Collective bargaining on welfare and wage.
Labour market implications and economic rationales of bipartite sectoral funds

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Provisional draft

Abstract

Bipartite sectoral funds (BSFs) jointly established by the employers’ organisations and unions, which collect contributions and provide welfare benefits to the workers, represent a renewed form of occupational welfare in European countries. This paper aims at offering a first outline of their impact on competitiveness and employment by investigating whether they may have an efficiency-enhancing effect in the labour market. The intuition is that their institutional profile may favour the internalization of the benefits by the unions and the sharing of the costs between employers and workers. At the same time cost-sharing gives an economic rationale for the fact that also the decision-making power is shared in BSFs. Internalization is defined and explained considering the economic literature on labour taxes incidence. A tentative measure of the extent of occupational welfare in Europe is provided. At the same time, the institutional setting where BSFs are more likely to develop is sketched out and two basic models of BSFs with substantially different implications for benefit internalization are distinguished. Finally, a simple economic model showing how a higher degree of internalization of the benefits may alter the outcomes of collective wage bargaining by favouring a sharing of the cost of social contributions and a lower impact on employment.

Keywords:
Bipartite sectoral funds; occupational welfare; internalization; labour taxation; voluntary social contributions.

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1. Introduction

In recent decades social policies have run into difficulties because of major structural trends affecting European societies, including population ageing, increasing female participation in the labour market, and the widespread fear of employment instability. On the one hand, such changes prompt large demand for social services and benefits; on the other, binding government budget constraints and the need to cut production costs in order to defend competitiveness in global markets make it difficult to accommodate this demand.

In this context, social policies are undergoing a considerable reshuffle and different patterns of change are being tried. Reforms of public social expenditure and how to finance them are widely debated and often implemented by governments in order to mitigate their alleged adverse effects on economic growth and employment (Scharpf 2000, OECD 2007, Manow 2010). In most European countries, in particular, there was a clear reduction in labour taxation over the period between 1995 and 2007 (European Commission 2012). Not only the governments but also single or associated firms, as well as the unions and the employers’ organisations play a role in this course of events, taking initiatives at national and local level. In particular, a number of sectoral funds jointly managed by the employers’ organisations and workers’ unions, is arising in European countries. They constitute a rather heterogeneous set of players, whose importance varies greatly across countries and sectors. Although they have been gaining some ground in the social policy field in recent years, we still lack comprehensive statistical information on them (OECD 2007, Adema et al. 2011). These bipartite sectoral funds (hereafter BSFs) can be defined as institutions jointly established by workers’ unions and employers’ organisations on the basis of collective agreements and managed by them through bipartite governance in order to provide social benefits to the workers and their families in a variety of areas, financed through contributions mostly paid by the employers. One of their distinguishing features is that seats on the governing boards are usually equally split between union and employers’ representatives.

In the ongoing debate on the retrenchment and recalibration of the welfare state, the ‘collectivization’ of social risks is sometimes seen as a possible path to be pursued (Ferrera and Hemerijck 2003, Trampusch 2007, Yerkes and Tijdens K. 2010, Johnston et al. 2011). As has been noted, welfare state reform concerns not only social policies but also employment and wage policies, owing to the interdependence between these areas (Ebbinghaus and Hassel 2000, Bonoli 2003). At the same time, the development of new roles for the social partners in the social policy arena may serve the unions to counteract the decline of their power and to revitalize industrial relations (Ebbinghaus 2010b, Schelkle 2011). From a historical perspective, BSFs recall the self-administration of social policies by employers and employees in return for joint financial contributions to the social insurance system of Continental Europe at the end of the nineteenth century. At present they may represent a major change in the governance structure of welfare systems and a possible departure from the traditional Bismarckian model towards self-regulatory, collectively agreed arrangements (Ebbinghaus 2010a).

This paper focuses on the tax-benefit policy implemented by BSFs in the context of collective bargaining and conducts a preliminary economic analysis of its implications for the labour market. We add to the existing literature because, to the best of our knowledge, no or only very sparse economic analyses are specifically devoted to the topic of welfare benefits provided through collective
institutions. Indeed, while sociologists and industrial relations scholars have proposed a number of possible explanations of their role, mostly relying on the overall evolution of welfare policies and industrial relations, we investigate whether BSFs may have an efficiency-enhancing effect in the labour market.

In principle, from an economic point of view, the tax-benefit policy implemented by BSFs may pursue different purposes. Under monopolistic competition in the product market it may serve to redistribute the surplus between employers and workers by ‘forward shifting’ the cost of social policy on to products prices at the expense of consumers (Boeri et al. 2001). However, the issue that we focus on here is whether BSFs may favour an opposite, ‘backward shifting’ of social contributions paid by the firms on to the net wage of the workers. This point has received little attention so far in the policy debate as well.

The intuition behind this argument is that the peculiar institutional profile of BSFs may favour the internalization of the social benefits by the unions. If this actually occurs, it can be expected that the costs of the benefits will be shared between the employers and the workers. As noted by Stiglitz (1999), a clear link between contributions and benefits “reduces any adverse incentive effects arising from a failure to see the link”. Morel and Palme (2012) point out that contributions-based schemes administered by bipartite governing bodies independently of the government budget cause a greater willingness to contribute since “contributors feel they have a stake in the system and that the money they pay in will come back to them in the form of a deferred wage and an earned social right”. Similarly, Ebbinghaus (2010a) notes that when social partners assume a leading role in occupational social security schemes, they are able to internalize them into wage bargaining. In accordance with this view, we argue that a tax-benefit policy managed by the social partners through BSFs and strictly tied to collective wage negotiations strengthens the link between contributions and benefits.

One of the main criticisms made of the welfare state points at the distortionary effects of labour taxation on employment. However, the following analysis suggests that BSFs may represent an institutional device able to implement a tax-benefit policy less detrimental to employment than other government policies. This result appears to be particularly important for the Continental European economies because the burden of welfare state financing is usually blamed for higher structural unemployment in countries characterized by an intermediate sectoral level of collective bargaining. According to the results in the economic literature, only perfectly competitive labour markets or, conversely, corporatist economies are able to favour the internalization of benefits, while we argue that also institutions like BSFs make the internalization effect possible.

Furthermore, from this line of reasoning ensues a strict relationship between the financing of the benefits provided by these institutions and their bipartite governance, since the sharing of the costs of the social contributions to BSFs, which are formally charged to the employers, implies, or at least gives an economic rationale for, the fact that also the decision-making power is shared.

The rest of the paper is organized as follows. The next section introduces the notion of benefits internalization and its role by considering the results in the economic literature on the issue of the incidence of a tax on labour. The third section provides a tentative measure of the extent of occupational welfare in Europe. Moreover, a few basic facts concerning the institutional pattern associated with occupational welfare are derived from the analysis of data on voluntary social contributions. The fourth section provides a stylized depiction of the BSFs on the basis of direct observation of some exemplary cases. Two models of BSFs with substantially different implications for the labour market are distinguished. In order better to clarify the main arguments of the paper, the fifth section sets out a simple economic model showing how a higher degree of internalization of the benefits may alter the outcomes of collective wage bargaining by favouring a sharing of the cost of social contributions and a lower impact on employment. The last section summarizes and point out
possible critical drawbacks in terms of increased segmentation in a social policy system relying on an increasing role of BSFs and shifting towards an occupational welfare approach.

2. The internalization of welfare benefits in the economic literature

Economic analysis has extensively dealt with the issue of the incidence of labour taxes. These may shift to net wages or, conversely, raise labour costs, depending on the institutional settings being considered. The internalization of social benefits is a key factor favouring the shift of the tax burden on to workers through a wage reduction. Then in this section we consider the received literature with the specific purpose of gaining insights into the economic explanations of benefits internalization, the intent being to gain better understanding also of the effects of the tax-benefit policy delivered by BSFs.

Social policies with a redistributive purpose tend to impose a cost on the labour market in terms of lower employment. Broadly speaking, the financing of benefits through a tax to be paid by the workers or the employers raises the labour cost and, as a consequence, exerts a harmful effect on employment. However, under specific circumstances, it is the net wage that absorbs, partly or in full, the tax burden. In this case, as a result, the negative impact on employment will be less severe. A key factor determining whether the tax raises the labour cost or hits the net wage is the degree of internalization of the benefits by the workers. In fact, a tax generates a positive externality whose value corresponds to the portion of the benefits financed through the tax and targeted on groups of recipients that do not coincide with the group of taxpayers. In this case the taxpayers tend to resist the tax burden, while, on the contrary, when the benefits are internalized, they will be more prone to bear their cost.

The role of the link between labour taxation and social benefits has long been recognized by economic theory (Musgrave 1959). According to Stiglitz (1999), the major impact of social security financed through payroll taxes depends on the difference between the expected present discounted value of contributions and benefits. As noted above, according to the existing literature internalization may be favoured in the opposing cases of a competitive labour market and of a corporatist economy with nationwide collective bargaining. In a perfectly competitive labour market a tax formally charged to the employer causes a downward shift of the labour demand curve. The final effect on the wage and the employment depends on the demand and supply elasticities. As known, the tax gives rise to an increase in the labour cost and, at the same time, to a decrease in the wage and employment as long as the elasticities have their standard values. By contrast, in the extreme case of a rigid labour supply the net wage falls enough to absorb the burden of the tax in full.

However, this is only a partial analysis, which applies when the workers do not receive or do not appreciate the benefits financed through the tax. In particular, this is the expected outcome in the case of a purely redistributive labour income tax. In a more general analysis where the benefits increase the workers’ utility, a downward shift of the labour supply curve will also occur as the benefits are taken by the workers to be a component of the remuneration package. Furthermore, if the workers value the benefits as much as the value of the tax (‘full valuation’), its cost fully shifts into the net wage (Gruber and Kruger 1990, Gruber 1997). Summers (1989) considers the different efficiency and distributional implications of mandated benefits compared to social benefits provided by the government and financed through taxes on labour income or social security contributions. In particular, he argues, the deadweight loss is lower with mandated benefits because these should cause a larger downward shift of the labour supply curve.

However, these conclusions are meaningless for economies where the wage structure is far from being driven by mere market forces but is a matter for collective negotiations (Lockwood and Manning 1993, van der Ploeg 2006). In this case, if we consider experiences of the collective provision of
welfare benefits in Europe, it is quite clear that they usually imply a trade-off with wage growth, and induce greater cost-awareness on the part of the social partners (Boeri et al. 2001).

It is noteworthy that a reduction of the wage claimed by the union can arise even in the case of a purely redistributive tax. As Goerke (1996) demonstrates, this follows from the fact that a higher payroll tax amplifies the employment cost of a given wage increase. Then the union is willing to trade a lower wage for more employment. This is a mere wage moderation caused by higher taxation, which is independent from the inclusion of the benefits in the workers’ utility function and it is separate from the benefits internalization effect.

A broader analysis is developed by Alesina and Perotti (1997). They assume an open economy composed of different sectors with differentiated outputs and monopolistic competition. In this set-up, an increase in a tax to be paid by the workers gives rise to an increase in the wage, because the union tries to shift the burden of it on to the firm. However, each wage increase determines a higher output price in the sector and, as a consequence, an increase in the general price index. The final outcome is an employment decrease because the higher price index lowers the real income and competitiveness in the international markets. Faced with this result, the union is forced to moderate its wage claims. What is more relevant to our purposes here is that the degree of bargaining centralization may have substantial implications for the final outcome. The ability of the union to raise the wage after a tax increase is lowest with highly decentralized bargaining, while it increases with the degree of centralization. Yet this relationship is reversed when the nationwide centralized wage bargaining is considered, like that characterizing the corporatist economies. Indeed, in this case the union internalizes the government budget and recognizes that a tax increase will turn into higher social expenditure to the advantage of its members. As a result, no wage increase will follow a rise in the tax rate. Hence the relationship between the degree of centralization and the unit labour cost is hump shaped. The internalization effect deriving from the corporatist institutional set-up is demonstrated also by Summers et al. (1993) in an analysis of labour taxation in Scandinavian countries. Their model shows that when wage bargaining is highly centralized, the ‘encompassing’ union is willing to accommodate a tax increase without reacting by claiming higher wages precisely because it internalizes the welfare policies delivered by the government. Then competitiveness and employment do not suffer major adverse effects.

According to Mares (2004) the union is willing to offer wage restraint in return for social benefits provided that it is able to internalize them. However, the degree of internalization decreases with the level of decentralization of wage bargaining, because a highly decentralized system implies a large number of unions. Thus, this model, too, predicts that in economies where wage negotiations take place at a more centralized level, wage claims by the union are lower and employment higher. At the same time, the internalization decreases with the share of inactive population and non-union members receiving social benefits.

Ooghe et al. (2003) consider a sectoral model with both a mandatory and a voluntary payroll tax earmarked for the financing of social benefits. They consider the degree of ‘reciprocity’ of taxes, which is higher where social policies are mostly insurance-based, as in the Bismarckian model. Their findings show that higher taxation tends to be harmful for employment while, conversely, greater ‘reciprocity’ favours a wage reduction and a higher employment level.

To sum up, according to the contributions reviewed the distortional effects of labour taxation are lowest in a perfectly competitive labour market or, conversely, when the wage bargaining takes place at a highly centralized level. The findings are less convergent for the intermediate cases of countries where bargaining on wages occurs at the sectoral level. Nevertheless, the results of Alesina and Perotti (1997), in line with the suggestions of Calmfors and Driffil (1988), predict that in those countries the trade-off between labour taxation and employment tends to be stricter. A the same time,
it is noteworthy that the economic analysis points out that the internalization of benefits plays a
substantial role in determining the effect of labour taxation on the labour market; and, in turn, the
degree of internalization is fundamentally shaped by the industrial relations institutions. As
recognized by Stiglitz (1999), the design of a tax-benefit policy may amplify or dampen its effects on
the labour supply.

As for the empirical evidence, the issue of the incidence of labour taxes remains somewhat
controversial. Daveri and Tabellini (2000) find that, due to ‘wage resistance’, taxes add to the labour
cost causing a long-lasting effect of taxes on unemployment, especially in Continental European
countries. Their result confirm that the effect of labour taxation are more harmful in the case of an
intermediate level of wage bargaining. Conversely, Arpaia and Carone (2004) find that a limited
impact of the tax wedge on labour costs can only be detected in the short term in European countries,
while in the long run it tends to disappear. A similar result has been obtained on US data by Gruber
and Krueger (1990). Moreover, when the effects of a rise in health insurance premiums due to the
increased cost of medical malpractice are estimated, both lower wages and lower employment are
found (Baicker and Chandra 2006). This result is hardly surprising, as it can be argued that if higher
contributions are motivated merely by higher levels of medical malpractice, workers do not perceive
any real amelioration of their welfare. On the other hand, the hypothesis that, in line with the well-
known argument of Calmfors and Driffil (1988), in systems with intermediate bargaining taxation
should have an impact on the labour cost greater than in systems with a more decentralised level of
wage setting, is not supported by the results obtained by Arpaia and Carone (2004). On the basis of a
dataset distinguishing between compulsory and voluntary social contributions in a number of
European countries, Ooghe et al. (2003) conclude that both kinds of contributions are largely shifted
to wages, and rather interestingly, that the shift is greater for voluntary than for compulsory
contributions.

Finally, the findings of a meta-regression carried out by Melguizo and González-Páramo (2012)
show that over the long term, employees bear two-thirds of the tax burden in both Continental
European and Anglo-Saxon economies, and nearly 90% in Nordic ones, although the shift is limited to
less than 50% in the short term. Their results also suggest a difference between the Bismarckian and
Beveridgean systems. In the former, where the link between social contributions and benefits is
clearer, the measure of the shifting to the wage tends to be larger, although the difference is not
statistically significant, than in the latter, characterized by a more marked redistributive purpose.

3. An outline of the extent and the institutional setting of occupational welfare in Europe

Before moving to more detailed analysis of BSFs and their role, we attempt to measure the extent of
occupational welfare among the European countries. To date, neither national nor international
quantitative measures of the diffusion of BSFs and their weight in terms of affiliated employers and
workforce or the financial resources collected and spent are available. Given the lack of specific
information, indirect estimates may be derived from more general data concerning occupational
welfare (Adema et al. 2011). This may help us to sketch out the institutional setting where the
occupational welfare and the BSFs are more likely to develop.

Occupational welfare is a grey area among public social policies, policies delivered on the
initiative of companies, industrial relations, and the labour market. In broad terms it corresponds to
the bulk of benefits that employers provide to their workforce as a consequence of the employment
relationship (Ebbinghaus 2010b, Seeleib-Kaiser and Fleckenstein 2009). Thus, also the tax-benefit
policies managed by BSFs may be considered to pertain to occupational welfare.
To derive a tentative measure of the extent of the occupational welfare in Europe, we resort to two main statistical sources, the OECD Social Expenditure database (SOCX) and the Eurostat Labour Cost Survey. The former provides a relative measure of voluntary private social expenditure that can be taken as a rough approximation of occupational welfare (Adema and Einherand 1998, Pavolini et al. 2013). According to the OECD definition, social expenditure is taken as private when the benefits imply interpersonal redistribution but are not provided by government but by individuals, employers or non-profit organisations. Moreover, private social spending is considered voluntary if it is not stipulated by legislation and not undertaken by the government.

The weight of private voluntary social spending as a percentage of GDP in the period between 2002 and 2009 varies greatly among European countries. It was highest, above 6% and 5% on average respectively, in the UK and the Netherlands, where public pensions are limited to a flat-rate minimum while employer-provided pensions, which are related to collective agreements and are included in these figures, are particularly important. In a number of other countries, mostly Continental and Nordic ones, it was still substantial, ranging from 2.60% and 1%, while in Norway, Italy and Spain it was below 1% (Table 1).

In most countries, apart from few notable exceptions, there was a slight increase in the relative weight of voluntary private expenditure over the same period.

Table 1

Further information can be derived from the survey on the labour cost structure. With these data we can gain insights into the relative extent of statutory and voluntary social contributions paid by the employers, where the latter comprise contributions established through collective agreements or by contract and earmarked for supplementary welfare schemes. These roughly correspond to the extent of the area of welfare benefits whose financing does not rely on contributions established by the government. In this case too some caution is necessary when interpreting the data because the distinction between statutory and voluntary contributions may be ambiguous. This is what might result when the contributions established by collective agreements are made compulsory by law or when they are collected through public social security funds.

Figure 1

The relative incidence of voluntary contributions measured as a percentage of the total labour cost in the manufacturing sector is over 7% in the UK, Netherlands, Sweden and Denmark. It is somewhat lower in Germany, France and a few other countries, while it is much lower in the remaining ones (Figure 1). The change that occurred between 2000 and 2008 does not reveal any common trend because the weight of voluntary contributions rose sharply in the Netherlands and with less intensity in a number of other countries, while it fell in France and declined marginally in Germany and other countries.

Better appreciation of the institutional context of the occupational welfare can be obtained by considering simple correlations between the incidence of voluntary social contributions and other variables, mostly derived from the ICTWSS database (Visser 2013, Ebbinghaus 2010b), which capture some basic features of national industrial relation systems.

To begin with, Figure 2 shows that, quite unsurprisingly, the incidence of voluntary and statutory contributions on total labour cost in 2004 for the overall economy tends to be inversely related. Indeed, in countries where the relative weight of voluntary contributions is above the average,
statutory contributions are below the average, except for Sweden and Belgium which show a greater weight of both kinds of social contributions.

Figure 2

In most of the countries with a high incidence of voluntary contributions, wage bargaining takes place at an intermediate level (Figure 3). The only exceptions are the UK, where bargaining is highly decentralized to company level, and Ireland, where bargaining is centralized.

Figure 3

Moreover, the data show that a large union density does not seem to be a necessary requirement for a large share of voluntary contributions. Figure 4 shows that not only Denmark and Sweden, with union memberships over 70%, but also the UK, the Netherlands and Germany, with much lower memberships comprised between 20% and 30%, exhibit a high incidence of voluntary contributions.

Figure 4

On the other hand, Figure 5 shows that voluntary contributions weigh more where employers’ density, measured as the proportion of employment in firms affiliated to employers’ organisations on total employment, is larger. This suggests that the employers’ organisations play a role in favouring voluntary arrangements for the financing of supplementary social benefits. Such role is rather underrated in current analyses (Seeleib-Kaiser and Fleckenstein 2009).

Figure 5

Finally, the close connection between occupational welfare and the structure of industrial relations is confirmed by the fact that the incidence of voluntary contributions is high in countries where the sectoral organisations of the social partners are strong, and where also some joint institutions exist (Figure 6). In this case, too, the UK and Ireland are the only exceptions.

Figure 6

To summarize, the data show that in a group of Scandinavian and Continental European countries, which includes Denmark, Sweden, Netherlands, Germany, Belgium and France, plus the UK and Ireland, the financing of social policies relies intensively on voluntary contributions and, at the same time, the share of private voluntary social expenditure, corresponding to the amount of social benefits that are not controlled directly by the government, reaches its maximum or tends to be high. All these countries, with the notable exceptions of the UK and Ireland, show some similarities as regards the dominance of sectoral level of bargaining, the existence of strong sectoral organisations of the social partners, and a relatively large affiliation of employers to their associations. Even though a more in-depth analysis is required, this suggests that also BSFs may find a more favorable environment in countries sharing these same features. In broader terms, it is confirmed that the way in which social benefits are financed is closely connected to structural features of the industrial relations system of each country. This evidence is also consistent with the hypothesis that BSFs may represent the institutional device which enables the internalization of benefits in economies where
wages are negotiated at an industry sectoral level. This is an interesting insight which adds to the existing literature and helps place occupational welfare, and in particular the welfare provided collectively, in their institutional context.

4. A stylized depiction of the BSFs

4.1. ‘Pure’ and ‘mixed’ models

It may be helpful now to consider the main elements of BSFs in real life to infer from observation a stylized depiction and a simple dichotomous typology of them. BSFs are mostly established through collective agreements between the social partners at a sectoral level. In some cases, they are limited to a regional context, whereas in others they may be nationwide, and may sometimes extend across an intersectoral field. The overall picture that can be inferred from the fragmentary information collected through case studies and direct contacts show that they operate in a variety of industries in a large number of European countries, and in some cases are gaining ground. In particular sectors, such as construction, they have been present for a long time, while in others they represent a fairly recent development.

Not surprisingly, the characteristics of these institutions vary greatly from case to case, according to the industry and national idiosyncrasies. In particular, country-specific factors shaped by the overall labour market regulatory framework, long-established patterns of the industrial relations environment, and the broad welfare system, affect both the relevance and the distinguishing features of BSFs. In the absence of comprehensive and detailed statistical data, our ambition here is restricted to offering a first outline of the main features and variety of BSFs.

In order to consider the heterogeneous nature of current experiences, we need to take account of the main observable differences among them. To this end, we distinguish between a ‘pure’ and a ‘mixed’ model. In the latter case these institutions tend to become ‘tripartite’ rather than ‘bipartite’ organizations, as public authorities besides the social partners exert a direct substantial influence over their policy. This distinction allow us to better understand how BSFs may favour (or may not) the internalization benefits. Then the purpose of the stylized depiction proposed is not merely descriptive; it will serve to specify how the institutional profile of BSFs has substantial implications for the labour market.

To distinguish a ‘pure’ from a ‘mixed’ BSF, three main dimensions must be considered: the degree of autonomy of the fund from the government; the sources of financing; and the criteria for the selection of the recipients of benefits.

With regard to the first of these dimensions, what matters is the degree of autonomy of the social partners from government interference in the establishment and strategic direction of the organisation (Ebbinghaus 2010a). In the ‘pure’ model, with full autonomy, the union and employers’ representatives sitting on the Board of the institution can be regarded as the only decision-makers relative to management of the tax-benefit policy. In particular, they make choices on the collection and allocation of financial resources, the provision of benefits and services, and the selection of recipients following the guidelines laid down by social partners in collective agreements.

The second dimension concerns the sources of financing. A distinction must be drawn here between cases when financing accrues only from the fees and contributions paid by affiliated employers and/or workers, and cases where the government also pays in funds from the public budget.

Finally, the third dimension has to do with the selection of recipients of the benefits. In some cases the potential recipients are narrowly restricted to workers and employers who contribute to the
fund, or have contributed to it in the recent past, while in other cases, other categories from outside this group also figure among the beneficiaries. It is worth noting that this distinction tends to reflect the divide between insiders and outsiders as usually defined in the labour market literature. Indeed, those affiliated to or covered by BSFs are more likely to be insiders, namely employees with a permanent contract and a minimum amount of seniority in the formal sector and falling within industries and categories covered by powerful unions. Conversely, short-term employees, those employed in the smallest businesses, the unemployed, and other workers with a weak attachment to the labour market and interrupted work histories are much less likely to receive benefits from a ‘pure’ BSF, because they make too little or no contribution to them.

The proposed distinction between ‘pure’ and ‘mixed’ sectoral funds recalls that between self-administration and self-regulation principles of involvement of social partners in the governance of welfare policies in Continental European economies (Ebbinghaus 2010a,b). To sum up, a BSF is close to the ‘pure’ model when it enjoys complete autonomy from government interference, does not receive resources from the public budget, and devotes the expenditure to its contributing members. Conversely, a BSF becomes a ‘mixed’ - more ‘tripartite’ - one when it deviates from these features. Then, the government may interfere in the management of these institutions by limiting the decision-making power of the social partners, or by appointing its own representatives to the Board. This is more likely to occur when the social partners are weak in the industry, or the BSF is unable to collect sufficient financial resources, and the government supports it from public sources. Indeed, financial contributions by the government tend to go hand-in-hand with its involvement in the administration of funds. This means that the extension of the autonomy of the social partners is not independent from their actual ability to finance the funds (Manow 2010).

Moreover, if the public budget contributes to funding the social expenditure of a bipartite institution, one can expect the number of potential recipients to be larger than the set of affiliated workers and employers. In this case, a bolder redistributive purpose in favour of external categories may force a BSF to devote a part of the benefits it delivers to other, more external groups of recipients beyond the insiders. Thus, there may arise a ‘mixed’ fund characterized by a reduced level of independence from government interference, a substantial inflow of financial resources from the public budget, and a larger audience of recipients.

Of course, in practice it is not as simple as this to assess whether a BSF should be considered a ‘pure’ or ‘mixed’ institution in each specific case; nevertheless, the distinction we have offered is of use in appreciating the most significant differences among existing BSFs, and in gauging the implications of the theoretical analysis.

4.2 A few exemplary cases

The sector in which BSFs first developed was the construction industry. This was due to the considerable - and highly sector-specific - risks inherent in activities in that sector. Faced with these risks, the workforce and employers decided that it would be appropriate to create common solutions. Most BSFs in the construction industry may be considered to be representative of the ‘pure’ model. Apart from the construction sector, in more recent years BSFs have also gained ground in other industries, both in the manufacturing and tertiary sectors, for the purpose of implementing activities in major social policy fields.

One of the largest organizations in the construction sector is Soka-Bau (Sozialkassen der Bauwirtschaft), which was established in Germany in the aftermath of the Second World War. Today, it unites two different funds, one for holidays and compensatory remuneration and the other for supplementary benefits. According to the criteria established above, Soka-Bau should be considered a
'pure' institution, because no government representatives sit on its governance bodies, and it does not suffer from specific government interference. Moreover, it is fully funded through employer contributions and only insiders are eligible to be recipients (Trampusch et al. 2010).

However, Soka-Bau is supported by the Ministry of Employment, which makes these agreements binding on all companies operating in the sector, included foreign firms running a part of their business in the country. The payment of contributions to Soka-Bau is therefore also mandatory for companies not affiliated with any employers’ organisation. In this way, the key issues of free-riding and race-to-the-bottom may be tackled (Bosch et al. 2011). Apart from this basic intervention, the public authorities limit their role to checking on transparency.

The total amount of contributions flowing to Soka-Bau in 2012 ranged from about 17% of gross labour income in Eastern Germany to about 20% in Western Germany. The benefits provided include holiday pay, supplementary pensions, training, checks on compliance with minimum wage regulations, the management of flexible hours arrangements, and others.

Pension schemes aside, Soka-Bau is not bound to strict proportionality between contributions paid in and benefits paid out when it allocates resources among recipients: indeed, it follows a mutualistic principle aimed at creating a 'solidarity' internal to the workforce in the sector.

Another exemplary case in the construction industry is that of the *Fondaciòn Laboral del Principado de Asturias* (FLC), which was set up in the Principality of Asturias, Spain, in 1988. As in the previous case, the main public support is through the law which establishes the *erga omnes* rule, according to which collective agreements are binding on the entire sector (Gomez-Abelleira 2009). Apart from this, the government exerts only formal control, and its funding contributions are limited to the training activities provided by the *Fondaciòn*.

The contributions paid by employers take the form of a per worker lump-sum amount, the value of which is established by regional collective agreements. Benefits are allocated according to the mutualistic principle, and may also be extended to jobless employees with a prior employment history of a certain duration in the sector.

A noteworthy example of a 'pure' bipartite fund outside the construction industry is *Trygghetsrådet* (TRR), one of the most important Swedish Job Security Councils (Diedrich and Bergström 2006). This organization has an intersectoral scope, as it covers all white-collar workers in the private sector. Unlike the previous cases, the significant levels of membership in social partners’ organizations ensure a high level of voluntary contributions even without the support of legislation.

The specific mission of the TRR is to provide replacement services such as personalized coaching and unemployment benefits to displaced workers in the event of collective redundancies due to corporate restructuring or macroeconomic slumps. All benefits are financed from employers’ contributions, which are proportional to wages. As in the previous cases, a mutualistic principle applies to the allocation of resources among recipients and only insiders are entitled to benefit from the services and subsidies (Bergström 2009).

The social partners managing the TRR also determine its fees. In this regard, to be noted is that both wages and contributions to the TRR are negotiated as elements of the same bargaining process (Sebardt 2005).

Far from the ‘pure’ model, an exemplary case of the ‘mixed’ type is provided by the *Fonds paritaire de sécurisation des parcours professionnels* (FPSPP), an organisation that plays a key role in the French continuous training system, in compliance with the 2009 reforms (see also Mosley et al. 1998 on previous similar experiences in France). Its funding does not come directly from employers, but from the sectoral paritarian organisations (OPCAs) charged with collecting the legally-established mandatory contributions from employers (CNFPTLV 2012). It also receives some additional funds from the European Social Fund.
This institution was first introduced by a national collective agreement, and was then included in the law reforming the training system. It was created to tackle serious imbalances in the allocation of training between better-qualified and more disadvantaged groups of workers. It may be said that the FPSPP was set up with the pre-eminent purpose of redistribution of training opportunities from insiders to outsiders (Méhaut 2005, CESE 2011). As a consequence, the largest portion of the resources accruing to the FPSPP is devoted to job-seekers and other vulnerable groups. This redistribution may also imply the reallocation of resources among diverse industries and regions. In addition, during the recent economic crisis, the government transferred large amounts of resources from the FPSPP to *Pole emploi*, the French public employment service. A permanent struggle is under way between social partners and the government regarding the allocation of the resources at the disposal of the Fund, with the former aiming to benefit insiders, and the government being more interested in helping outsiders.

Two representatives of the government sit on the Board of the FPSPP. One is appointed to exert financial control, while the second represents the Ministry of Labour, and may veto any proposal discussed by the Board. This veto has actually been exercised, so that one may conclude that the government can interfere heavily in the decision-making process, thereby limiting the autonomy of the social partners.

Recently in Italy, the social partners have concluded a large number of sectoral agreements aimed at establishing BSFs in almost every sector and covering a wide range of fields and policies, from benefits for employees who have lost their jobs to healthcare, from parental leave to consumption credit, from school grants to training and supplementary pensions (Faioli 2010, Bellardi and De Santis 2011, Gualmini and Rizza 2013). It is worth noting that, according to Ascoli et al. (2012), the main reason for the schemes concerning the collective provision of welfare benefits recently introduced in Italy is the search for a more favourable trade-off between benefits and wage increases.

Besides the long-standing experiences in construction, one of the most notable developments has been in the artisan sector, where the first regional bipartite funds were created in the 1980s. Their establishment depends on collective agreements, and they are jointly managed by the social partners in accordance with the paritarian principle (Cimaglia and Aurilio 2011). They now constitute a fairly well-structured network of institutions providing a large variety of services and benefits to employees. Their funding relies on contributions from businesses, and to a lesser extent from workers. The national-level institution, which is known as the EBNA (*Ente bilaterale nazionale artigianato*), is surrounded by a number of even more powerful regional institutions.

In some northern and central regions, affiliation rates are not far from one hundred per cent of businesses and employees in the artisan sector (Leonardi and Arlotti 2012). Despite a tendency to promote the role of bipartite funds through legislation and a certain amount of support offered by the public administration (such as assistance from the National Social Security Institute in the collection of contributions), they are close to the ‘pure’ model.

With regards to our analysis, only ‘pure’ BSFs allow the internalization of the benefits by the workers since all their main features contribute to strengthen the link between contributions and benefits. Conversely, this effect is prevented in the case of ‘mixed’ funds as government interference, dependence on public budget and targeting at outsiders make less certain this link.

### 5. Internalization and cost-sharing in a model of collective bargaining

To clarify the main arguments of the paper better, a simple economic model is provided showing how the outcomes of collective wage bargaining vary with the degree of internalization of the benefits. In this model the degree of internalization depends on the link between social contributions paid by the
employers and the benefits accruing to their employees. As we argued above, our intuition is that the distinctive tax-benefit policy implemented by the BSFs, especially those belonging to the ‘pure’ model, establishes a close relationship between contributions and benefits. Moreover the institutional architecture of the BSFs, makes clear this link to the unions and favours the shift of the tax burden on to the wage. As said above, Morel and Palme (2012), Ebbinghaus (2010a) and Sebardt (2005) put forward a similar view, confirming that the social schemes managed through bipartite agreements strengthen the link between the costs and the benefits.

In our view, internalization matters because it favours the sharing of the cost of the social contribution between the employers and the workers. As a consequence, to the extent that this shift lessens the labour cost increase, the impact of the social contribution on employment is lower than in the case of a government tax. Furthermore, this sharing provides an economic rationale for the bipartite governance of the BSFs.

The model builds on previous models developed by Summers et al. (1993), Goerke (1996) and Ooghe et al. (2003), and its set-up captures some of the main features of the European context, where wages are bargained through collective negotiations: a fact which is neglected in that part of the literature on the effects of payroll tax which refers to competitive contexts (Gruber 1997, Gruber and Kruger 1990). Moreover, as it is assumed in the model, the scope of negotiations between social partners in the industrial relations systems of most European countries extends beyond pay, and into labour and social policies (Ebbinghaus 2010b).

The contribution is assumed to be calculated as a proportion of the wage, to be paid by the employer, just as we have shown in our stylized description of the BSFs. One prominent feature is that this tax does not flow into the public budget, but is earmarked for the benefits of the employees. The budget of the social policy scheme is assumed to be separate from the government budget.

To be noted is that in the following model we do not consider the potential direct or indirect effects of the benefits on productivity because we are interested here only in their effects on workers’ welfare. Indeed, depending on the specific benefit or service, it should be borne in mind that substantial productivity gains may be generated by services such as training schemes (OECD 2007). Accordingly, most of the arguments shown here should be even more persuasive if the same benefit can have a positive impact on labour productivity and firm profits, in addition to utility.

5.1. Firm’s profits and union’s utility

Let us consider the firms operating in a given sector of the economy where unions and employers have agreed on the establishment of a bipartite sectoral fund. As the tax has to be formally paid by the employer, it enters the profit function \( \Pi \), adding to the labour cost as expressed by the following equation

\[
\Pi = py(n) - w(1 + t)n
\]  \hfill (1)

where \( y(n) \) represents the production function and \( n \) measures employment. The tax is proportional to the wage according to the tax rate \( t \). Thus the total tax revenue amounts to \( wtn \). We assume that each firm in the sector produces the same identical good, the price of which \( p \) is exogenously fixed in the international market. This assumption helps us to focus on a situation where the weight of the tax must be shifted to the employers’ profits through a rise in the labour cost or to the workers through a net wage contraction, because it rules out a forward shift to the consumers via a price increase.

Each employed worker is assumed to be a union member and to earn a wage \( w \). The labour force amounts to a given exogenous quantity \( l \). If the worker does not find a job in the sector, he/she may obtain an alternative income \( b \). This income may be seen as the unemployment subsidy provided by
the government or as the wage that the worker may be offered from prospective employers in other sectors in the economy. In both cases $b$ is assumed to be independent from the tax and the benefit managed by the bipartite sectoral fund.

The union is assumed to be risk-neutral. Its utility $U$ is given by $n$ times the employed worker’s utility plus $l - n$ times the value of the alternative income. When employed, the worker receives the net wage $w$ plus a social benefit whose value equals the average per-capita tax revenue $wt$ multiplied by a factor $\delta$. Thus the worker’s total compensation amounts to $w(1 + \delta t)$. We can therefore write the union’s utility function $U$ as

$$U = n[w(1 + \delta t)] + (l - n)b. \quad (2)$$

As results from (1) and (2), the tax-benefit policy is in balance because the amount of resources spent to provide the benefits is equal to the tax revenue.

The coefficient $\delta$ (with $0 \leq \delta \leq 1$) is a key factor in the model, and warrants some comment. The term $\delta$ is similar to the degree of ‘encompassment’ considered by Summers et al. (1993) and to the degree of ‘reciprocity’ of Ooghe et al. (2003). We will refer to it as the degree of internalization, as it measures whether and to what extent the benefits are internalized by the workers. If they value the services and subsidies received and financed by the tax revenue, the coefficient is high and near to 1, meaning that they internalize the beneficial output arising from the tax. Otherwise, if a part of the benefits financed through the tax revenue does not accrue to them, the coefficient is lower. In a broad sense, it captures all factors influencing the valuation of the benefits by the workers. Thus, our $\delta$ is similar to the ‘encompassment’ coefficient considered by Summers et al. (1993) and to the ‘reciprocity’ term of Ooghe et al. (2003). More precisely, the amount of resources actually devoted to the financing of the benefits to the workers may be less than the tax revenue depending on the share of resources devoted to the financing of services to the employers, or absorbed by the costs of administration of the tax-benefit policy. If the fund has a low degree of autonomy from the government, a part of the benefits may be diverted for the advantage of ‘external’ categories (outsiders). Otherwise the government could drain money from the bipartite fund (Manow 2010). Finally the degree of internalization increases with the quality of the benefits provided by the fund as perceived by the workers.

### 5.2. Bargaining

Firms and unions are assumed to bargain over both wage and employment as in the efficient contracts model. If the parties fail to reach an agreement, the firm makes zero profits while each workforce member may enjoy the alternative income $b$. Thus $\bar{\Pi} = 0$ and $\bar{U} = lb$ are respectively the disagreement outcomes for the firm and for the union.

In the efficient bargaining framework, the parties have to maximise the Nash product $P$, according to their respective bargaining power. Hence they face the following Nash bargaining problem

$$\max_{w,n} P = (U - \bar{U})^\beta (\Pi - \bar{\Pi})^{1-\beta} \quad (3)$$

where $\beta$ denotes the union’s relative strength. From the first order conditions for this problem we get

$$\beta[py - w(1 + t)n](1 + \delta t) - (1 - \beta)(1 + t)n[w(1 + \delta t) - b] = 0 \quad (4)$$

and

$$\beta[py - w(1 + t)n] - (1 - \beta)n[py' - w(1 + t)] = 0. \quad (5)$$
Simple manipulations of equations (4) and (5) yield the equation of the contract curve, which can be written as

\[ py' = \frac{(1+\delta)}{(1+\delta t)} b. \]  

(6)

This curve is the locus of pairs \((w,n)\) corresponding to all possible outcomes of the efficient bargaining. As known, under the assumption of the union’s risk-neutrality, the contract curve is vertical, meaning that the employment is independent from the wage level.

To be noted is that in the case of \(\delta=0\) employment reaches its lowest level, while with \(\delta=1\), corresponding to the case of full internalization, equation (6) reduces to \(py' = b\) and employment is at its maximum, the same as would arise without taxes. This suggests that, when the benefits are fully internalized, the distortions in the labour market are redressed and the employment level is not affected by the measure of the tax rate.

However, also the rent division curve must be considered in order to identify the exact equilibrium point along the contract curve resulting from bargaining. This latter curve can be derived from equation (4) and can be written as

\[ w = \beta \frac{1}{1+\delta} \frac{py}{n} + (1 - \beta) \frac{1}{1+\delta t} b. \]  

(7)

According to this equation the wage arising as a solution of the Nash bargain is equal to the weighted average of the average product of labour and leisure value (Booth 1995). The bargained wage, depending on the relative bargaining power of the parties, lies somewhere between \(\frac{1}{1+\delta} \frac{py}{n}\), which corresponds the maximum wage that the firm may pay without incurring negative profits, and \(\frac{1}{1+\delta t} b\), the minimum wage that the firm has to pay in order to retain the worker.

It is easy to show that this curve is negatively sloped in the space \((w,n)\). Indeed its slope is

\[ \frac{dw}{dn} = \beta \frac{p y' - y}{1+\delta} \frac{1}{n} < 0 \]  

(8)

where the negative sign follows from the fact that \(y' < y/n\) under the assumption \(y''<0\) (Chiang 1984).

From (6) and (7) the equilibrium wage is defined by

\[ w^* = \frac{1}{1+\delta} \left[ \beta \frac{py}{n} + (1 - \beta)py' \right]. \]  

(9)

5.3. The effects of a tax increase

We may now predict how the equilibrium levels of employment and wage are affected by changes in the exogenous factors, firstly the tax rate. Following the procedure applied by Goerke (1996), we single out the shifts of the contract and the rent division curves. This enables us to detect the effects behind net changes in the outcome variables. To this end, we derive the effect on employment by taking the derivative \(dn/dt\) of the contract curve, and the effect on the bargained wage through the derivative \(dw/dt\) of the rent division curve holding the employment level fixed. By applying the implicit function theorem, the derivative of the contract curve equation is

\[ \frac{dn}{dt} = \frac{(1-\delta)b}{py'r(1+\delta t)^2} < 0 \]  

(10)
meaning that a rise in the tax rate causes the employment level to shrink, pushing the contract curve leftwards.

For better understanding of this result, it may be useful to recall that, as shown in Annex 1, the contract curve can also be derived from the tangency condition between the union’s indifference curve and the firm’s isoprofit. As shown by equation (A.1) in Annex 1, a rise in \( t \) makes the indifference curve steeper (with \( \delta > 0 \)) because, from the worker’s point of view, a higher \( t \) means a higher benefit. Provided that the value of the alternative income \( b \) is independent from the tax rate, when the value of the benefit rises, the marginal utility of employment increases relative to the utility associated with unemployment for each given value of \( w \). Then the union is willing to pay for employment by claiming a lower net wage. However, also the isoprofit curve steepens after a tax increase because this raises the labour cost. Along the descending part of the curve each additional employment unit now requires a large wage cut in order for the profit level to remain constant. In the end, the new contract curve resulting from the tangency condition implies a lower employment level. Despite the union’s willingness to reduce its wage claims, the bargaining brings about a reduction of employment.

To analyse the effects on the bargained wage we must now turn to the rent division curve. By taking its derivative with respect to \( t \), holding the employment level fixed, the effect of an increase in the tax rate is found to be equal to

\[
\frac{dw}{dt} = -\beta \frac{Pw}{n} \left( 1 - \beta \right) \frac{\delta b}{(1+\delta t)^2} < 0. \tag{11}
\]

The two terms in (11) are negative because a higher \( t \), holding \( n \) constant, lowers both terms in equation (7) of the bargained wage. As a consequence, the wage along the rent division curve is lower for each given employment quantity. Then, on combining the shifts of the two curves, it must be concluded that the new intersection of the contract curve with the rent division curve is at lower employment while, unfortunately, the sign of the change in the equilibrium wage remains uncertain. This is confirmed by the derivative of the equilibrium wage equation (9) with respect to \( t \)

\[
\frac{dw}{dt} = -\frac{1}{(1+t)^2} \left[ \beta \frac{Py}{n} + (1 - \beta)Py' \right] + \frac{1}{1+t} \left[ \beta p - \frac{y'-y/n}{n} + (1 - \beta)py'' \right] \frac{dn}{dt} \tag{12}
\]

because the first term on the RHS of equation (12) is negative while the second one is positive (recall that \( y' - y/n < 0, y'' < 0 \) as well as \( dn/dt < 0 \) from (10)). Indeed, a higher \( t \) tends to lower both terms on the RHS as it appears in the denominator; but at the same time it also reduces the employment and this, in turn, causes the wage to rise along the downward sloping rent division curve. In the end, the sign of the net effect of \( t \) on the equilibrium wage depends on the extent to which a tax rate rise affects employment. If the employment fall resulting from the tax rate increase is not too large, the wage diminishes. Ooghe et al. (2003) argue that the case of a negative effect of a change of \( t \) on \( w \) can be taken as more relevant as the required analytical condition for it is consistent with most used production functions. By some rearrangements of equation (12) it may be proved that \( dw/dt < 0 \) provided that the following condition holds true

\[
e_p^t < \frac{\beta y/n + (1-\beta)y'}{\beta y'/y/n + (1-\beta)y'yn} \frac{t}{1+t} < 0 \tag{13}
\]

where \( e_p^t \) denotes the elasticity of the labour demand to the tax rate. According to (13) a tax rate rise will cause a wage drop if the elasticity of employment to tax is sufficiently small in absolute value.

**Proposition 1:** an increase in the tax rate causes (i) the employment level to shrink as long as \( \delta < 1 \), and (ii) the wage to fall provided that the elasticity of employment to tax is not too large.
### 5.4. The effects of an increase in the internalization coefficient

A similar exercise can be performed to analyze the effects of an increase in the coefficient $\delta$. A higher valuation of the benefits by the workers affects the union’s marginal rate of substitution between wage and employment in a way similar to an increase in the tax rate, because the relative utility of employment increases and the indifference curve becomes steeper in the space $(w,n)$ (see Annex 1). The union is now willing to accept a lower net wage in order to gain more employment. By contrast, the isoprofit is not affected since the costs borne by the firm do not change. Then, the implicit function rule applied to the contract curve equation yields

\[
\frac{dn}{d\delta} = \frac{-\gamma (1+\delta) t b}{pyy(1+\delta)^2} > 0. \tag{14}
\]

According to (14) the contract curve shifts to the right, meaning that the quantity of employment arising from bargaining increases with $\delta$. The explanation for this finding is that larger benefit internalization prompts the union to substitute the wage with the higher benefit.

On the other hand, the wage decreases for each given employment level when the internalization coefficient increases, as revealed by the derivative of (7) with respect to $\delta$ holding $n$ fixed

\[
\frac{dw}{d\delta} = - (1 - \beta) \frac{b t}{(1+\delta)^2} < 0. \tag{15}
\]

Equation (15) shows that the rent division curve shifts downwards after an increase in $\delta$. The intuition in this case is that, as the value of the benefit received by the worker increases with $\delta$, the larger the coefficient $\delta$ the lower the minimum net wage necessary for the firm to retain the worker, given the value of the alternative income $b$. Higher employment and a lower wage result from the combination of the rightward move of the contract curve and the downward shift of the rent division curve.

**Proposition 2:** a higher degree of internalization causes (i) the employment level to rise and (ii) the wage to fall for each given tax rate.

To sum up the main results of the model, Propositions 1 and 2 state that an increase in the tax rate pushes the equilibrium further away from the case with no tax, negatively affecting employment and (likely) reducing the net wage but, on the other hand, a larger internalization of the benefits by the workers reduces the distortional effect of the tax on the employment level and prompts the union to share the costs of the benefits as the burden of the tax that the employer is formally charged with partially (or fully with $\delta=1$) shifts into the wage.

As a consequence, these results suggest that a tax-benefit policy managed by social partners through a BFS may be less harmful to employment than a tax on labour levied by the government and flowing into the public budget because it implies a larger degree of internalization. Moreover, the cost-sharing resulting from this shift may be seen as an economic rationale for the bipartite governance of the institutions managing the tax-and-benefit policy. From this perspective, the sharing of decision-making power between the social partners ensues from the sharing of the financial burden.

### 6. Conclusion. Strengths and weaknesses of the provision of welfare policies by the social partners
The analysis proposed represents a first attempt at sketch out an economic investigation of the BSFs that may stimulate and guide further research. It has shown that tax-benefit policies established by collective agreements and jointly managed by the social partners may have efficiency-enhancing implications in the labour market compared to a similar social policy enforced by the government. Focusing in particular on the financing of the benefits, the main argument put forward is that a tax-benefit policy managed through BSFs may favour a larger internalization of the benefits by the workers, making the union willing to share the cost of them by shifting a part of the tax burden on to the wage. Consequently, the adverse impact on labour cost and employment is lessened. At the same time, cost sharing provides an economic rationale for the sharing of decision-making power as established by bipartite governance.

Factual observation of exemplary cases of BSFs in various European countries shows that their features vary greatly. Then proposed has been a basic distinction between a ‘pure’ and a ‘mixed’, more tripartite, model. The degree of internalization crucially depends on the institutional profile of the funds because it is expected to be higher for the ‘pure’ model, i.e. when the fund is autonomous from government interference, does not receive resources from the public budget, and devotes the expenditure to its contributing members.

However, along with the advantages considered here, a careful balance of the strengths and weaknesses of the role of BSFs should also consider the negative side-effects that may result from the substantial involvement of social partners in the field of social policies reviving the occupational welfare system with its basic features and drawbacks.

In particular, this system tends to segment the labour market along occupational and sectoral lines and to hamper labour mobility. This occurs because the eligibility criteria and generosity of benefits vary greatly according to the arrangements concerning each workforce category. Moreover, the benefit entitlement is lost in the case of the worker’s separation from the employer as it is usually tied to the job. Also the divide between insiders, who are entitled to benefits, and outsiders, namely workers with weaker attachment to the labour market or with interrupted careers and other groups excluded from the benefits, is widened.

Overall, our results suggest that the social partners may play a substantial role in the reform of social policies. The welfare arrangements introduced through collective agreements may offer a remedy alternative to the mere cutting of social expenditure while lessening the major adverse impact of the welfare state. However, a move towards greater involvement of the social partners would also require a renewed role of government policies as necessary complements to occupational welfare. In particular, the government should maintain responsibility for sustaining labour mobility and providing social security to outsiders. Also the efficiency and transparency of the bipartite funds might require some regulation by the government. Moreover, a law extending mandatory affiliation and contribution may constitute vital support for the sustainability of the tax-benefit policies managed by social partners preventing free-riding in contexts where membership is low and the strength of collective agreements weak.

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Annex A

The slope of the indifference curve can be found by totally differentiating the utility function with respect to $w$ and $n$, keeping the utility level fixed, which yields

$$\left. \frac{dw}{dn} \right|_U = -\frac{w}{n} + \frac{b}{n(1+\delta)} < 0. \quad \text{(A.1)}$$

On the other hand, total differentiation of the profits function holding profits fixed yields the slope of the isoprofit, which is

$$\left. \frac{dw}{dn} \right|_\pi = -\frac{w}{n} + \frac{py'}{n(1+\tau)} < 0. \quad \text{(A.2)}$$

We take the negative value of the isoprofit slope as this is the relevant portion of it for efficient bargaining. Then, the contract curve can be derived, after some rearrangements, by imposing the tangency condition equating (A.1) and (A.2).
Table 1. Private voluntary social expenditure as a percentage of GDP

<table>
<thead>
<tr>
<th>Country</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>average</th>
<th>change 2002-09</th>
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<td>7,2</td>
<td>7,5</td>
<td>7,5</td>
<td>6,3</td>
<td>6,3</td>
<td>5,7</td>
<td>6,0</td>
<td>6,7</td>
<td>-1,1</td>
</tr>
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<td>5,5</td>
<td>5,3</td>
<td>5,5</td>
<td>5,5</td>
<td>4,6</td>
<td>4,8</td>
<td>5,3</td>
<td>5,3</td>
<td>-0,3</td>
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<td>2,5</td>
<td>2,7</td>
<td>2,6</td>
<td>2,6</td>
<td>2,8</td>
<td>2,6</td>
<td>2,6</td>
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<td>2,5</td>
<td>2,6</td>
<td>2,8</td>
<td>2,5</td>
<td>0,5</td>
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<td>2,3</td>
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Source: OECD Social Expenditure Statistics
Figure 1. Voluntary social contributions as a percentage of total labour cost. Manufacturing (average 2000-08).

Figure 2. Voluntary and statutory social contributions.
Figure 3. Voluntary contributions and the level of bargaining

Figure 4. Voluntary contributions and union density
Figures 5 and 6. Voluntary contributions and the density of the employers' organisations, and voluntary contributions and the sectoral organisation of employment relations.