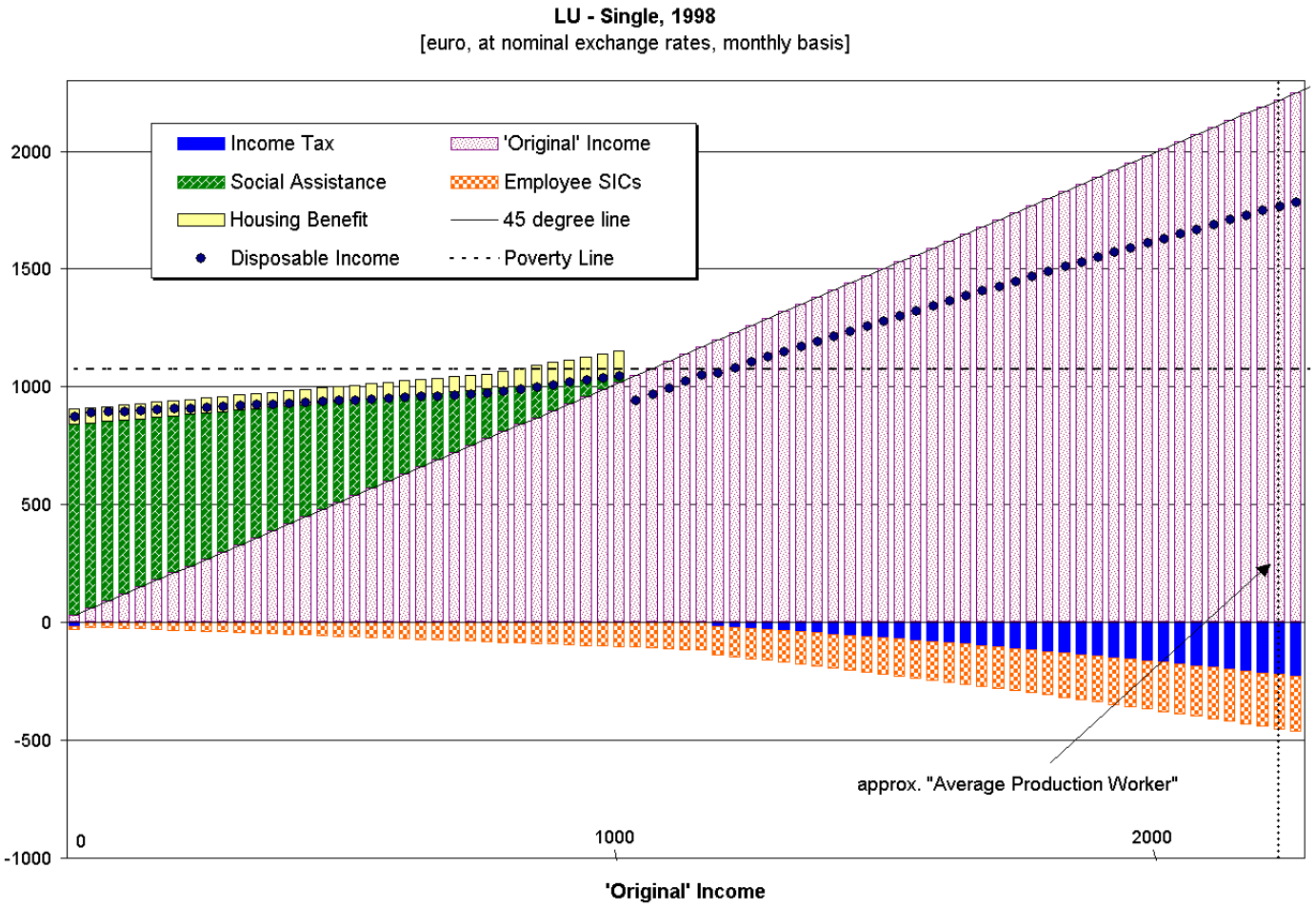

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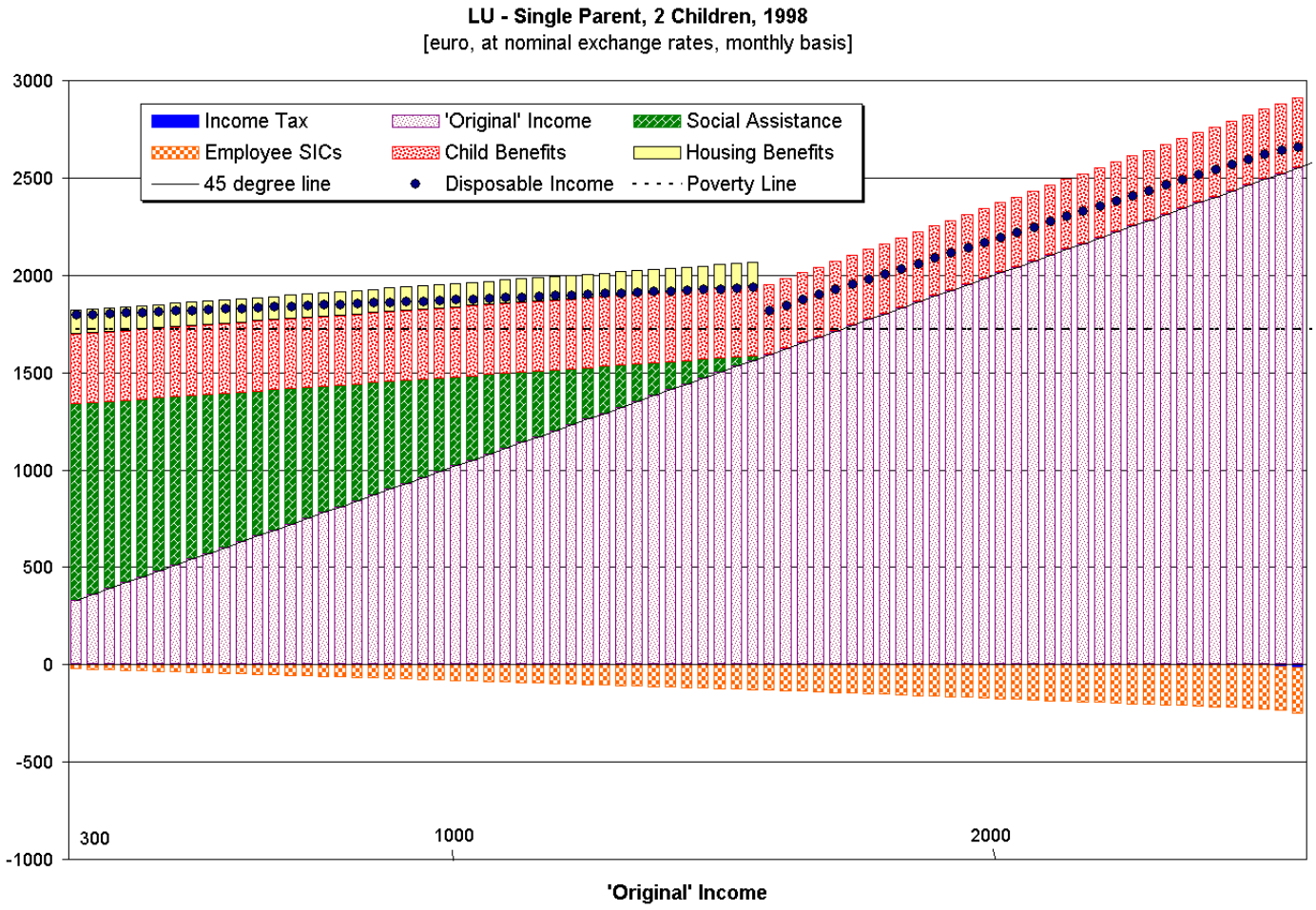
Figure 4b.



Source: EUROMOD

Note: The lowest original income here is 300 Euro since for this household type we assume maintenance income (included in original income) of 150 Euro per child (see table 1a).

Figure 4c.

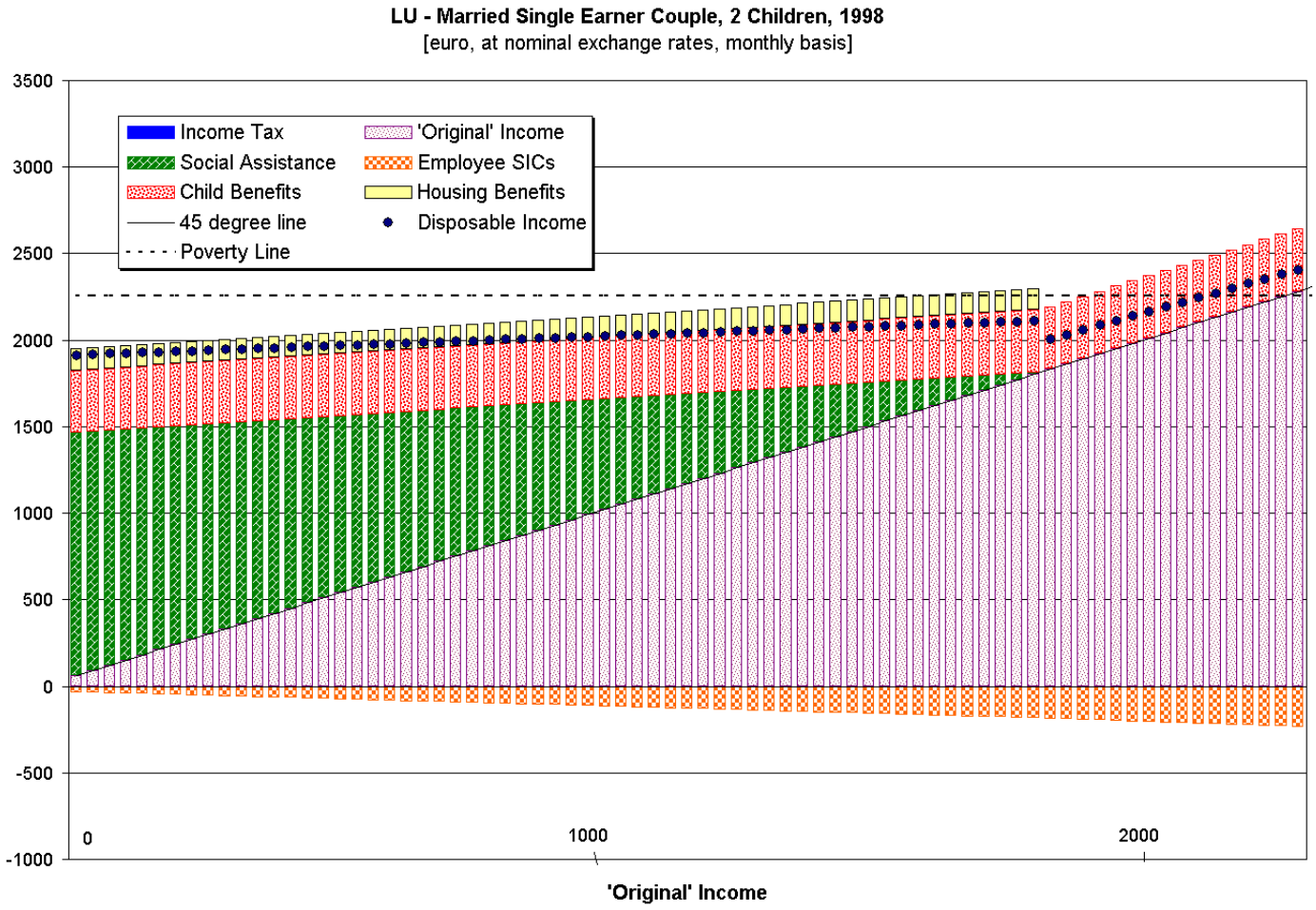


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Figure 4d.

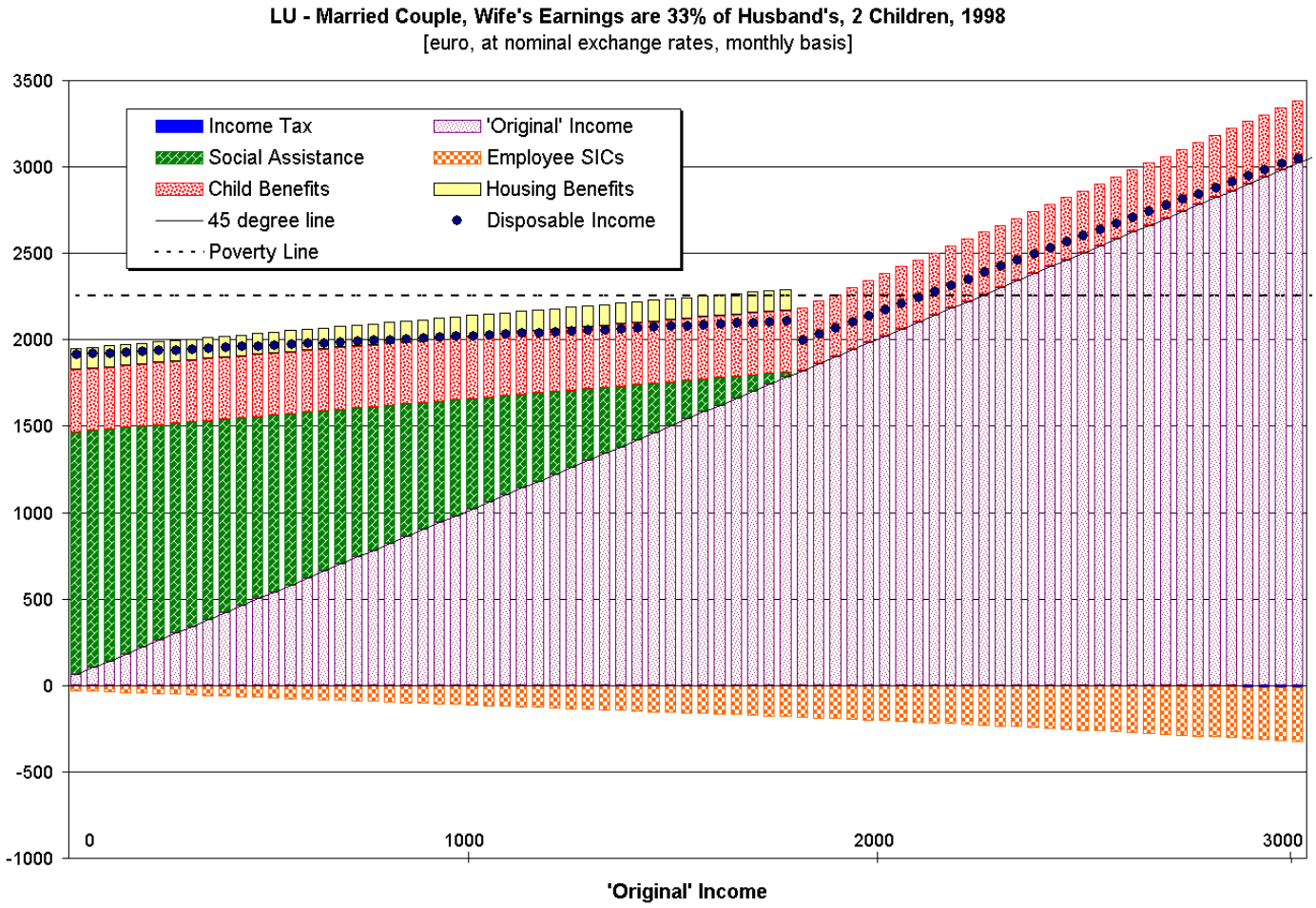

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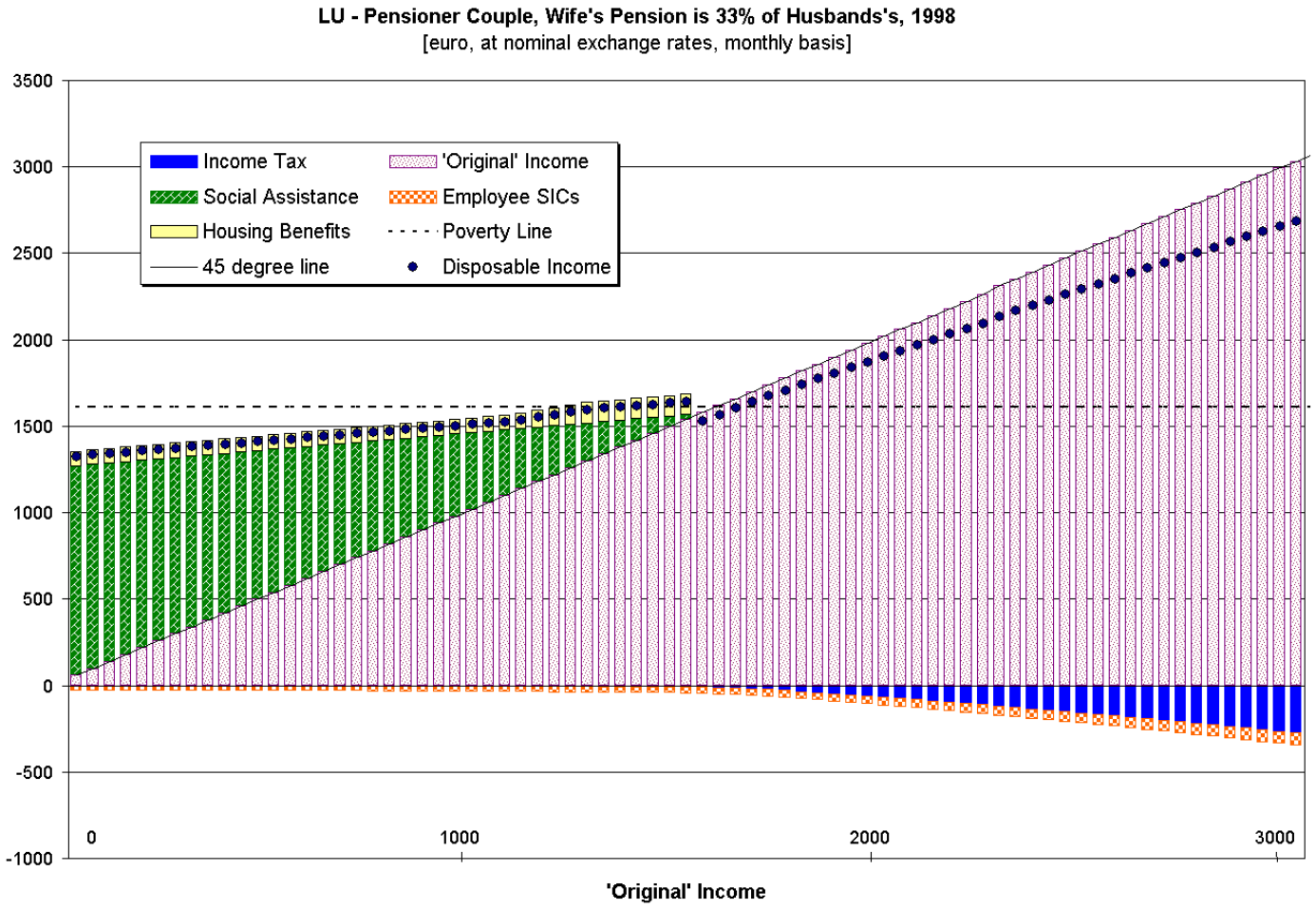
Figure 4e.



Source: EUROMOD