

# A Rent-Seeking View of the Ageing Problem in Developed Countries

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## Abstract

This paper considers the ageing problem as the outcome of the changing equilibrium between the coalitions involved in the provision of the welfare state and of state pensions. The situation inherited from the past consists of an unfair deal between a relatively small number of workers and a relatively large numbers of non-voting youth. It is argued that such a deal allowed social expenditure to expand at the expense of future workers. Future workers have now become voting individuals who realize that they cannot transfer the unfair deal to future generations, for lack of future workers supporting future pensioners. As a consequence present workers are bound to renegotiate the deal with present retirees, and confront the powerful bureaucratic coalition. Possible solutions to this conflict are presented and discussed.

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### ~~1. The general terms of the problem~~

#### *1.1 Patterns of income redistribution*

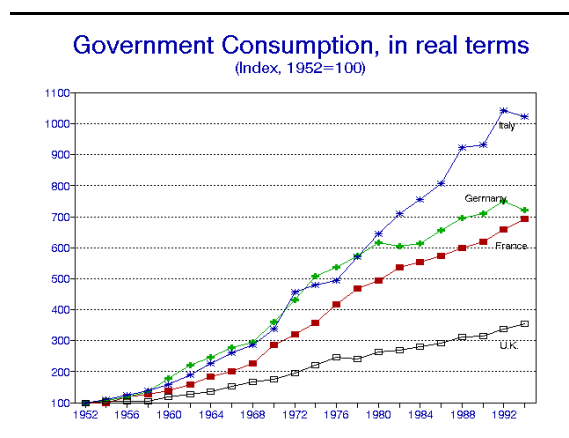
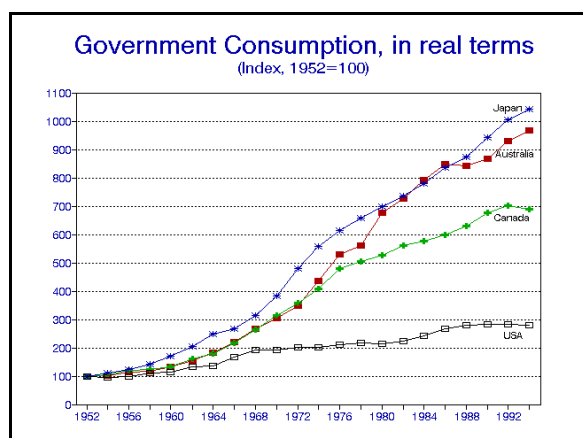
Especially since the end of the Second World War governments have become involved in various forms of economic activity, which have gone far beyond the provision of public goods, including assistance to those affected by deprivation. Although the growth of government intervention has been less acute in some economies (such as the USA), the figures below show that this phenomenon has been common to most developed countries. In Italy, Germany, France, Japan and Canada, for instance, the size of government consumption doubled between the early 1950s and the mid 1960s, and then doubled again by the early 1970s. Many of these arguable activities are generally known as "redistribution". In this respect, three broad patterns have emerged, leading (1) to gross transfers within generations (among tax-payers)<sup>1</sup> by means of progressive taxation and social expenditure<sup>2</sup>; (2) to net transfers from tax-payers to bureaucrats and policy makers, which have been enjoying more opportunities for rent-seeking; (3) to net transfers - or transfer commitments - across generations, enhanced by more or less pervasive pay-as-you-go (PAYG) elements in state-managed pension schemes. The first category will henceforth be referred to as the "welfare state", while transfers across generations will be designated as "state-pension" policies<sup>3</sup>.

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<sup>1</sup> Redistribution of income by the State surely leads to some net transfers when the public role is modest. However, as the role of State intervention becomes larger and larger, the existence of significant net transfers is doubtful, apart from those which benefit the bureaucracy and the policy makers (see for instance De Jouvenel, 1952). In this light we feel justified in making our argument both simpler and clearer by assuming that the intra-generation transfers associated with the welfare state are not very relevant once the weight of welfare state has become large.

<sup>2</sup> According to the International Monetary Fund "social expenditure" is defined to include [...] *medical care, education, pensions, welfare payments, unemployment insurance, and family benefits* (see Heller et al., 1986, p.1). For our purposes, we shall consider social expenditure as the sum of the welfare state and state-pension transfers. In turn, social expenditure plus the monetary flows related to industrial and trade policies form government expenditure.

<sup>3</sup> Some distribution across generations is also present when social expenditure is financed by issuing Treasury Bonds to be repaid in the future. For the sake of simplicity the implications of debt-financing will nevertheless be neglected in the remaining part of this paper.



This paper focuses on this last aspect, although it will be clear that the analysis of inter-generation redistribution also depends on the political economy of the welfare state.

Surely, the state should have no extensive role in *providing* pensions. Legislation in this domain may indeed be justified by the need for some sort of compulsory retirement program, either because people may be irrational (shortsighted), or because they may be tempted to consume too much during working age and then take advantage of poverty-relief schemes when old. But of course this does not imply that the management of compulsory retirement schemes should be public, for there is no reason to believe that state managers consistently outperform private managers. In fact, the incentives typical of both categories suggest that the reverse may be more likely. Nor does this imply that such schemes - apart from poverty relief - should be run on a PAYG basis, whereby current pensions are paid by current taxation, rather than by past savings<sup>4</sup>.

<sup>4</sup> See James (1996) for the three-pillar pension scheme proposed recently by the World Bank: one totally private and voluntary, one private but compulsory, and one managed by the state for redistributive purposes.

Contrary to this conception, Becker and Murphy (1988) have argued that state pensions do play an efficient role, since they enable low-income parents to invest "optimally" in young human capital (their children), by making sure that today's young will be paid back in the future, in the form of pensions. From such a point of view, state pensions financed on a PAYG criterion would be fair. Posner (1995, p.48) mentions some of the ambiguities of this view. More generally, it is fair to say that Becker and Murphy do not present a theory, because their article fails to make clear how would-be students and parents strike a deal and empower the state with its enforcement. Rather, the authors make a statement about the efficiency of a situation, without really questioning how the situation came about. Yet, it is here believed that the validity of this statement is questionable on three accounts. First, since transfers to the young are financed by means of taxes levied on medium- and high-income parents, the outcome looks more likely an income-redistribution pattern from one group of families to another, rather than to a fair, quasi-voluntary contract between generations. In addition, although this "fair contract" theory implies that poor families should be less numerous than rich families, the real world offers an opposite picture. Finally, it is not clear why those countries where public education is more pervasive

Yet, it is a fact that in most developed countries the state is deeply involved in running retirement schemes on PAYG principles. In this light, the following sections try to explain why the government is so keen on redistributing resources across generations, why it was allowed to do so in the past, and how redistributive policies as a whole may develop in the future within the frame work of the so-called "ageing problem".

### *1.2 The ageing problem in a public-choice perspective*

This last term refers to the range of issues raised by the interaction between "adverse" demographic change and the redistributive policies in place. In particular, since state pensions usually transfer income from the working (tax-paying) population to the elderly, an increase in the ratio of the retired to the working population - the so-called elderly-dependency ratio<sup>5</sup> - causes a growing imbalance between government expenditure and taxation. As a consequence, *ceteris paribus*, either taxation needs to be increased, or policies revised. This is what is happening in these years. The size of the ageing problem thus depends on three variables: the nature of the demographic phenomenon, the intensity of the existing redistribution policies across generations, the possibility of raising taxation above current levels.

To clarify matters, a typical developed country will be assumed to be composed of four categories of people, according to their position *vis-à-vis* the state. For three of them, the criteria for differentiation are their right to vote, their right to be a recipient of transfers, their obligation to pay for such transfers (through taxation). Thus, the elderly are those who vote, receive state pensions, do not work and therefore pay no taxes. Workers vote, pay taxes today, will receive state pensions tomorrow. Youth do not vote, do not pay or receive anything today, but will work and be taxed tomorrow<sup>6</sup>. Finally, there are politicians and bureaucrats, the purpose of whom is to increase their rent-seeking opportunities by expanding the role of the state and of social expenditure in particular.

Young people play a special role in the argument presented here. As will be explained in greater detail in the paper, the exclusion of the youth from the law-making process allows the voting population

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are also those countries where state-pensions schemes are larger and more generous. In fact, such two schemes should be substitutes, not complements.

<sup>5</sup> The current use of this term is not entirely accurate, since the criterion to define dependency is usually age, sometimes retirement. In fact, Posner (1995, p.40) points out that people do not necessarily become dependent at a fixed age, nor does retirement *per se* implies dependency. The definition of "old" made use of in this paper is provided in the following paragraphs of the text.

<sup>6</sup> It is hard to deny that young people do benefit from transfers - education is perhaps the main example. But given the role of the family in our culture, it may still be plausible to consider such transfers to the young as a consequence of their being part of a household, rather than the result of their "contract" with the state.

and the politicians to agree on a deal which benefits both, at the expense of the young. On the one hand, politicians and bureaucrats try to acquire or to maintain opportunities for rent-seeking. On the other, workers may consider transferring resources to the policy maker, and thus accept an expansion in the welfare state, only if their overall consumption is enhanced or stays the same. Given that the welfare state is an imperfect substitute for private consumption, this is acceptable when workers feel that such a transfer implies a reduction in their savings requirements for future needs, without much influence on their private consumption. That is, if in return for the creation or expansion of the welfare state today, the politicians guarantee that somebody else will be forced to finance their consumption in old age. This is the role played by state pensions financed through a PAYG system. State pensions make sure that the elderly do not need to rely on their past savings. The PAYG system makes sure that at any given moment in time such pensions are paid by somebody else, i.e. by those who at that time are working.

If the politicians' future coercive power in this respect is credible enough, state-pension policies end up by making the welfare state to seem "cheap" for current workers, almost a free lunch to be paid by the next generation. This explains why workers may be willing to cooperate with policy makers. Of course, this requires that the current elderly-dependency ratio be "low enough", so that current workers are not required to spend too much on the old; and the current youth-dependency ratio "high enough", so that there will be enough future workers to support current workers in old age. These conditions are usually met during a baby boom. The whole proposition becomes however doubtful during a baby bust, for politicians can hardly be credible in fulfilling such a promise to a large number of future beneficiaries, when tomorrow's workers and taxpayers are limited.

The analysis of this set of incentives, and of the unfair deal between voters and politicians, forms the core of the paper<sup>7</sup>. The "ageing problem" will then be considered as if composed of two different sets of issues. The first (section 2.) refers to the demographic phenomena at work, which provide the outline of the benchmark case, free of government intervention. The second (described in section 3.) considers the transfer problem, as well as the nature of the initial contract which allowed the role of the state to expand. The two sets of problems are of course to some extent interdependent, for the latter also depends on the former. But it is perhaps preferable to examine them separately, to simplify and clarify the argument. Sections 4. and 5. suggest the implications for the future of the problem and draw some conclusions.

<sup>7</sup> In particular, we shall neglect the problems concerning the correlation between an ageing population on the one hand, productivity and savings on the other. In both cases the available empirical evidence is rather ambiguous - see Pritchett (1996) on productivity and the evidence quoted in Roseveare et al. (1996) on savings.

## 2. About population

Population in developed countries is aging for two reasons. On the one hand, there has been a fall in birth rates, so that the weight of the young people out of total population is now getting smaller<sup>8</sup>. *Ceteris paribus*, this can be considered a temporary phenomenon, bound to vanish some years after the birth rate has reached its new level. By that time the age distribution will have gone back to its original shape, and the only consequence of the permanent fall in the birth rate would be a permanent fall in the size of the population, not in its age distribution. Of course, the opposite would be true in the case of a baby boom.

The other part of the story is that the average life period of the typical individual has increased significantly. Changes in living standards (on average, people are better off and less exposed to intense physical labour), and perhaps even in preferences<sup>9</sup>, have led to higher expenditure on health. The typical individual now lives better and - more importantly for the purposes of these pages - longer. If the age at which the young enter the labour force remains roughly constant, and the same applies to the age of retirement, then a longer life implies that individuals qualify as "old" for a significantly longer period.

In short, a typical developed country would undergo temporary adjustment: for a number of years the elderly ratio increases, as the number of young people, and then of workers, shrinks. And it would also undergo a permanent change, as people would tend to remain in the "old" segment for a larger number of years. The ageing problem is therefore going to evolve according to a fairly smooth long-run path, with a temporary peak due to the recently-observed low birth rate.

It is obvious that in the absence of government intervention there is very little material for a "social problem". In particular, there is no inter-generational redistribution, because the above merely implies that working people at time 1. defer consumption to old age (time 2.). Such deferred consumption is made possible by the creation of fixed capital, which during time 2. allows old people to contribute to the production of consumption goods for those who will then be working. Part of these goods is going to be consumed by the old, who are thus compensated for their fixed-capital contribution. In other words, the "young" are paying for fixed-capital services, and are not transferring income to other layers of the population. In a free-market world this would be the end of the story.

Of course this does not mean that individual behavior is independent of demography. Changes

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<sup>8</sup> Births have been declining because the costs of having a child have increased considerably. Parents have changed their preferences and now tend to consider their children's living and educational standards also as a reputational good. In addition, the opportunity costs of child care have risen, following the steep rise in women's real wage rates.

<sup>9</sup> In most developed countries life *per se* is probably considered more important today than in the past.

in the age distribution of the population may carry with them changes in the ability to work. For instance, a typical individual may live  $N$  years longer, and the number of years during which he is unable to work may also change by  $N$ . In such a case his consumption profile will be modified, and an increase in savings during working age follows<sup>10</sup>. On the other hand, the number of years during which the individual chooses not to work may remain constant, so that a fall in yearly savings during working age would take place.

These are rather extreme statements. An intermediate outcome is more likely to prevail, with ambiguous effects on savings<sup>11</sup>. Nevertheless, the point made here is that a problem may arise if people systematically fail to adjust their saving/consumption profiles, so as to take into account demographic change, future capital/labour ratios, future rates of return on labour and capital. Such a bias, if realistic, might perhaps require government intervention. Such intervention should however be limited to information - as long as there is reason to believe it to be of higher quality than that provided by private sources.

### ~~3. Generational distribution and the budget~~

By focusing on the behaviour of bureaucrats and politicians on the one hand, of voters on the other, the remaining part of this paper suggests a public-choice explanation of today's social-security patterns, and thus a new view of the aging problem. The core of the argument is that ageing is not a problem *per se*; rather, it stems from the fact that the current pattern of income redistribution was developed within - and could be sustained by - a given population structure. As this structure has changed for demographic reasons, the existing redistribution features no longer appeal. Politicians' and bureaucrats' commitments have become less credible, a time-inconsistency problem has come to the surface, and conflict among the four categories of actors mentioned in the introductory section has become manifest.

When and why did it all start? Social security is of course a very ancient issue, which during the history of mankind was usually taken care of at the family - possibly enlarged - level. The accepted general rule was very simple: the young had to take care of the old.

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<sup>10</sup> This can be achieved in three different ways. Either people decide to work more, given a constant working-age period; or they decide to consume less; or - finally - decide to increase investment in education, so as to increase income during working age (which in this last case is going to be shortened). Of course, these three possibilities would be equivalent in a perfect-world equilibrium.

<sup>11</sup> But see Cutler et al. (1990) for a different approach, where savings are assumed to vary in order to keep fixed capital in line with a steady-state capital-per-worker requirement. When the working population gets smaller, savings would then tend to fall during the adjustment period, because total fixed-capital requirements decrease.

More recently, family ties have weakened, and voluntary transfers of resources within the family have been replaced by compulsory transfers from household to household - mediated by the government. This probably owes a great deal to the perverse outcome of three phenomena.

The end of World War II left many countries with centralized decision-making structures and high public expenditure, which in most cases had been necessary to run a war economy<sup>12</sup>. Unfortunately, as pointed out in Tullock (1993), at the end of the conflict both bureaucrats and politicians were unwilling to reduce either, and strived to maintain their former power.

Secondly, sustained and relatively fast growth was common to many developed countries. That made it possible for coalitions and policy makers to discuss about a different redistribution of wealth, without being forced to reduce the living standards of any of the parties involved. In particular, as the relatively poor became better off, they found it easier to organize, form coalitions, and exercise pressure on the politicians, so as to achieve greater income equality. Ideology also took its toll, as predicted in Schumpeter (1994). The efforts of such new groups were successful. The very rich were bought off (by means of state subsidies to industry, trade protection, slow liberalization, legal cartels) or just voted with their feet (capital flights). The upper middle class and the middle class turned out to be paying most of the bill, possibly under the threat of social unrest.

Finally, the baby boom made it tempting to engage in some kind of social contract which could make all the voters - elderly, workers and politicians - happier by shifting the burden to the next generation. Politicians and bureaucrats were to monitor and enforce the contract. As a reward, they were given the responsibility and privilege of running social-expenditure programmes, in particular the welfare state. Of course all this required that those who were going to be harmed had no power to oppose the contract at the moment when legislation was being passed, nor to renege upon it in the future. Both requirements seemed to be met in the two decades after WWII. The young had no voting power, by definition; and were unable to galvanize into an effective interest group. Finally, expectations as regards future compliance with the contract were encouraging.

### *3.1 The terms of the implicit contract between voters and policy maker*

Put differently, the working (and voting) population agreed to satisfy policy makers' requests to create and run the rent-seeking game by means of an overgrown welfare state. In return, the median worker asked for a disposable income over his lifetime higher than the value justified by his productivity. The inconsistency between relatively high consumption during working age and relatively high consumption during old age was to be financed through two channels. The first was intra-generation,

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<sup>12</sup> See for instance Hayek (1990, p.217): *Even the most fundamental principles of a free society, however, may have to be temporarily sacrificed when, but only when, it is a question of preserving liberty in the long run, as in the case of war.*

through progressive taxation and the welfare state. The second was inter-generation, through state pensions financed on a PAYG criterion.

Both schemes were realistic. Post-war relatively high growth rates (and ideology) made intra-generational transfers acceptable, especially in those countries where socialist political pressure was high. Moreover, the baby boom<sup>13</sup> and the declining elderly-dependency ratio made transfers across generations extremely attractive. The time-inconsistency problem was perceived as infinitely remote at best, a light burden and a relatively easy policy to enforce at worst. If the "good" scenario had become true, the workers of the Fifties and of the Sixties knew that some twenty years later the necessary transfers could be accomplished by little or no increase in the taxation of a relatively large number of significantly more affluent workers. In the "bad" scenario - low growth and/or a drop in birth rates - the balance of electoral power would have shifted in favour of the pensioners and would-be pensioners of the Eighties anyway. Politicians would have been elected accordingly, thereby making it difficult to change the rules of the game, i.e. to renege on the promise.

The above is not necessarily in contrast with an altruistic view of parental behaviour. By fixing a ceiling on state pensions and relying on progressive taxation the median voter made sure that his children would pay relatively little to finance the PAYG programme, and receive relative large state pensions in their old age. In addition, there is no sign that bequests declined as a consequence of the introduction of state pensions. This may indicate that the beneficiaries of the inter-generation transfer may have left at least part of the benefit to their children, at the expense of the more affluent<sup>14</sup>; or that the intensity of altruism declined. Affluent workers would of course oppose that, but in their case the threat of social unrest often turned out to be convincing enough<sup>15</sup>.

It is also fair to say that at the beginning the expansion of the welfare state was probably independent of state-pension legislation. For quite some time in the second part of this century, redistribution within generations was not perceived as an unsustainable burden. Many thought that it fulfilled a moral obligation towards the poor, and that it was an affordable price to pay to avoid social

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<sup>13</sup> This covers the 20-year period from World War II until the mid-Sixties. The baby bust extended over the following twenty years, approximately. However, since fertility rates continued to rise until the mid-Sixties, pressure for an expanded welfare state continued for quite some time after the baby boom had reached its peak. On the other hand, since the youth-dependency ratio stayed high well into the Seventies, the demographic and budgetary implications of the baby bust were appreciated at a much later stage.

<sup>14</sup> In this light, one may argue that the transfer across generations was a way to enhance income redistribution across households over time. This line of thought will however be ignored in the following sections, in order not to blur the distinction between the intra- and the inter-generation elements in the redistributive programmes.

<sup>15</sup> More on that in section 3.3.

unrest. Of course, such an expansion should have stopped when public opinion felt that the cost had become higher than the benefits. But cutting it back turned out to be difficult, though; for the various interest groups opposed those cuts possibly harmful to them. In short, piecemeal reductions would have met a collective-action problem; whereas large cuts would have been opposed by everybody. Hence, the welfare state could grow or remain constant; it could hardly go back. At that point, state pensions became crucial in pushing the size of welfare state beyond its otherwise acceptable level. In most developed countries the policy makers managed to pursue further welfare-state growth by including the welfare state in a single social-expenditure deal with state pensions, so as to make others pay the cost.

As a result, suitable legislation was passed, the welfare state took off, financed by progressive taxation; and state-retirement schemes were enhanced, whereby current taxpayers would finance current pensions<sup>16</sup>.

### 3.2 *Subsequent developments*

In fact, the deal turned out to be successful, especially in Western Europe. During the 1950-1980 period and beyond the redistributive machine became larger and larger, although less than transparent. Until the mid-1990s social-security systems withstood all major attempts to reduce redistribution.

Surely, the power of the politicians and of the bureaucracy increased significantly in the process. On the one hand, they were called upon to run a larger and larger welfare state. On the other, inter-generational transfers also implied the need for a stable political *élite*, as well as for a stronger and long-lasting bureaucracy, if the unfair deal had to be enforced on presumably reluctant future tax payers<sup>17</sup>.

As a consequence, the deal of the post-war years made the policy maker and the bureaucrat the central figure of all coalitions to come. State pensions gradually became the crucial instrument for this purpose, for they made the growth in rent-seeking and law-bargaining acceptable. The working population became more and more bridled by the politicians and bureaucrats, which in turn were strongly supported by the elderly and would-be elderly, eager to receive the transfers promised under the state-pension schemes.

However, as time went by, two partially predictable events took place. The expansion of the rent-seeking activities and of the welfare state brought with it a slow-down in economic growth. In

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<sup>16</sup> Ideology took its toll also in determining the built-in dynamics of the inter-generational transfers, for instance in those cases where pensions were linked to the nominal wage rate, so that the distribution of income between the typical worker and the typical state retiree would satisfy the socialist notion of equality and social justice.

<sup>17</sup> Of course, this would have been relevant especially in the "bad" scenario, with low growth and/or a dramatic fall in birth rates.

addition, the baby boom came to an end, and starting from the late 1970s the vision of trouble to come gradually became clearer. In many developed countries it was now understood that the workers born during the baby-boom period would have been unable - let alone unwilling - to bear the burden of large negative transfers of income for the benefit of state pensioners. Since they could not rely on future generations because of the drop in the birth rate - there wouldn't be enough workers to support baby boomers in their old age - baby-boom workers realized that they had to take care of themselves. There wouldn't be resources they could spare to finance PAYG schemes, too. Therefore, as more and more baby boomers entered the labour force and then approached old age, pressure to change the initial PAYG deal intensified.

On the other hand, the goal of the elderly was to delay the revision of legislation for as long a time as possible. This is consistent with public-choice theory, which predicts that in such a "bad" scenario the old-people coalition would not act in order to improve the situation in a long-term perspective, but rather to avoid the possibility that the future could be anticipated and incorporated into the behaviour of a high-enough number of workers. In fact, pensioners and would-be pensioners successfully galvanized into a highly motivated coalition which avoided reform, and in some cases even managed to anticipate retirement age<sup>18</sup>. By doing so, they reduced uncertainty about possible future changes in the rules of the game, they increased the return on the social-security contributions they had been paying so far, and also enlarged the coalition.

Unsurprisingly, in many countries such an enlarged coalition turned out to be extremely powerful. That explains why when the ageing problem started to come to the surface, the short-term (perverse) reaction was a marked rise in social expenditure - the welfare state expanded further, average retirement age fell, pensions increased. In other words, the response to the bad scenario was not to get fundamentals right, but to shorten the time horizon of the majority by strengthening the short-sighted coalition.

In a way, this made the social problem worse. The cohesion of the enlarged coalition rested on the necessity to buy off more and more workers born in the baby-boom period in order to persuade them to respect the ancient, one-sided, inter-generational contract and avoid pressure to change the rules of the game. But as more and more workers joined the coalition, the day of crisis for social expenditure approached at a faster rate, and the margins for a relatively smooth solution became narrower.

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<sup>18</sup> Would-be pensioners were obviously the driving force. To achieve their goal, they formed a large coalition with the existing pensioners (who were often bought off with an increase in current pensions), and also with a significant part of the workers, which were offered advanced-retirement opportunities and the illusion of more "free lunches" *via* social expenditure.

### 3.3 A diagrammatic analysis

The interaction between demography and sustainability of the welfare state is described in the following figures, which refer to a typical developed country.

The demand and supply schedules for the welfare state (WS) are shown in fig. 1. Let us ignore state pensions, for the moment, and suppose that WS is financed by a tax on consumption. The demand schedule in fig. 1 shows the net benefits of the welfare state, which are the result of a "consumption effect" and of a "turmoil effect". As regards the former, the welfare state is an imperfect substitute for private consumption; Thus, an increase in WS reduces individual well-being, since the marginal utility of one dollar spent on private consumption is greater than that of one dollar spent to finance the welfare state. As regards the second effect, modest quantities of WS are deemed to be effective in reducing political turmoil and uncertainty. In other words, the benefits are an increasing function of the welfare state, whereas turmoil itself is a decreasing function of the welfare state (see also the Appendix for a formal presentation of the figures in this sections and in the following). It is therefore plausible to claim that the demand for WS is always downward sloping and positive, as long as the consumption effect does not prevail on the turmoil effect. Clearly, as the welfare state expands, net marginal benefits approach zero.

The supply schedule describes the perceived marginal cost curve of WS, which is upward sloping, since an increasingly large welfare state involves a rise in income-dissipating activities and inefficiencies. Aggregate income (or income growth) will be negatively affected, whereas the burden of social expenditure will rise, in particular for the tax-paying workers.

Let us now consider the "unfair" inter-generation contract mentioned earlier in this section. As argued, state pensions reduce the perceived cost of the welfare state in that they reduce the need to finance the increase in WS with a reduction in private consumption. However, this reduction is effective up to a point. If the contract becomes too hard to enforce on future workers, it is no longer credible. The free lunch becomes expensive again. In short, the "free-lunch effect" results in an upward shift in the net-benefit schedule in fig. 1, since taxation no longer affects private consumption, but savings. Yet, the size of the shift is at least partially offset by the credibility of the deal<sup>19</sup>.

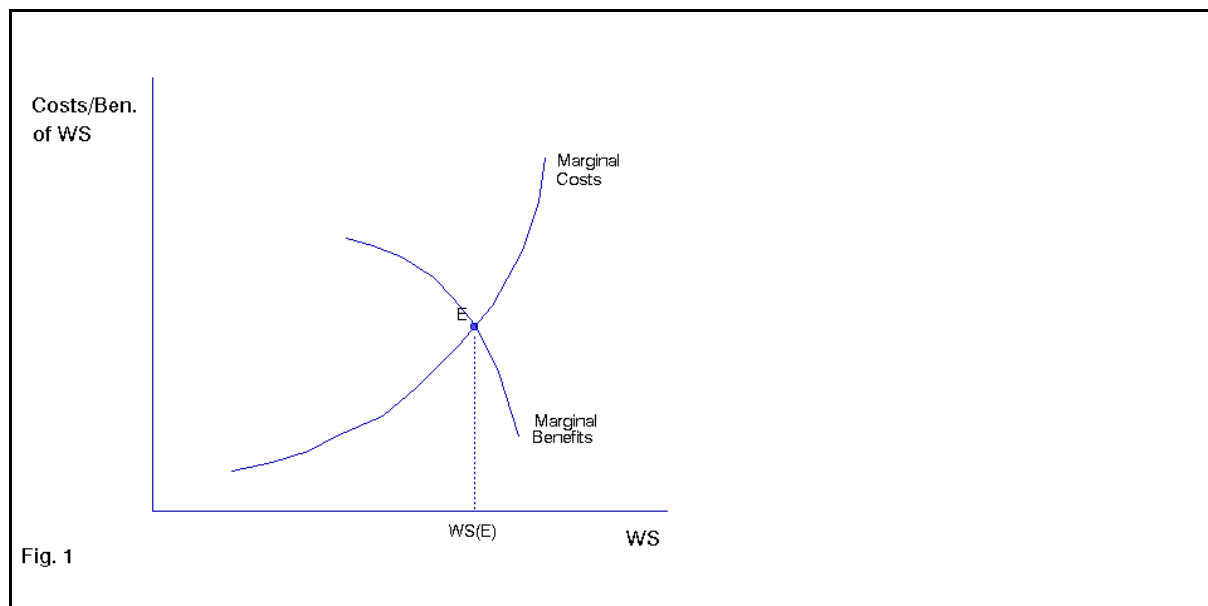
Therefore, given the age structure of the population, there exist a whole set of WS demand

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<sup>19</sup> There also exists another possibility. As the deal becomes less and less credible, its reliability may be kept constant by increasing the power and the stability of the ruling coalitions. More powerful politicians, in turn, engage in more intensive and harmful rent-seeking. As a result, the downward shift in the marginal-benefit schedule would be limited; but it would be replaced by an upward shift in the marginal-cost schedule.

The discussion of these effects would call for an in-depth analysis of a number of major institutional issues which for the sake of clarity and succinctness will be ignored in this paper. See on this Colombatto, Macey (1997).

schedules. Each of such schedules corresponds to a different combination between the size of the state-pension programme and its future sustainability. For simplicity, fig. 1 has only one, which corresponds to the "best" combination, i.e. to the combination which generates the highest possible marginal benefits.



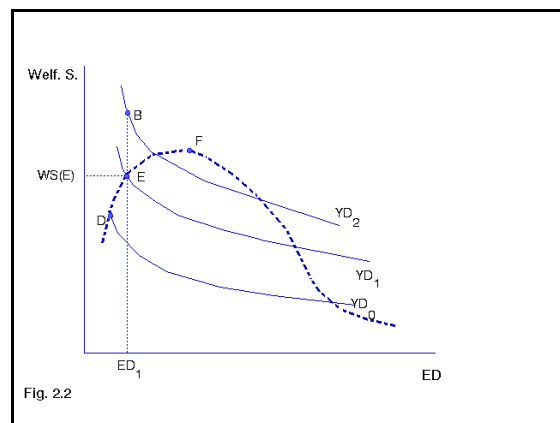
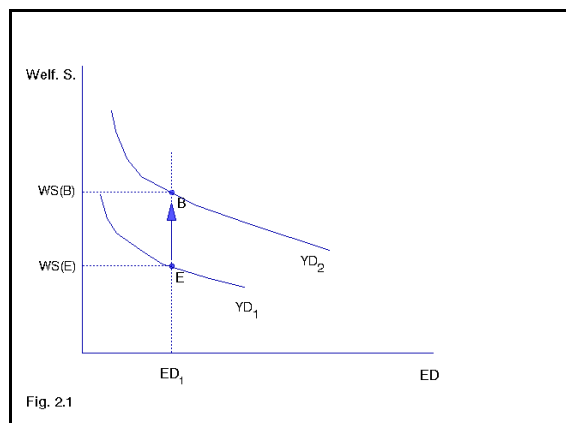
As the figure illustrates,  $WS(E)$  is the "optimal" amount of welfare state that individuals want to have, either because it makes life easier by defusing social tensions and/or because its cost can be "conceivably" shifted to future generations.

Of course, the two schedules in fig. 1 change their position and shape according to economic fundamentals, including demography and dependency ratios. In particular, there is going to be one equilibrium point for each combination of the youth- and elderly-dependency ratios, because these ratios determine the best amount - in terms of size and credibility - of inter-generation transfer.

Figures 2.1 and 2.2 examine how the optimal amount of welfare state - described in figure 1 and now indicated on the vertical axis - varies following demography, defined by the elderly-dependency ratio (ED) and by the youth-dependency ratio (YD)<sup>20</sup>. Figure 2.1 presents a family of (continuous) Youth-Dependency ( $YD_i$ ) schedules which show, for each value of the youth-dependency ratio, the optimal quantity of WS as a function of the elderly-dependency ratio. Each  $YD_i$  schedule slopes downwards, since if YD remains constant an increase in ED increases the cost or reduces the credibility of the state-pension programme. More power must be assigned to the policy makers, at a cost of greater rent-seeking: or the net benefits of the welfare state decrease. In terms of fig.1 this

<sup>20</sup> Henceforth, the youth-dependency ratio (YD) is defined as the ratio between young non-working people and the rest of the population.

implies either a downward shift in the WS demand schedule or an upward shift in the WS supply schedule. Under both cases the optimal amount of WS falls; hence the negative slope of the YD<sub>i</sub> schedule in fig. 2.1.



Similarly, a baby boom or a baby bust provoke a shift - upwards or downwards, respectively - in the YD<sub>i</sub> schedules. In fig. 2.1 the baby-boom case is described by a movement from **E** to **B**, where the elderly-dependency ratio is constant and the youth-dependency ratio increases from YD<sub>1</sub> to YD<sub>2</sub>. WS(**B**) is of course higher than WS(**E**), because after YD has risen current voters can enforce - say - a more credible deal at the expense of future generations, and thus sustain a larger welfare state.

Demographic change usually affects both the youth- and the elderly-dependency ratio. Therefore, when such change takes place, the desired (optimal) amount of welfare state varies accordingly. In this light, the dotted line in figure 2.2 describes the desired quantities of WS for different combinations of YD and ED values. Of course, countries are not necessarily always in equilibrium, that is at any given moment the actual amount of WS may differ from the desired amount. For instance, if a country has too much welfare state, it is going to be above the dotted line in fig. 2.2., for the amount of social expenditure it desires is lower than that it actually experiences. If  $ED=ED_1$  and  $YD=YD_1$  and the economy is in **B**, people are experiencing the amount of welfare state they would have liked to have if ED had been the same (because  $ED(B)=ED_1$ ), but with a higher youth-dependency ratio ( $YD(B)=YD_2 > YD_1$ )<sup>21</sup>. In other words, in **B** the welfare state would be all right if perceived as relatively cheap (many babies around). But since the benefits of WS are actually lower, then the amount of WS in **B** is excessive.

Let us pursue this example a little further, and imagine that this economy reaches equilibrium at **E**. Afterwards, the total-dependency ratio is assumed to remain constant at YD<sub>1</sub>, while ED starts to rise ( $ED_2 > ED_1$ ). This implies that the dotted locus coincides with the YD<sub>1</sub> schedule, by construction. As time

<sup>21</sup> Or if YD were the same and ED lower.

goes by, the negative slope of  $YD_1$  makes sure that  $WS(E)$  turns out to be above the dotted locus: workers become unwilling to undergo drastic cuts in disposable income in order to maintain the previous level of social expenditure. In fact, such workers would very much want to see their disposable income rise, in order to have enough resources to fund their own private pension schemes, for fear that state pensions might be inadequate.

The analytical framework described above is general enough to apply to any country. However, it should be emphasized that countries which are identical from the demographic point of view may display different positions and shapes for the dotted locus. This follows from the institutional and cultural features of each country and also from their economic fundamentals in terms of income levels and anticipated growth rates.

#### 4 Towards a solution of the old-age problem

The dotted locus in fig. 2.2 has been drawn so as to roughly describe the post-war history of many developed countries. As is known, the elderly-dependency ratio initially rose fairly slowly; while the youth-dependency ratio rose significantly until the late Sixties, and then dropped. Under the analysis presented here, the dotted locus therefore shows that the perceived marginal net benefit of the welfare state initially rose, and so did the optimal/desired amount of  $WS$  (compare points **D** and **E**); and then declined (see the dotted line to the right of **F**)<sup>22</sup>.

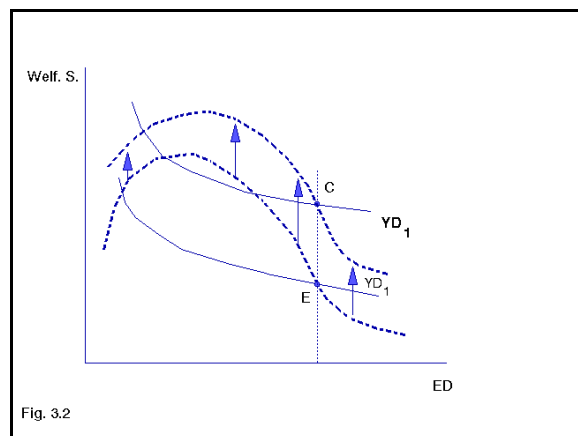
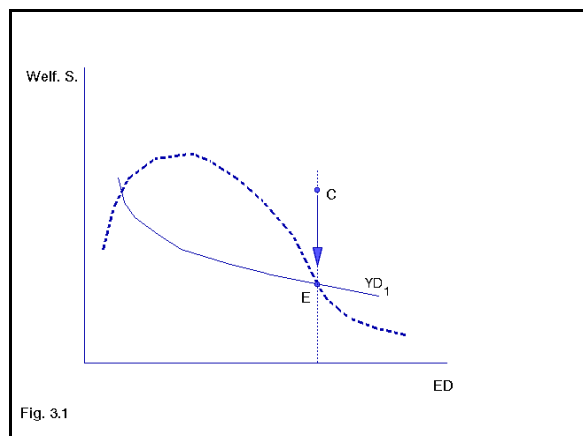
In fact, at the beginning of the baby-boom period many countries were in a situation similar to **D**. As time went by, demography led the economy up along the dotted line, and pressure developed to increase social expenditure. Of course, adjustment was fast and easy.

At some point, however, the slope of the dotted line turned negative, and the economy found itself above the dotted line. In those countries affected by this phenomenon, public opinion at large had agreed on the need for adjustment. In this light, three different solutions were and are available.

In theory, the simplest solution is of course to cut down the welfare state, so as to get back to the dotted locus. This would not necessarily affect the existing state-pension schemes. A reduction in the welfare state enhances income and income growth, and thus the sustainability of transfers across generations. A downsizing of the welfare state, however, would reduce the power of politicians and bureaucrats, who are likely to react by suggesting a rise in taxation. This can be attempted by persuading workers that the opportunity costs of social unrest has become higher, so that the "turmoil effect" has intensified, and the marginal benefit of  $WS$  increased.

<sup>22</sup> Of course, the shape of the locus may vary significantly across countries, subject to the constitutional possibilities to carry out inter-generational transfers and extensive redistribution policies, and also to the individual desire and haste to replace increasingly uncertain state pensions with private schemes.

It is not clear which of these two possibilities is more likely to prevail. Surely, much depends on the strength of the bureaucracy and the politics as an interest group, as well as their capacity to influence public opinion about the social climate.



Figures 3.1 and 3.2 portray the choice described above. A cut in WS implies a move from a point above the dotted line in fig. 3.1 (say **C**, where the economy wants a lower amount of social expenditure) towards the dotted line (see point **E**). On the other hand, a rise in taxation presupposes a shift in preferences, for this is viable only if people accept a lower disposable income (or a lower growth rate) for the sake of social tranquility. That implies an upwards shift of the  $YD_1$  schedules (from  $YD_1$  to  $\mathbf{YD}_1$  in fig. 3.2), and thus of the dotted line, for people now perceive social expenditure as more useful than before.

It is interesting to observe that in the light of the theory of the ageing problem presented here, an increase in taxation is by and large equivalent to a cut in state pensions, since in both situations individuals would be accepting a lower disposable income over their lifetime. In both cases, this corresponds to an upward shift in the dotted locus, so that fig. 3.2 applies also to the cut in state pensions. Bureaucrats and politicians may actually strive to pursue both policies at the same time. By cutting state pensions and increasing taxation, they may even succeed in increasing the size of the welfare state, and thus acquire additional opportunities for rent-seeking, and yet keep the ageing problem under control, so that a major shock can be averted<sup>23</sup>.

<sup>23</sup> It is here assumed that bureaucrats and politicians enjoy more discretion and rent-seeking opportunities in managing the welfare state than state pensions.

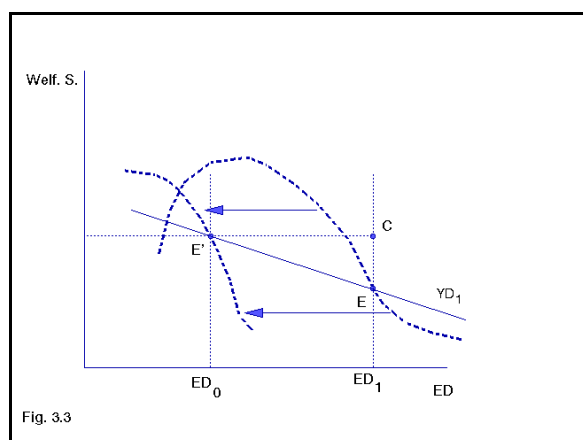


Fig. 3.3

A final prospect is to reform the state-pension system by shifting forward retirement age, i.e. by reducing the elderly-dependency ratio, say from  $ED_1$  to  $ED_0$  in fig. 3.3. This implies that the economy (and the dotted line) shifts to the left, as the elderly-dependency ratio falls and  $YD$  remains constant (the youth-dependency ratio has not changed). The equilibrium locus now goes through  $E'$ , since  $ED(E')=ED_0$ .  $E'$  is necessarily to the left of  $E$ . It may be observed that by shifting retirement age forward, the policy makers can actually replicate the result whereby more room is created to expand the welfare state. For instance, if the economy starts from  $C$  in fig. 3.3, a substantial enough reduction in  $ED$  - so that  $ED < ED_0$  - the optimal amount of  $WS$  turn out to be higher than  $WS(C)$ . This is actually a very appealing policy, for an increasing amount of welfare state can thus be proposed as compensation to workers when they are asked to delay retirement age, i.e. when they are forced (or fooled) into changing their preferences.

### 5. Concluding remarks

As is known, developed countries are experiencing a marked increase in their elderly-dependency ratios, and a fall in the share of the young. There is no doubt that this is going to affect social expenditure. Traditionally, the variables which have been considered are the initial weight of social expenditure, its structure, and the speed with which demography runs its course. This paper does not intend to belittle the importance of all these factors: but it suggests that their weight should be related to the way they influence the underlying contract between tax-payers and other coalitions, including the bureaucracy and the politicians.

In particular, this contract implies a system of income transfers enforced by a coalition of present and future non-workers upon present and future workers. The contract loses credibility when too many workers see themselves as "present workers", rather than as "future non-workers" with a guarantee of a future more or less lavish state pension. When this occurs, an old-age problem arises. Two sets of solutions may be pursued.

If enough pressure builds to leave state pensions programmes unscathed, then the welfare state is reduced, and the structure of social expenditure shifts from the welfare state to state pensions. This solution is more likely to occur if the problem is tackled relatively late, so that more people belong to the old-age coalition or feel close to it<sup>24</sup>. Or in countries where social expenditure and the welfare state are

<sup>24</sup> Support could also come from young workers, who might believe that the lower cost of a smaller

relatively modest to start with<sup>25</sup>, for that implies that bureaucrats and politicians are not strong enough to oppose the shift.

On the other hand, if the bureaucracy and the rent-seeking coalitions benefitting from the welfare state have grown too powerful to be overcome, expenditure is more likely to be stabilized by increasing taxation or by cutting retirement schemes<sup>26</sup>, either by reducing the amounts paid out per year to the retired person, or by shifting forward the age of retirement.

From a public-choice point of view, the reduction of the annual amount paid to each elderly person is not very appealing. By doing so workers would wish to save more without lowering consumption. Pressure for lower taxation would build up, the public deficit would increase, and pressure to axe the welfare state would ultimately become unsustainable. This is of course contrary to the interests of the policy makers, bureaucrats and politicians alike.

*Ceteris paribus*, changing the retirement age is a more attractive policy, possibly coupled with a raise in taxes, say, for the sake of "national solidarity"<sup>27</sup>. By shifting retirement to the future, desired savings stay roughly constant, and the propensity to save may even fall. Pressure to increase disposable income would be weaker, and the same would hold true as regards the eventual slashing of the welfare state. Within this framework, the lavish-retirement original promise would indeed be reneged upon by the policy makers, but the very breaking down of the old-age coalition would make sure that nobody complains too much. Policy makers would not lose power. Their role could actually be enhanced by the fact that they could present themselves as a successful barrier against the destruction of the protection schemes for the elder as well as for the "disadvantaged" - whatever that means in today's developed countries.

Put differently, if the old-age coalition is strong enough relative to the bureaucrats, and the fall in the birth rate not too sharp, then the retirement bill becomes indeed higher than expected, but it could be

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welfare state coupled with a better deal on state pensions might be suitable compensation. On the other hand, one should not overlook that *the claim on public goods and services increases with age* (see for instance van Dalen, 1996, p.160). The preference of the old for state pensions rather than for the welfare state might thus be weaker than expected.

<sup>25</sup> The difference between Western Europe and North America, where the elderly dependency ratio is also much smaller, is striking in this respect. The institutional framework also plays a role, of course, and may go a long way in explaining why this rent-seeking game has not been equally widespread and successful (or harmful) in all developed countries.

<sup>26</sup> In all developed countries the growth rate of expenditure on pensions (in real terms) is much lower today than in the 1960-1980 period (see Heller et al., 1986, table 6, p.33).

<sup>27</sup> This was in fact possibly the most frequent the catchphrase of the present Italian government during the 1996 elections and afterward.

accommodated by cutting the welfare state. However, this may not be very realistic. For if the welfare state is large enough so that the resources it sets free are enough to finance retirement schemes, then the interest groups opposing such cuts may also be too large to overcome. More likely, reforms will be addressed at reducing inter-generational transfer quickly, either by shifting retirement age forward, or by phasing out such transfers altogether.

Satisfactory empirical evidence to test this theory will not be available before some ten years from now. But if our predictions come true, many developed countries are bound to lose a good opportunity to take advantage of the imbalances created by inter-generation transfers in order to reduce the size of rent-seeking and of government intervention at large.

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## APPENDIX

Let the demand for the welfare state be  $WS^D$ . The net-benefit function  $\mathbf{B}$  depends on the amount of welfare state and on the fear of social unrest ( $\mathbf{T}$ ). Since welfare is financed out of taxation and is an imperfect substitute for private consumption, individual well-being is a decreasing direct function of the welfare state. Social unrest is also a decreasing function of the welfare state, since this assumed to weaken tensions within the society:

It is therefore possible to write

$$WS = B[WS, T(WS)], \text{ with } B_1 < 0, B_2 > 0, T_1 < 0$$

Therefore

$$dB = (B_1 + B_2 T_1) \bullet dWS$$

and

$$\frac{dB}{dWS} = B_1 + B_2 T_1,$$

which is the slope of the  $WS^D$  function, always negative.

If  $RS$  denotes the income-dissipating function, and  $\mathbf{C}$  the cost of income dissipation in terms of individual well-being, the supply schedule is

$$WS^S = C(RS(WS)), \text{ with } C_1, RS_1 > 0$$

The optimal (desired) amount of welfare state is then  $WS^*$ , such that

$$B(WS^*, T(WS^*)) = C(RS(WS^*))$$

If a state-pension programme is introduced, the net benefits of the welfare state increase according to the  $\mathbf{SP}$  function. Following what argued in the text,  $\mathbf{SP}$  is a positive function of the present and future (expected) youth-dependency ratios ( $YD$ ), and a negative function of the present and future elderly-dependency ratios ( $ED$ ).

Thus, the optimal amount of welfare state is now  $WS^*$ , defined by the solution of

$$B(WS^*, T(WS^*)) + SP(YD, YD^e, ED, ED^e) = C(RS(WS^*))$$

Since  $\mathbf{SP}()$  is non-negative and  $\mathbf{C}$  is upward sloping, it follows that  $WS^* \geq WS^*$ .

The family of  $YD_i$  schedules in figures 2.1 and 2.2 are downward sloping because they originate

from the solution of

$$B(\overline{WS}^*, T(\overline{WS}^*)) + SP(\overline{YD}, \overline{YD}^e, \overline{ED}, \overline{ED}^e) = C(RS(\overline{WS}^*))$$

where  $B_1 < 0$ ,  $B_2 \cdot T_1 < 0$ ,  $C_1 \cdot RS_1 > 0$ ,  $SP_3 < 0$  and  $\overline{YD}$ ,  $\overline{YD}^e$  and  $\overline{ED}^e$  are kept constant<sup>28</sup>.

When  $WS$  is at the optimal level, the following holds:

$$(B_1 + B_2 \cdot T_1 - C_1 \cdot RS_1) dWS + SP_3 dED = 0$$

Hence, the slope of the  $YD_1$  schedules figures 2.1 and 2.2 is

$$\frac{dWS}{dED} = -\frac{SP_3}{(B_1 + B_2 \cdot T_1 - C_1 \cdot RS_1)} < 0.$$

while the dotted line in fig. 2.2 is the  $WS$  locus of solutions for

$$B(\overline{WS}^*, T(\overline{WS}^*)) + SP(\overline{YD}, \overline{YD}^e, \overline{ED}, \overline{ED}^e) = C(RS(\overline{WS}^*))$$

Figures 3. refer to situations where adjustment occur, or where the net-benefit function changes, or where the  $YD$ - $ED$  combination is changed (fig. 3.3). In particular, in fig. 3.1 the movement from point C to point E describes the movement to the equilibrium situation which satisfies the equation above (note that in fig. 3.1  $WS(C) > \overline{WS}^*$ ); while fig. 3.2. refers to an upward shift in the net-benefit function (change in preferences), so that the  $\overline{WS}^*$  locus also shifts upwards.

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<sup>28</sup> One may note that since the solution is provided by combinations of optimal welfare state and elderly-dependency ratios, given  $YD$ , it would have been more appropriate to use the  $\overline{WS}^*$  notation on the vertical axis in figure 2.1 and after.