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Composite indicators for computer-aided collective bargaining

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Composite Indicators for Computer-Aided Collective Bargaining¹

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Abstract

A negotiation model for flexicurity-relevant collective bargaining is developed. It is based on the Dutch computer archive of about 5,400 collective agreements called in the Dutch literature collective labor agreement (CLA). First, the opposite interests of negotiating sides are specified — a list of security items from the trade union side and a list of flexibility items from the employers' side. These items are quantified using some indices; then two composite indicators — for security and flexibility — are defined. A perfect parity agreement should have 0-balance, by analogy with credit-debit 0-balance in finances. Since the flexibility and security indices are expressed in different scales ('in different currencies'), the substitution rate ('exchange rate') is determined by regression analysis of flexicurity-relevant agreements from the past practices, finding how (on the average) flexibility is compensated by security.

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1 Introduction

1.1 Flexicurity

In most of post-war Europe, employment relations have been regulated by rather restrictive employment protection legislation and by collective agreements between employers and trade unions. The contradiction between the current flexibilization pursued by employers and the existing strict labor market regulation, which the trade unions defend, has generated debate on the impact of flexibilization and employment protection legislation on economic performance and employment. Many policy makers and scholars argue that employment flexibilization improves the competitiveness of firms and consequently stimulates production, which in turn provides more jobs; see Coats (2006) for criticism of this viewpoint.

The notion of *flexicurity* was introduced in order to reconcile the public with the increase in flexible employment relationships entailing less job security and reducing eligibility for social security benefits. Wilthagen and Tros (2004) ascribe its conception to a member of the Dutch Scientific Council of Government Policy, Professor Hans Adriaansens, and the Dutch Minister of Social Affairs, Ad Melkert (Labor Party). In the autumn of 1995, Adriaansens launched this catchword in speeches and interviews, having defined it as a shift from job security towards employment security. He suggested compensating the decreasing job security (fewer permanent jobs and easier dismissals) by improving employment opportunities and social security.

For instance, relaxation of the employment protection legislation would be counter-balanced by providing better conditions for temporary and part-time workers, supporting lifelong professional training to facilitate job changes, and introducing more favorable regulation of working time and additional social benefits. In December 1995, Ad Melkert presented a memorandum entitled *Flexibility and Security*, proposing that employment protection legislation be relaxed for permanent employees, provided that temporary workers were granted regular employment status, without, however, adopting the concept of flexicurity as such. By the end of 1997, the Dutch parliament had accepted the flexibility/security proposals and shaped them into laws, which came into force in 1999.

The OECD (2004, p. 97–98) ascribes the origins of flexicurity to Denmark with its traditionally weak employment protection, highly developed social security, and high job availability — see Madsen (2004); Breedgaard et al. (2005). It is often concealed, however, that the role of employment protection legislation in Denmark is in a sense replaced by the intermediation of the trade unions, which are the strongest in Europe with a density of 80% in 2004 (European Foundation 2007, p. 6).

Regardless of the origins of the expression *flexicurity*, both the Netherlands and Denmark are recognized as „good-practice examples” (Braun 2001; van Oorschot 2001; Kok et al. 2004) and have inspired the international flexicurity debate. Although some authors still consider flexicurity a specifically Dutch/Danish phenomenon (Gorter 2000), the idea spread throughout Europe within a few years — see Jepsen and Klammer (2004) for a selection of international contributions. The EU referred to this concept at the Lisbon summit in 2000 (Vielle and Walthery 2003, p. 2; Keller and Seifert 2004, p. 227; Kok et al. 2004), and flexicurity became a top theme in the European Commission after the minister meeting in Villach in January 2006 (European Commission 2006a).

The European Commission published two strategic documents with arguments in favor of the flexicurity approach to labor market reforms: *Green Paper: Modernising labour law to*

meet the challenges of the 21st century (European Commission 2006b) and *Towards Common Principles of Flexicurity: More and Better Jobs Through Flexibility and Security* (European Commission 2007), first published as a Commission's Communication.

The *Common Principles of Flexicurity* are accepted by the Business Europe-CEEP-CES-UEAPME on November 29, 2007, and by EU Employment and Social Affairs Ministers Council on December 5/6, 2007, whose decision has been endorsed by the European Council on December 14, 2007. After that, a public initiative Mission for Flexicurity has been launched for promoting flexicurity as an official European labor market policy (European Commission 2008a). It was followed by the flexicurity-relevant communication *New Skills for New Jobs* by the European Commission (2008b) with the *Council Conclusions New Skills for New Jobs: Anticipating and matching labour market and skills needs* adopted on 9 March 2009. After that, the 2009 Council of the EU issued *Council Conclusions on Flexicurity in times of crisis*, and the DG Economic and Financial Affairs joined its voice to promoting flexicurity, having published communication *A Shared Commitment for Employment* (European Commission 2009a).

As one can see, flexicurity is adopted seriously and for a long perspective. An official flexicurity webpage has been launched by the European Commission (2009b), and two web pages are dedicated to flexicurity research and are regularly updated (IAB 2009) and (Flex Work Research Center 2009). Moreover, in 2009 a dedicated institute, *ReflecT, Research Institute for Flexicurity, Labour Market Dynamics and Social Cohesion* has been established at the Tilburg University. After a certain retreat from the flexicurity conception, primarily by its driving force — the OECD, the French President, Emmanuel Macron, has started to promote flexicurity anew; see the dedicated issue of *l'OBS* “*Le Patron: comment il va réformer le travail*” with the author's contribution (Tangian 2017).

1.2 Trade Unions' Response to Flexicurity

Demands for flexibilization have met with a strong resistance, especially in countries with a long tradition of struggle for labor rights. With reference to Korver (2001), Wilthagen and Tros (2004, p. 179) report that already the *Green Paper: Partnership for a new organisation of work* (European Commission 1997), “which promoted the idea of social partnership and balancing flexibility and security”, met with a very negative response from French and German trade unions because “the idea of partnership represents a threat to the independence of unions and a denial of the importance of worker's rights and positions, notably at the enterprise level”. The International Labour Organisation (ILO) has reported that “the flexibilisation of the labour market has led to a significant erosion of workers' rights in fundamentally important areas which concern their employment and income security and (relative) stability of their working and living conditions” (Ozaki 1999, p. 116).

European trade unions express no enthusiasm about adopting the flexicurity concept by the European Commission with no clear definition, with no monitoring instruments, and with no consultation with both social partners. According to the European Trade Union Institute, the European Commission's flexicurity is just a modern label for the long promoted deregulation issue, „old wine in a fashionable new bottle” (Keane and Jepsen 2007, p. 16). Previous reports of the Hans Böckler Foundation (affiliated with the DGB — German Confederation of Trade Unions) confirm this opinion empirically from numerous viewpoints; for their review see (Tangian 2011).

In parallel to all these debates, flexibilization is propagating all over Europe, whereas the promised security measures, especially employment security ones, do not look adequate. The employment protection legislation can be relaxed overnight but cannot be that easily compensated by security measures. The latter take much more time and their efficiency is

often little predictable, to say nothing about questionable exchangeability of labor rights for security benefits. The European Commission has still no proposal to compensate flexibilization better than by lifelong learning. It is at least naive to think that training of the European aging population can solve employment problems and restrain firms from moving jobs to countries with cheap and young labor. The Commission's arguments about improving the competitiveness of firms due to flexibilization are valid only in case of single privileged firms, but their advantages will vanish, as the conditions will become equal for all.

There are also doubts as to the social fairness of flexicurity. Every step towards a higher level of labor flexibility meets the interests of employers who receive this legislative commodity free of charge, although it provides a number of advantages, including financial advantages. The business world gets rid of restrictions, managers improve performance by rotating and squeezing personnel, and firms gain higher profits. All expenses are covered by the state — costly reforms and additional social security expenditure. This type of flexibilization scenario therefore turns out to be a long-term indirect government subsidy/gift to firms. Since the state budget originates from taxpayers, employees contribute considerably to this subsidy/gift. From the purely economic viewpoint, such a latent redistribution of income decreases the total demand of the working population, results in overproduction and unemployment, and finally leads to a crisis.

An innovative feature of this type of industrial relations is an active intermediation by the state. Industrial relations were formerly restricted to the Employer-Worker axis. The employers underpaid workers by having purchased their capability to work rather than final products and used this device to get the added value. Now industrial relations no longer constitute such an axis but look like a circle Employer-Worker-State-Employer with a sophisticated money loop through legislation, social security and tax systems. Now the relationship between an individual employer and an individual worker is extended to All-Employers-All-Workers relations, with the added value being redistributed through all these systems.

From the trade unions' viewpoint, sustainable development — the main argument for flexibilization — is necessary as long as it improves the living and working conditions of employees. If the well-being of workers is not improved under "sustainable development" and a somewhat better labor market performance can only be achieved at the cost of stress and lack of confidence in the future, the "sustainable development" can be called into question. Are higher industrial productivity and competitiveness in fact the primary human goals? Why is sustainable development placed above social values? In other words, is it more important to be economically rich rather than to be socially healthy?

1.3 Flexicurity as a Universal Framework for Collective Bargaining

According to Pedersini (2008, p. 23), „flexicurity loses its potential for clearly guiding the social partners: almost any possible topics of negotiation can be interpreted in the framework of flexicurity, from working time to wages or collective dismissals.” The discussions on flexicurity, consequently, can be used as a starting point to deepen the social dialogue and to improve the trade unions' position regarding payments, working conditions, work-life balance, security at work, professional training, retirement provisions, etc.

For instance, the 1999 Dutch *Flexibility and Security Act* mentioned suggests a new role of trade unions in applying labor laws. According to Houwing (2009), it entails new regulations as only „three-quarters mandatory,” meaning that collective agreements can deviate from legislation norms in either direction. This unique feature of the Dutch flexicurity gives collective bargaining a pivotal role in regulating employment relations and an additional legal room for new trade unions' demands.

The given paper suggests an operational instrument to enhance the trade unions' position in flexicurity-relevant negotiations with employers and to make their outcomes more transparent. For this purpose, a negotiation model for flexicurity-relevant collective bargaining is developed basing on the Dutch computer archive of about 5,400 collective agreements called in the Dutch literature collective labor agreements (CLA); for the description of standardized codes see (Schreuder and Tjzens 2004). First, the opposite interests of negotiating sides are specified — a list of security items from the trade union side and a list of flexibility items from the employers' side. These items are quantified using some indices; then two composite indicators — for security and flexibility — are defined. A perfect parity agreement should have 0-balance, by analogy with credit-debit 0-balance in finances. Since the flexibility and security indices are expressed in different scales ('in different currencies'), the substitution rate ('exchange rate') is determined by regression analysis of flexicurity-relevant agreements from the past practices, finding how (on the average) flexibility is compensated by security. For a given CLA, a negative deviation from the *status quo* average flexibility/security-balance means that the flexibilization issues are overcompensated by security measures (better than on the average). A positive deviation means that flexibility prevails over security, implying that trade unions are disadvantaged.

The model outputs tables and graphics, which are considered a kind of interactive checklists. They display shortages and advantages of a given collective agreement using several indices, and indicates its position among all the CLAs referenced, either those of the given year, or those within the branch, or within the branch in the given year. Finally, the total evaluation of the CLA is made in terms of so-called flexicurity balance.

The model is general enough to extend this approach to negotiations on issues beyond flexibility and security, as well as to perform analytical tasks. In particular, it enables to analyze the flexibility/security trends. We obtain empirical evidence of increasing flexibility at the background of security losses or inadequately small gains. It turns out that numerous security advantages (333 indices of minor security issues) cannot outbalance a few concessions in flexibility (only 21 flexibilization-relevant variables). A successful trade union policy requires therefore a certain reconsideration of prime and secondary objectives. The „good practice example”, as the Dutch experience is often referred to by the European Commission and the OECD, appears to be not as good as believed. All of these are serious warnings against improper implementation of flexicurity and one-sided use of this policy in favor of employers.

The computer tool developed just aims at enhancing the position of trade unions to the end of surmounting this negative trend. Some strategic demands at the level of policy measures could enhance the position of trade unions as well. Some examples of instrumental measures like *flexinsurance* — progressive contribution of employers to social security for atypical contracts, the more flexible the higher the contribution, to cover the increasing risks of unemployment and to control the flexibilization, — or *workplace tax* to charge the employers who offer bad working conditions regarded as a 'social pollution' — are discussed elsewhere (Tangian 2011).

2 Composite Indicators of Flexibility and Security

The Dutch CLA computer archive can be imagined as a large table with 5383 rows for 5383 CLAs (observations) and 1216 columns (variables) for their specifications. The collective agreements are from 13 consecutive years 1995–2007. All of them extensively deal with employment security and social security, but only 3483 of them include flexibilization issues. The latter are regarded as flexicurity-relevant and only they are considered.

The archive is built upon 649 numerical variables with which the CLAs are comprehensively characterized. The numerical specifications include the year of agreement, code of industry branch, 1–0 codes for Yes/No answers to numerous questions, and decimal figures like the length of holidays in days, percentages of salary increases, maximal limits for using TWA workers, etc.

Most of other variables are coupled with numerical variables, just containing text comments to them. A few other variables contain general descriptions of CLAs, names of negotiators, etc. We omit some numerical variables by different reasons as well as all the text variables which cannot be used in the model. Finally, 356 numeric variables are selected. In spite of a seemingly important reduction, all the flexicurity-relevant information of the data set is represented in the model. Table 1 displays the data structure after the omission of irrelevant CLAs and irrelevant variables. It contains 3483 flexicurity-relevant CLAs, each occupying one row of the table. The selected 356 flexicurity-relevant numerical variables are grouped in several sections.

Table 1. Data structure for constructing composite indicators of flexibility and of security in collective labor agreements (CLAs); question marks (?) show the aggregation of the composite indicators

CLA No. in archive	Classifiers	Flexibility				Security				Partial indices	Aggregate indices
		1. External flexibility	2. Internal flexibility	...		6. Labour rights	7. In-work income security	...			
	caojr Year	1 tijd17 Peak-slum/seasonal work, Y/N	4 tijd23 Increase in part-time work, in %	...		22 inko56 Equal allowance for part-timers, Y/N	35 inko1 1st structural wage increase, in %	...		1. External flexibility	Flexi-Security
1	1995	0	2	...		0	2	...		?	?
2	1995	1	3	...		1	2.5	...		?	?
.....											
3483	2007	0	1	...		0	4	...		?	?

Source: Tangian (2009, p. 12)

The following columns of the table contain 354 variables grouped into two main sections, *Flexibility* and *Security*, which in turn fall into five and nine subsections, respectively; for the full list of variables see Tangian (2009):

Flexibility (21 variables)

1. *External flexibility* (3 variables)
2. *Internal flexibility* (7 variables)
3. *Functional flexibility* (2 variables)
4. *Wage flexibility* (4 variables)
5. *Externalization flexibility* (5 variables)

Security (333 variables)

6. *Labor rights* (13 variables)
7. *In-work income* (75 variables)
8. *Out-of-work income* (69 variables)
9. *Job security* (12 variables)

10. *Employability* (30 variables)
11. *Employment security* (3 variables)
12. *Social security* (25 variables)
13. *Social dialogue* (9 variables)
14. *Work-life balance (combinatorial security)* (98 variables)

The next to last section of Table 1 contains 14 partial indicators — five of flexibility, and nine of security. The last section of Table 1 contains both total indices of flexibility and of security.

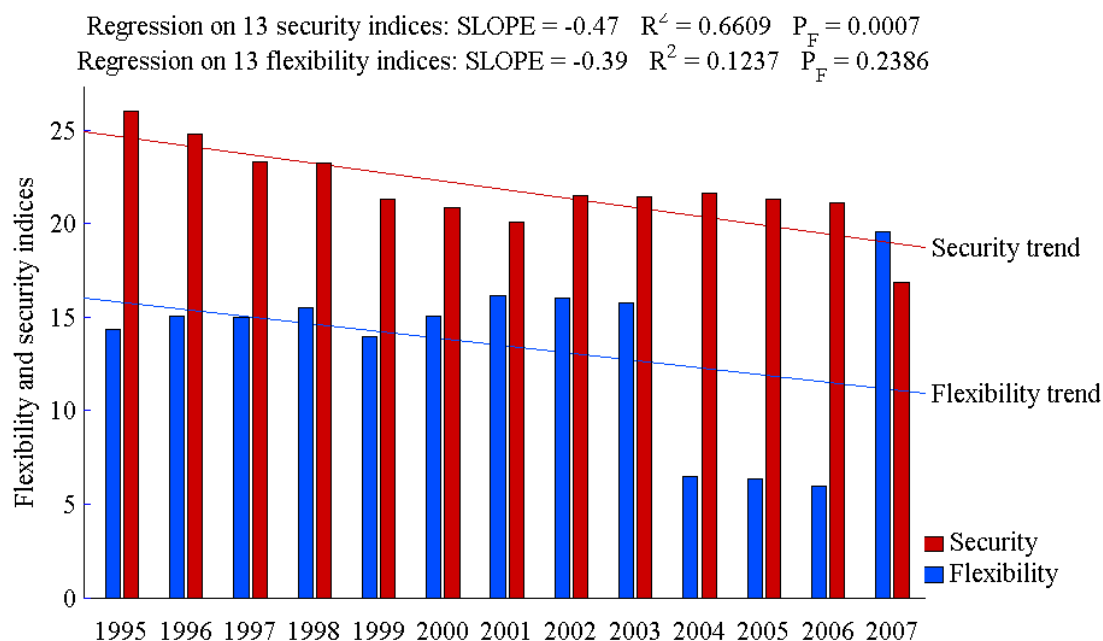
In Table 1, the partial flexibility and security indices are obtained by taking the mean codes of related questions along the horizontal dimension of the table. The summation is performed with no weights, except for implicit equalizing weights imposed by standardization; for details see Tangian (2009).

3 Analysis of Dutch Collective Agreements

Figure 1 displays the flexibility and security indicators of the flexicurity-relevant CLAs averaged on year. These indicators are obtained for normalized variables, flexibility indices are shown by blue bars, and security — by red. The dynamical trend of the indicators is shown by the regression lines fitted to 13 yearly indices.

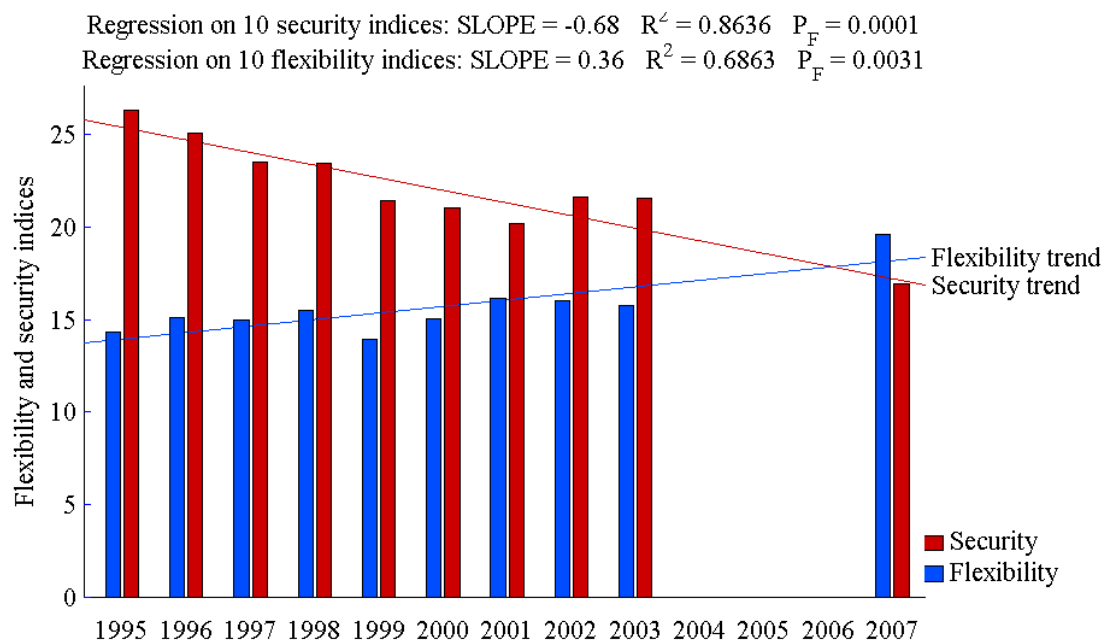
- (Security decline) The descending red regression line, fitted to security indices, shows a decrease in security. The high $R^2 = 0.6609$ (above the upper plot) confirms a good linear fit, and the negligible significance $P_F = 0.0007$ means that the decrease is statistically certain.
- (Abrupt drop of flexibility in 2004–2006) The flexibility indices of the years 2004–2006 are visibly lower than that of other years. Indeed, the corresponding CLAs lack six of 21 flexibility variables. It can be explained by the fact that the Dutch computer archive had been created by the end of 2003 by Schreuder and Tjzens (2004) and after that might be operated by other persons less experienced in coding CLAs.
- (Unclear flexibility trend) The blue regression line, fitted to flexibility indices, is also descending. However, low $R^2 = 0.1237$ and high $P_F = 0.2386$ confirm no statistically significant decrease. Eliminate the questionable years 2004–2006. We obtain quite a different picture. Now the flexibility line in Figure 2 is no longer descending but ascending. The statistical goodness is much higher ($R^2 = 0.8636, 0.6863$ instead of 0.6609 and 0.1237, and $P_F = 0.0001, 0.0031$), meaning statistically significant trends. All of these indicate that the data from 2004–2006 are not quite reliable, and that flexibility likely grows rather than decreases.
- (Flexibility expansion) Figure 3 shows how the situation looks like if all the 5383 CLAs of the Dutch archive are considered. The most surprising is that the flexibility in Figure 3 grows, whereas in Figure 1 decreases. How can it be, that adding the CLAs dealing exclusively with security drastically changes the behavior of flexibility indicators without much affecting the security? The answer follows from Figure 4, which shows that the share of flexibility-relevant CLAs among all CLAs is increasing more rapidly than the flexibility decreases within the former. The global effect is that the 'total' flexibility grows, although the 'specific flexibility' in flexicurity-relevant CLAs is decreasing.

Figure 1. Flexibility and security indices for 3483 flexicurity-relevant CLAs from totally 5383 by year (normalized variables)



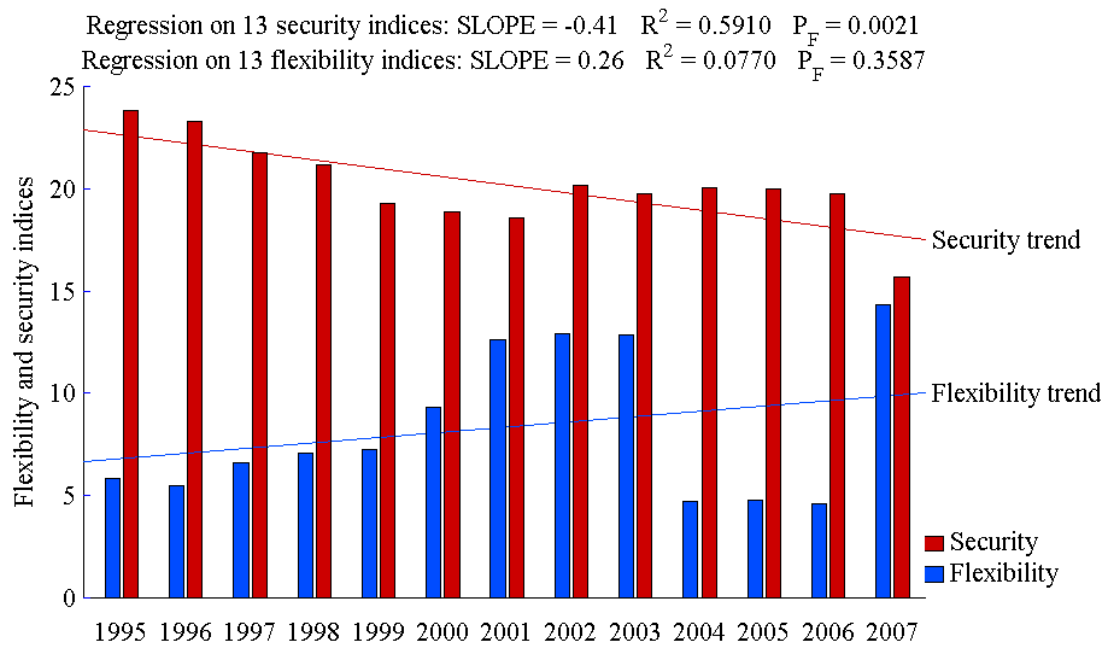
Source: Tangian (2009, p. 18)

Figure 2. Flexibility and security indices for 2372 flexicurity-relevant CLAs from totally 3878 with no years 2004–2006 (normalized variables)



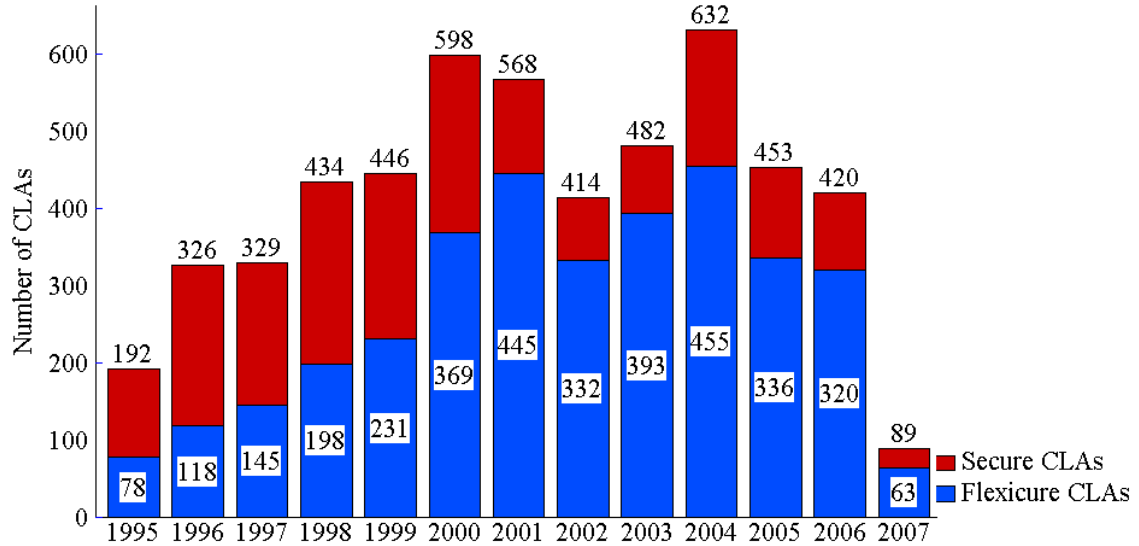
Source: Tangian (2009, p. 19)

Figure 3. Flexibility and security indices for all 5383 CLAs from the Dutch database by year (normalized variables)



Source: Tangian (2009, p. 21)

Figure 4. Share of flexicurity-relevant CLAs in all CLAs by year (for normalized variables)

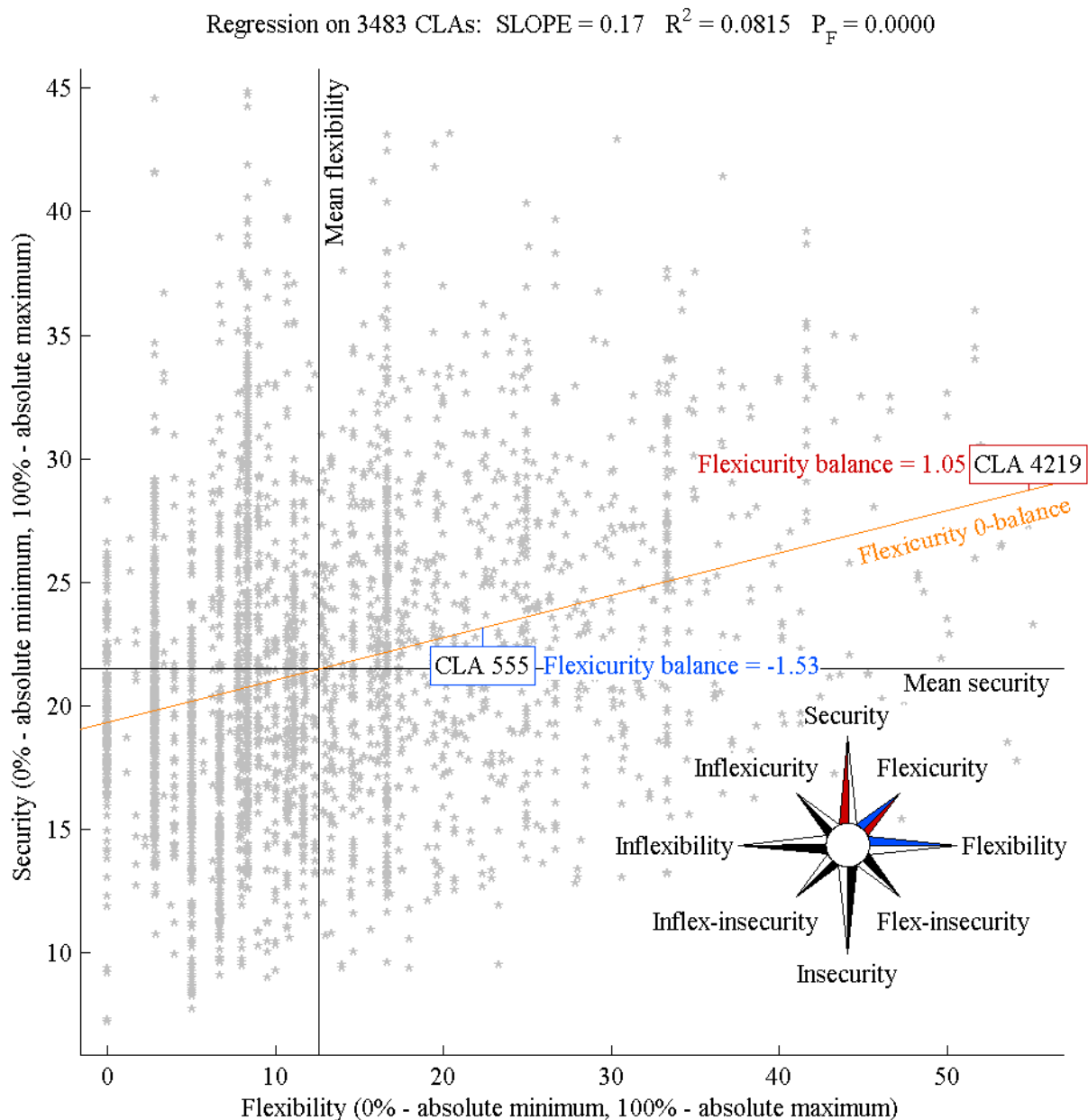


Source: Tangian (2009, p. 22)

4 Flexibility/Security Balance

Figure 5 shows the flexibility–security plane (negotiation space) with the flexicurity compass and the ascending regression line fitted to grey stars * which denote 3483 flexicurity-relevant CLAs. The line with the slope 0.17 (see at the top of the plot) shows that a unit of additional flexibility is on the average compensated with 0.17 units of additional security. Therefore, the regression line is interpreted as the *flexicurity 0-balance*. The flexicurity 0-balance represents the status quo and is nothing else but a compact analytical representation of the current practice of compensating flexibility by security.

Figure 5. Negotiation space with flexicurity compass and flexicurity 0-balance computed for 3483 flexicurity-relevant Dutch CLAs (shown by grey stars *) from totally 5383. Flexicurity balance of a sample CLA 555 and of the flexicurity-best CLA 4219---with a positive flexicurity balance and highest flexibility (for normalized variables)



Source: Tangian (2009, p. 26)

The vertical and horizontal lines in Figure 5 show the mean values of flexibility and security indicators of the 3483 CLAs, respectively. They visualize the location of CLAs in the negotiation space. The asymmetry of location of the CLAs with respect to the line intersection says that the most CLAs are in the (relatively) low flexibility and low security domain — just opposite to the flexicurity concept. The indices of these CLAs are however close to the mean values. Much fewer CLAs have flexibility and security indices above average, and their deviation from the mean is visibly larger. A plot for standardized variables is somewhat different but exhibits similar properties; see Tangian (2009).

Figure 5 shows a sample CLA 555 (the number of the CLA in the computer archive) with flexibility and security indices 22.36 and 21.64, respectively. The **flexicurity balance of CLA 555** is the vertical distance to the line of flexicurity 0-balance. The distance -1.53 means that flexibility prevails over security, so that security is under-compensated by 1.53 units. For a given CLA, a positive deviation from the flexicurity 0-balance means that flexibilization issues are well compensated by security measures (better than on the average). A negative deviation, as in case of CLA 555, means that flexibility prevails over security (shown by the blue color of flexibility), implying that trade unions are disadvantaged. Thus, the half-plane above the line of flexicurity 0-balance contains the CLAs which are advantageous for trade unions (with regard to the actual practice), and the half-plane below this line shows the CLAs advantageous for employers.

According to the European Commission's conception, the best flexicurity practices are the cases of high flexibility fairly compensated by security, that is, located on the right-hand side of Figure 5 above the line of flexicurity 0-balance, where the flexicurity balance is positive. In our case, the best flexicurity collective agreement is CLA 4219. In spite of a higher flexibility than that of CLA 555 it has a positive flexicurity balance $= 1.05$. Here both employers and trade unions made a good deal.

5 Flexicurity Checklists

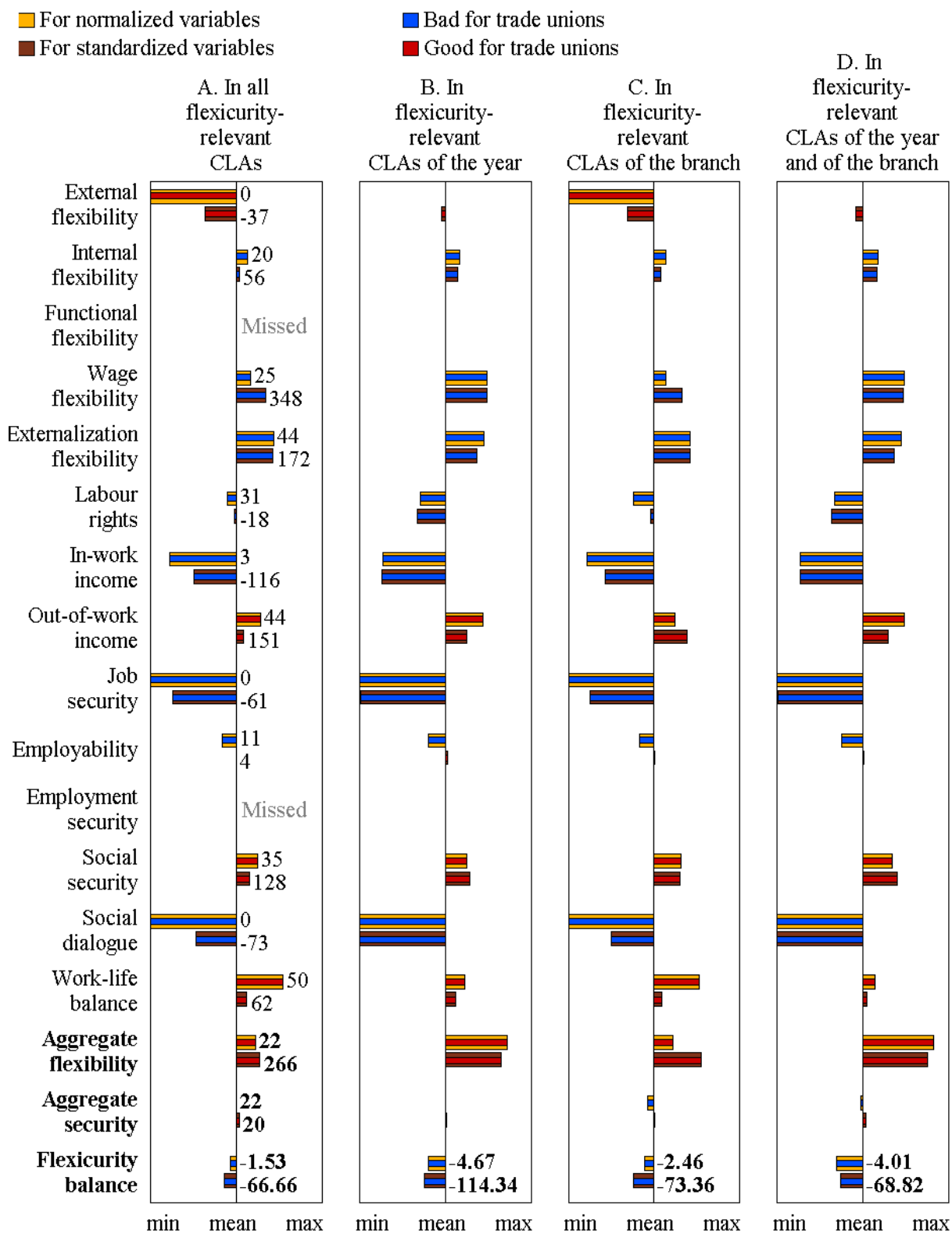
The position of an observation among others is often characterized by means of descriptive statistics. To be specific, take again CLA 555 as a sample. Consider the so-called Checklist No. 1 in Figure 6 with four plots labelled A–D, which show the indicators of CLA 555 relative to minimum, maximal, and mean values of the corresponding indicators of other CLAs. The plots differ in the set of reference CLAs: plot A is computed for all 3483 CLAs considered, plot B — for the CLAs of the given year, plot C — for the CLAs of the same industry branch, and plot D — for the CLAs of the same industry branch in the same year.

Since the indicator values of the CLA are same throughout all the four sheets of the table, they are printed in the first plot only. The visual range of all the indicators is unified, although the actual values are, of course, all different. Thereby the relative location of the CLA in the negotiation space is shown without overburdening the plots with numerous indices.

For instance, CLA 555 has low (below average) indices of *External flexibility*, but relatively high indices of *Wage flexibility* and *Externalization flexibility*. CLA 555 is disadvantageous for trade unions with regard to *In-work income*, *Job security*, and *Social dialogue*, which are visibly below the average.

The colors in this and in the next checklist emphasize the gains either of employers, or of trade unions. The bars marked by blue show the gain for employers, the bars marked by red correspond to the gain of trade unions. The predominance of one color over another is a visual indication of an outbalanced CLA.

Figure 6. Checklist No. 1 (descriptive): Location of CLA 555 (FNV-No. 614, 2004, branch 72 'Industry') among 3483 flexicurity-relevant CLAs from the Dutch database



Source: Tangian (2009, p. 37)

Figure 7 shows the flexicurity balance of CLA 555 for all combinations of partial indicators of flexibility and security. The aggregate flexicurity balance of CLA 555 for both types of scaling, -1.53 and -66.66 are in the top-left corner of the plot. The first one, -1.53 is the slope of the regression line in Figure 5. CLA 555 has no agreements on *Functional flexibility* and *Employment security*. The corresponding column and row have indications that the data are missed.

Other balances of CLA 555 show the compensation of particular types of flexibility by particular types of security. All the aspects of flexibility are positively compensated by

- *Out-of-work income* (disability insurance, pensions, etc.),
- *Social security* (provisions for child care, parental leave, etc.) and
- *Work-life balance* (different types of leave — Labor Time Reduction Days, leaves for marriages, etc.).

On the other hand, CLA 555 shows an insufficient compensation of flexibility in

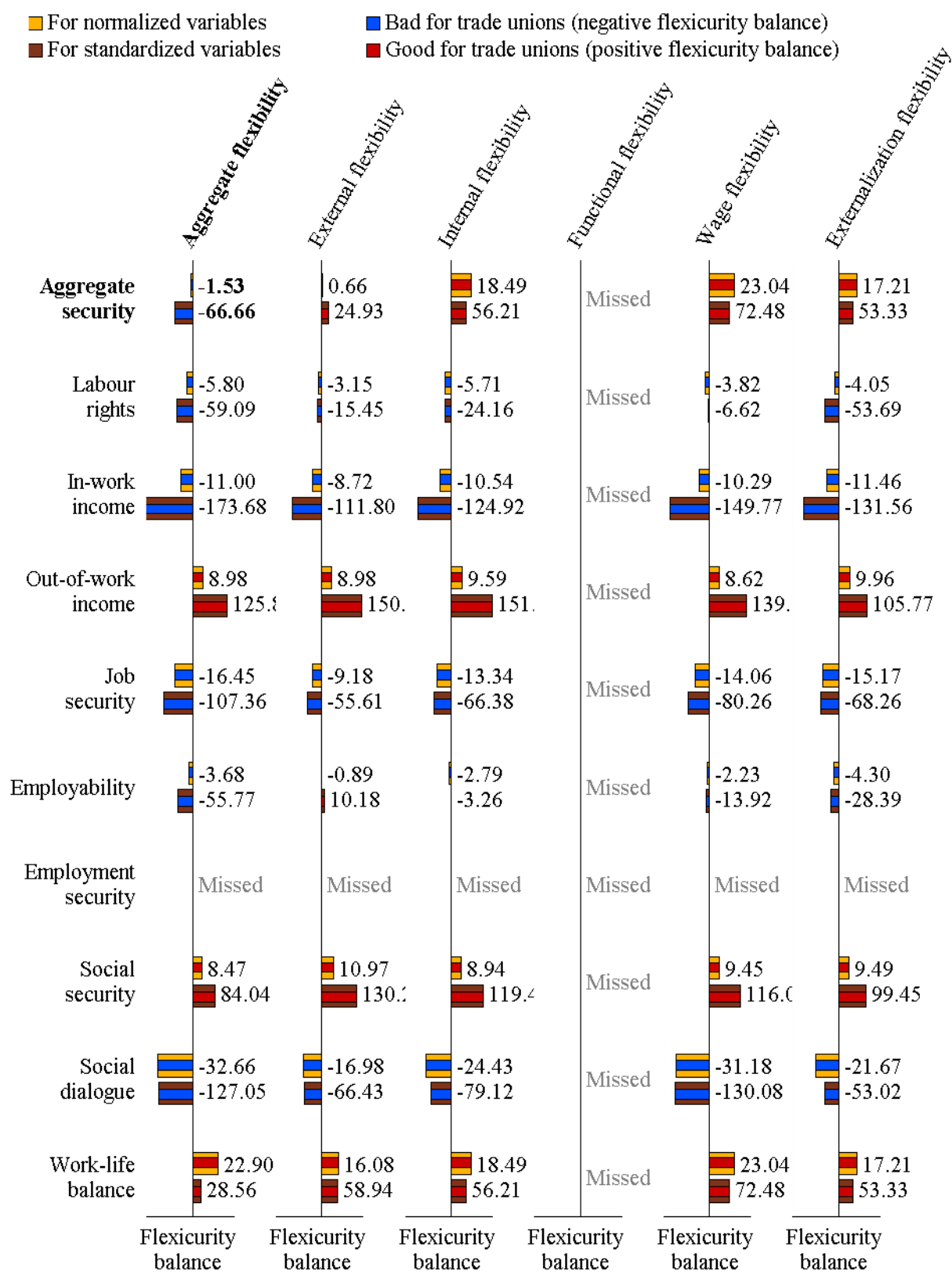
- *Labor rights* (equality of atypical workers with normally employed workers),
- *In-work income* (salaries, overtime payments, etc.),
- *Job security* (adaptability of working conditions to aged persons, after a sickness, in reintegration),
- *Employability* (education, training, etc.), and
- *Social dialogue* (provisions for works councils).

Similarly, to Checklist No. 1, the colors emphasize the gains either of employers, or of trade unions. However, unlike Checklist No. 1, which is focused on the relative position of a given CLA in the mainstream CLA practice, Checklist No. 2 provides a detailed evaluation of how well flexibility issues are compensated by security. For instance, a CLA with a strong deviation from the mainstream can get a good evaluation from the flexicurity viewpoint.

6 Conclusions

1. Statistical analysis of the Dutch CLAs reveals a growing predominance of flexibility at the price of security.
2. The 'good practice example', as the Dutch experience is often referred to by the European Commission and OECD, turns out to be not as good as believed.
3. It looks that the Dutch trade unions take care of numerous 'small' security issues (333 security variables) rather than focus on a few flexibilization aspects of prime importance (21 variables) which nevertheless outbalance all security advantages.
4. Therefore, the model developed can be useful to evaluate collective agreements with regard to a fair compensation of flexibility by security measures.

Figure 7. Checklist No. 2 (analytical). Flexicurity balance of CLA 555 (FNV-No.) 614, 2004, 72 'Industry') for aggregate and partial indicators of flexibility and security



Source: Tangian (2009, p. 41)

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