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# **The Race to the Bottom Revisited: International Labour**

## **Law, Global Trade and Evolutionary Game Theory**

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**Abstract**—This paper revisits the 'race to the bottom' in international labour law, in light of new developments in evolutionary and epistemic game theory and considering new empirical findings on the economic effects of labour rights. Accordingly, it explores two solutions to this collective action problem not previously analysed in labour law literature: 'indeterminate play' and the 'correlating device'; and it shows how these solutions relate to international trade law and international labour law. Moreover, a new perspective is offered, according to which international labour law and international trade law can be complementary in fostering global cooperation on labour regulation, and in supporting development efforts. Through a novel characterisation of global labour governance according to three game theoretical models, this study ultimately highlights the importance of freedom of association and collective bargaining in enhancing cooperation among states and promoting processes by which countries' social and economic development can be incrementally raised.

**Keywords:** international labour law, international trade, collective action problem, evolutionary game theory, systems theory, freedom of association.

### **1. Introduction**

This paper revisits the 'race to the bottom' in international labour law, employing new analytical techniques and considering new empirical data to resolve an enduring problem. Specifically, it applies recent developments in evolutionary and epistemic game theory, combined with recent empirical findings on the economic effects of labour rights, to arrive at a revised understanding of the race to the bottom as a collective action problem, and to offer practical solutions, not previously analysed in labour law literature.

Game theoretical analyses have been used in the past to develop institutional solutions to collective action problems arising both within and between states. They are widely understood to be relevant for considering the institutional design of domestic and international labour regulation. However, game theory research has evolved from its initial finding that actors in non-cooperative games are inevitably 'caught in a grim trap', where 'individually rational strategies lead to collectively irrational outcomes',<sup>1</sup> to a more nuanced position which reveals the conditions under which, as Elinor Ostrom puts it, actors can 'organize and govern themselves to obtain continuing joint benefits when all face temptations to free-ride, shirk, or otherwise act opportunistically'.<sup>2</sup> Most recently, further developments have been made, expanding Robert Aumann's notion of the 'correlated equilibrium'<sup>3</sup> to social<sup>4</sup> and legal<sup>5</sup> norms. These ideas provide mechanisms that incentivise rational actors to follow coordinated strategies 'even when they may have private payoffs that would lead self-regarding agents to do otherwise'.<sup>6</sup> Applying these insights to the case of labour standards will be shown here to be a revealing and fruitful line of research.

In the present context, the concern of a race to the bottom under a globalised economy is a collective action problem in the sense identified by Ostrom. The problem stems from the observation that the free movement of goods, services and

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<sup>1</sup> Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (CUP 1990) 5, 8.

<sup>2</sup> *ibid* 29.

<sup>3</sup> Robert J. Aumann, 'Subjectivity and Correlation in Randomized Strategies' (1974) 1 *Journal of Mathematical Economics* 67; Robert J. Aumann, 'Correlated Equilibrium as an Expression of Bayesian Rationality' (1987) 55 *Econometrica* 1, 3–4.

<sup>4</sup> Herbert Gintis, *The Bounds of Reason: Game Theory and the Unification of the Behavioral Sciences* (Princeton University Press 2009) 142–143; Herbert Gintis, 'Social Norms as Choreography' (2010) 9 *Politics, Philosophy & Economics* 251.

<sup>5</sup> Simon Deakin, 'Legal Evolution: Integrating Economic and Systemic Approaches' (2011) 7 *Review of Law & Economics* 659.

<sup>6</sup> Gintis, *The Bounds of Reason: Game Theory and the Unification of the Behavioral Sciences* (n 4) 47.

capital around the world is putting pressure on countries to compete to attract trade and investment by lowering their labour standards.<sup>7</sup> Game theory is useful in this regard as it shows that such regulatory competition is 'destructive' in a very specific sense. Game theoretical models predict that as all countries will adjust and lower their labour standards in response to meaningful threats of undercutting, no country will gain a substantial comparative advantage from doing so, not even those which are first to defect ('early defectors'); the outcome is sub-optimal for all. The value of a game theoretical analysis further derives from its ability to offer analytical solutions to this problem. Recently developed evolutionary and epistemic models suggest two such solutions, 'indeterminate play' and the 'correlating device', which shed light on the process by which 'destructive competition' can be prevented and labour standards can be incrementally raised along with a country's wider social and economic development.

While a number of earlier studies have applied game theory to the realm of labour law,<sup>8</sup> this is the first paper to apply the latest research in evolutionary and epistemic game theory. Accordingly, this paper explores institutional solutions overlooked by existing studies, and it shows how the application of these developments in game theory leads to different conclusions from those previously advanced. In highlighting the significance of indeterminate play and the correlating device for labour regulation, it will show how these solutions relate to concrete

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<sup>7</sup> Simon Deakin and Frank Wilkinson, 'Rights vs Efficiency? The Economic Case for Transnational Labour Standards' (1994) 23 ILJ 289, 296; David Charny, 'Regulatory Competition and the Global Coordination of Labor Standards' (2000) 3 Journal of International Economic Law 281, 282–85.

<sup>8</sup> Alan Hyde, 'A Stag Hunt Account and Defense of Transnational Labour Standards—A Preliminary Look at the Problem' (2005) Cornell Law School research paper No. 06-008 <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=896362](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=896362)> accessed 22 December 2018; Alan Hyde, 'The ILO in the Stag Hunt for Global Labor Rights' (2009) 3 Law & Ethics of Human Rights 154; Guy Davidov, 'Comment on Alan Hyde: The Perils of Economic Justifications for International Labor Standards' (2009) 3 Law & Ethics of Human Rights 180.

institutions: indeterminate play to the framework for cooperation over trade set out in international trade law, and the correlating device to the setting of international labour standards through the work of the International Labour Organization (ILO). In doing so, the analysis will show that international labour law and international trade law can be complementary in fostering global cooperation on labour rights, as well as in supporting development efforts.

A further novel feature of the analysis presented here will be to model the payoffs from states' strategic interaction in the field of global labour regulation using new empirical evidence on the economic effects of labour rights. In particular, the paper will use the evolving empirical literature to show how game theoretical characterisations of the collective action problem affecting labour standards can take into consideration the asymmetries between states under the current globalised trading regime. This aspect of the analysis will also highlight the importance of freedom of association and collective bargaining in encouraging effective collective action among states and in contributing to their development.

The paper's structure is as follows. Section 2 outlines the nature of the race to the bottom problem in international labour regulation and articulates its nature as a variant of the collective action problem. It then outlines the new empirical literature on the economic effects of labour rights and explains its relevance for the modelling of the race to the bottom. Section 3 explains the relevance to the international labour standards debate of three game theoretical models: the prisoner's dilemma, the stag hunt game, and the hawk-dove game. It also introduces the concepts of indeterminate play and the correlating device and explains their significance. Section 4 then examines in more detail institutional solutions to the race to the bottom problem, in the process arguing that they illustrate a fundamental complementarity between the

mechanisms of international labour law and those of international trade law. The analysis here also highlights the specific importance of freedom of association as a correlating device in a global trading regime with countries at different levels of development. Section 5 concludes.

## **2. The Race to the Bottom Problem in International Labour Regulation**

At an early stage in the emergence of the contemporary globalised economy, concerns over destructive competition affecting countries' ability to enact labour laws were one of the leading motivating forces behind the founding of the ILO. The preamble to the Treaty of Versailles, establishing the Organization in 1919, states in this regard that 'the failure of any nation to adopt humane conditions of labour is an obstacle in the way of other nations which desire to improve the conditions in their own countries'.<sup>9</sup> It was in order to prevent such a scenario that the ILO was set up with the goal of facilitating international cooperation on global labour standards. The ILO was thus intended to create a 'level playing field' among competing nations, through the harmonisation of their labour standards.<sup>10</sup> As Karl Polanyi put it, the ILO was established in order to 'equalize conditions of competition among the nations so that trade might be liberated without danger to standards of living'.<sup>11</sup> In this sense, the ILO was perceived as a facilitator not just of international labour cooperation, but of free trade between nations.

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<sup>9</sup> Part XIII of the Treaty of Peace with Germany (Treaty of Versailles) (adopted 28 June 1919, entered into force 10 January 1920) (1919) 225 CTS 188 (ILO Constitution), Preamble.

<sup>10</sup> Eddy Lee, 'Globalization and Labour Standards: A Review of Issues' (1997) 136 *International Labour Review* 173, 181.

<sup>11</sup> Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Beacon Press 1957) 27–28.

Since these early years, the pressures on the ILO to continue to perform this role have been heightened, as the pace of global economic integration has exceeded its ability to regulate. Specifically, the current difficulty in promoting labour standards can be attributed to the expansion and intensification of global trade, the growing mobility of capital, and the increasing dominance of the neo-liberal philosophy in the national and international arenas.<sup>12</sup> The lack of effective labour regulation on an international level arguably corresponds with a 'persistent "deficit" in the implementation of fundamental rights'.<sup>13</sup>

As will be further discussed below, in these circumstances, states are facing a collective action problem. Although they may want to increase social protection in response to globalisation, they often feel they are unable to do so due to the threat of being undercut by competing countries.<sup>14</sup> Indeed, as a consequence of capital mobility and the related need to seek and retain investments, governments are often deterred from promoting higher levels of labour standards and principles.<sup>15</sup> In particular, countries are pressured to respond by enhancing the flexibility of their labour markets through deregulation.<sup>16</sup> Moreover, in the absence of effective global labour regulation, countries are further encouraged to defect from commonly agreed upon norms of international labour law. Overall, these economic interrelations between countries

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<sup>12</sup> Philip Alston and James Heenan, 'Shrinking the International Labor Code: An Unintended Consequence of the 1998 ILO Declaration on Fundamental Principles and Rights at Work?' (2004) 36 *New York University Journal of International Law and Politics* 101, 105.

<sup>13</sup> Francis Maupain, *The Future of the International Labour Organization in the Global Economy* (Hart Publishing 2013) 35.

<sup>14</sup> Christopher McCrudden and Anne Davies, 'A Perspective on Trade and Labor Rights' (2000) 3 *Journal of International Economic Law* 43, 56–57.

<sup>15</sup> Steve Charnovitz, 'The (Neglected) Employment Dimension of the World Trade Organization' in Virginia Leary and Daniel Warner (eds), *Social Issues, Globalization and International Institutions: Labour Rights and the EU, ILO, OECD and WTO* (Martinus Nijhoff Publishers 2006) 125, 153.

<sup>16</sup> Bob Hepple, *Labour Laws and Global Trade* (Hart Publishing 2005) 9–11.

give rise to a need for international cooperation over the regulation of labour, while the very same pressures are making such cooperation more difficult to achieve.

When modelling this race to the bottom problem through game theoretical characterisations, the analysis in subsequent sections will take into account some of the recent literature on the economic effects of labour rights. This literature, which is only briefly presented here, departs from the conception of labour rights as an external interference with the marketplace, which sacrifices, to various degrees, its economic efficiency.<sup>17</sup> Accordingly, a notion of complementarity between labour rights and development is presented.

One of the theories claiming a positive relationship between labour regulation and the functioning of labour markets is the so-called systemic approach to labour law. In contrast to approaches that view labour law as an external interference imposed on a market, systemic approaches argue that historically, labour law regulation has developed as an endogenous measure to the market, thereby performing a 'market constituting role'.<sup>18</sup> According to this point of view, labour regulations can function as a support to the operation of labour markets. More specifically, they allow the proper operation of the market by addressing coordination problems.<sup>19</sup> Related to these ideas, it has also been suggested that labour regulations serve as a 'beneficial constraint' on employers, requiring them 'to adopt a productivity-enhancing labor policy' that will improve long-term efficiency.<sup>20</sup> Overall, systemic

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<sup>17</sup> For an overview of the main tenets of labour law rules vis a vis their relationship with the operation of labour markets, see: Simon Deakin, 'Chapter 3: The Contribution of Labour Law to Economic and Human Development' in Shelley Marshall (ed), *Promoting Decent Work: The Role of Labour Law* (Monash University 2010) 106, 107–11.

<sup>18</sup> *ibid* 110; Simon Deakin and Prabirjit Sarkar, 'Assessing the Long-Run Economic Impact of Labour Law Systems: A Theoretical Reappraisal and Analysis of New Time Series Data' (2008) 39 *Industrial Relations Journal* 453, 455.

<sup>19</sup> Deakin and Sarkar (n 18) 455.

<sup>20</sup> Wolfgang Streeck, 'Beneficial Constraints: On the Economic Limits of Rational Voluntarism' in J. Rogers Hollingsworth and Robert Boyer (eds), *Contemporary Capitalism: The Embeddedness of Institutions* (CUP 1997) 197, 200–201.

approaches view labour laws as potentially contributing to development efforts and economic growth.<sup>21</sup>

The possible economic benefits of labour laws have found support in the evolving empirical literature. Part of this literature depends on results from analysis of recently constructed 'leximetric' datasets, including the Centre for Business Research's Labour Regulation Index (CBR-LRI), which codes changes in labour laws for 117 countries over the period 1970–2013. The CBR-LRI dataset has been analysed in a series of studies, which provide new evidence on the long-term economic effects of labour laws. Overall, these studies suggest a 'positive link between employment protection, productivity and innovation',<sup>22</sup> with these benefits becoming clearer over the long-term than over the short-term.<sup>23</sup> These studies have shown, for example, that in certain countries, laws setting limits to working time are correlated with reduced unemployment<sup>24</sup> and higher productivity;<sup>25</sup> laws relating to dismissal laws are correlated with higher productivity;<sup>26</sup> and laws relating to employee representation are correlated with reduced unemployment<sup>27</sup> and higher scores on the Human Development Index.<sup>28</sup> The most recent study extends the

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<sup>21</sup> Deakin, 'Chapter 3: The Contribution of Labour Law to Economic and Human Development' (n 17) 110.

<sup>22</sup> Zoe Adams and Simon Deakin, 'Quantitative Labour Law' in Amy Ludlow and Alysia Blackham (eds), *New Frontiers in Empirical Labour Law Research* (Hart Publishing 2015) 31, 31, 48.

<sup>23</sup> Whereas these studies provide evidence for the benefits of labour standards in general, they do not specifically show the effects of labour laws that are derived from international standards as such.

<sup>24</sup> Simon Deakin, Jonas Malmberg and Prabirjit Sarkar, 'Do Labour Laws Increase Equality at the Expense of Higher Unemployment? The Experience of Six OECD Countries, 1970-2010' (2013) Centre for Business Research, University of Cambridge, Working Paper No. 442, 26 <[https://www.cbr.cam.ac.uk/fileadmin/user\\_upload/centre-for-business-research/downloads/working-papers/wp442.pdf](https://www.cbr.cam.ac.uk/fileadmin/user_upload/centre-for-business-research/downloads/working-papers/wp442.pdf)> accessed 22 December 2018.

<sup>25</sup> Deakin and Sarkar (n 18) 478–80.

<sup>26</sup> *ibid.*

<sup>27</sup> Deakin, Malmberg and Sarkar (n 24) 26.

<sup>28</sup> Simon Deakin, Colin Fenwick and Prabirjit Sarkar, 'Labour Law and Inclusive Development: The Economic Effects of Industrial Relations Laws in Middle-Income Countries' (2013) Centre for Business Research, University of Cambridge, Working Paper No. 447, 16–17 <[http://www.cbr.cam.ac.uk/fileadmin/user\\_upload/centre-for-business-research/downloads/working-papers/wp447.pdf](http://www.cbr.cam.ac.uk/fileadmin/user_upload/centre-for-business-research/downloads/working-papers/wp447.pdf)> accessed 22 December 2018.

analysis to countries representing 95 per cent of world GDP and concludes that strengthening worker protection is associated with rising employment and falling unemployment alongside an increase in labour's share of national income.<sup>29</sup>

Although these studies suggest that worker-protective labour laws can have beneficial economic effects, these effects are most likely to be present when labour laws are combined with certain features of labour market environments, including effective enforcement and a widely shared belief in the legitimacy of labour standards.<sup>30</sup> Relatedly, the characterisation of labour laws as 'constituting' the market, according to systemic theory, entails that they should be customised to the particular environment within which they emerged. According to this point of view, labour laws will only be able to properly support development when they are adapted to countries' specific economic and political settings.<sup>31</sup> Systemic approaches therefore qualify views that advocate for the universality of labour laws,<sup>32</sup> and point to the need to adapt labour regulations to countries' level of development.<sup>33</sup>

To conclude this part, the empirical evidence and the systemic theory point to the potential role played by labour standards in promoting long-term economic growth. In that sense, they suggest that both developing and developed countries will gain positive payoffs from cooperation over labour standards. However, the same

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<sup>29</sup> Zoe Adams and others, 'The Economic Significance of Laws Relating to Employment Protection and Different Forms of Employment: Analysis of a Panel of 117 Countries, 1990-2013' (2019) 158 *International Labour Review* 1, 20–21.

<sup>30</sup> *ibid* 2, 19.

<sup>31</sup> Deakin, 'Chapter 3: The Contribution of Labour Law to Economic and Human Development' (n 17) 113–14.

<sup>32</sup> *ibid* 135.

<sup>33</sup> *ibid* 137–38; See also: T. N. Srinivasan, 'International Trade and Labor Standards' in Arvid Lukauskas, Robert M. Stern, and Gianni Zanini (eds), *Handbook of Trade Policy for Development* (OUP 2014) 922, 929, 942. For recent empirical studies that support this idea, see, eg: Colin Fenwick, 'The ILO and National Labour Law Reform: Six Case Studies' in Shelley Marshall and Colin Fenwick (eds), *Labour Regulation and Development: Socio-Legal Perspectives* (Edward Elgar 2016) 235.

results and theory suggest that labour standards need to be applied in a way which takes into account states' different levels of development.<sup>34</sup>

### **3. Characterising Global Labour Governance according to Game Theoretical Models**

We now turn to a more detailed analysis of game theoretical models and of their relevance for the institutional design of labour standards.

#### **A. Defining the Payoffs in Game Theoretical Models**

Game theory models strategic interaction between rational agents who reach decisions according to the expected behaviour of their counterparties, in an attempt to maximise the expected payoffs from their actions.<sup>35</sup> When modelling the strategic interaction of states, the application of game theory is based on a similar underlying assumption, that is, 'of self-interested action by strategically rational states'.<sup>36</sup> However, unlike individuals, states are comprised of a multitude of actors and objectives. Moreover,

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<sup>34</sup> Indeed, the idea that countries' level of development 'make(s) strict uniformity in the conditions of labour difficult of immediate attainment', was recognised already with the founding of the ILO. See: Treaty of Versailles (n 9) art 427. In this regard, the Constitution of the ILO establishes that when framing conventions and recommendations, there should be given 'due regard to those countries in which... the imperfect development of industrial organization... make[s] the industrial conditions substantially different'. See: ILO Constitution (n 9) art 19(3). Accordingly, the General Conference of representatives of the Members has adopted a range of instruments allowing to 'take into account different conditions and levels of development among member States'. See: ILO, *Manual for Drafting ILO Instruments* (Online rev edn, International Labour Office 2011) [133]. See also: ILO, *Handbook of Procedures Relating to International Labour Conventions and Recommendations: Revised Edition 2012* (International Labour Office 2012) [9].

<sup>35</sup> Martin J. Osborne and Ariel Rubinstein, *A Course in Game Theory* (MIT Press 1994) 1–2, 5.

<sup>36</sup> Duncan Snidal, 'The Game Theory of International Politics' (1985) 38 *World Politics* 25, 27. See also, for example, Jack L. Goldsmith and Eric A. Posner, *The Limits of International Law* (OUP 2005) 7: 'Our theory of international law assumes that states act rationally to maximize their interests. This assumption incorporates standard premises of rational choice theory'; Andrew Guzman, *How International Law Works: A Rational Choice Theory* (OUP 2008) 17: 'States are assumed to be rational, self-interested, and able to identify and pursue their interests... [these] are standard assumptions among social scientists and many international law scholars'. Guzman reviews possible critiques of rational choice assumptions in pages 18–21.

this assumption of states' rationality can in practice be circumscribed by bureaucratic or organisational factors. Given these complexities, the challenge is to correctly analyse 'states' motivations and how their preferences map into payoffs'.<sup>37</sup> The more such analysis is reflective of reality, the better these models will accurately expand understanding of international behaviour.<sup>38</sup> Therefore, in order to characterise the current reality of global labour governance according to the appropriate game theoretical model, the first step is to define the payoffs of the game.

When states cooperate, their immediate gains are the social benefits deriving from the prevalence of higher labour standards. These payoffs, such as fewer school-age children employed in waged work, can contribute to the wellbeing, dignity and welfare of the population.<sup>39</sup> In addition, as emphasised by the systemic theory and the empirical evidence on the long-term economic effects of labour laws, cooperating states also benefit from longer-term economic payoffs.<sup>40</sup> With labour standards in place, the cooperating countries can gain improved productivity, a more balanced economy and more sustainable growth, although these benefits may not be captured straight away.<sup>41</sup>

When considering the payoffs attributed to defection from international labour standards, defecting states can benefit by attracting more investments and from an

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<sup>37</sup> Snidal, 'The Game Theory of International Politics' (n 36) 40.

<sup>38</sup> *ibid* 27, 43–44.

<sup>39</sup> On the social benefits deriving from labour rights, see, eg: Hugh Collins, 'Theories of Rights as Justifications for Labour Law' in Guy Davidov and Brian Langille (eds), *The Idea of Labour Law* (OUP 2011) 137; Virginia Mantouvalou, 'Are Labour Rights Human Rights?' (2012) 3 ELLJ 151, 164–165.

<sup>40</sup> The new empirical results on the economic benefits of labour laws are not out of line with states' actual perception. That is, there are examples of states' policies that promote labour standards for development purposes. The European Employment Strategy of the European Commission, for example, is based on the belief that 'to contribute to economic growth and competitiveness, better quality jobs are required as well as enhanced investments in human and social capital'. See: European Commission, *Ten Years of the European Employment Strategy (EES)* (European Communities 2007) 24.

<sup>41</sup> Deakin and Wilkinson (n 7) 308.

increase in exports, at the expense of states who adhere to these labour standards. This, in turn, can lead to higher employment and to economic growth in the defecting states. These economic benefits, are however, short-term gains, as even the defecting states themselves would have benefited from higher payoffs in the long run by cooperating. By refraining from defection and respecting labour standards, these states could have still attracted investment, and at the same time avoided their reliance on lower-wage and lower productivity employment.<sup>42</sup> It is possible that these states may disregard the future or may discount this scenario altogether. Whether or not that is the case, defecting states run the risk that once other states adjust their response and also defect, their comparative advantage will cease to exist and even these short-term gains from defection will not be realised. This is the sense in which the race to the bottom is a collective action problem: while all parties are in a position to benefit from cooperation, mutual defection results from their inability to coordinate their actions around acceptance and enforcement of the relevant labour standards.

With these possible payoffs in mind, the strategic options facing states can be characterised according to three game theoretical models: the prisoner's dilemma, the stag hunt game, and the hawk-dove game. It will be argued that they all model the collective action problem faced by countries in a slightly different way; conversely, none of them should be viewed as exclusive uniquely correct description of the situation. Indeed, game theoretical models 'are not supposed to be isomorphic with reality',<sup>43</sup> and 'they are neither "right" nor "wrong"'.<sup>44</sup> The application of game

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<sup>42</sup> Hyde, 'A Stag Hunt Account and Defense of Transnational Labour Standards—A Preliminary Look at the Problem' (n 8) 11–14.

<sup>43</sup> Ariel Rubinstein, 'Comments on the Interpretation of Game Theory' (1991) 59 *Econometrica* 909, 918.

<sup>44</sup> Martin J. Osborne, *An Introduction to Game Theory* (OUP 2003) 2.

theoretical models to real-life situations should thus be perceived merely as a useful conceptual framework that can shed further light on the legal situations at hand.

## **B. The Prisoner's Dilemma**

The first possible way to understand the circumstances states are facing in this era of economic globalisation is through the prisoner's dilemma game. The basic model of the prisoner's dilemma refers to a situation where there are two actors, each of whom can either cooperate or not cooperate with the other. The model assumes not just that both actors are rational, but also, in Aumann's important clarification, that they 'ascribe rationality to each other' in a state of 'common knowledge of rationality'.<sup>45</sup> Under these conditions, and when the game is played once, it is never in their interest to cooperate. This is because, for each actor, defection will always lead to higher gains, and this is so whether the counterparty chooses to defect or to cooperate, and regardless of the lower overall or aggregate efficiency which ensues (see Figure 1 below). This makes defection the dominant strategy, meaning that it is the best strategy for each actor regardless of how the other actor chooses to act.<sup>46</sup> Because, in the presence of common knowledge, each actor knows that the other will defect, defection becomes the only rational choice for both, and accordingly mutual defection is a Nash equilibrium in this game (the shadowed box).<sup>47</sup> As a result, each of them is

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<sup>45</sup> That is, 'all players know that all are rational, all know this, all know this, and so on ad infinitum (or at least, for... the maximum duration of the game)'. See: Robert J. Aumann, 'Backward Induction and Common Knowledge of Rationality' (1995) 8 *Games and Economic Behavior* 6, 7. See also: Robert J. Aumann, 'Agreeing to Disagree' (1976) 4 *The Annals of Statistics* 1236.

<sup>46</sup> Shaun P. Hargreaves Heap and Yanis Varoufakis, *Game Theory: A Critical Text* (2nd edn, Routledge 2004) 48.

<sup>47</sup> *ibid* 172–73. A 'Nash equilibrium' is a situation where the actors, which are acting according to their own self-interest, arrive at a particular kind of stable state... from which they have no reason to deviate, if they have full knowledge of the structure of the game, including the strategy that each of them will follow'. See: Deakin, 'Legal Evolution: Integrating Economic and Systemic Approaches' (n 5) 661.

worse off than if they had *both* cooperated. The challenge is therefore to overcome individual self-interest in favour of mutual cooperation, in order to achieve a better outcome for them both.<sup>48</sup>

<i>Prisoner's dilemma</i>	<i>Cooperate</i>	<i>Defect</i>
<i>Cooperate</i>	2,2	0,3
<i>Defect</i>	3,0	1,1

**Figure 1**

Applying this model to the scenario of market competition of the globalised economy, it can be argued that if all countries were to cooperate on the level of labour regulation, they would collectively enjoy higher gains compared to a state of non-cooperation. In other words, such cooperation would allow countries to respect labour standards, without the risk of others gaining a comparative trade advantage through defection. Moreover, by respecting labour standards, the cooperating countries could benefit in the long-term from higher productivity of their labour markets and will thus enjoy higher economic growth. However, facing a prisoner's dilemma, countries are rationally driven not to cooperate, that is, to decrease their level of labour regulation. This would be true regardless of the course of action chosen by other countries. Through the downgrading of their labour standards, countries would try to ensure

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<sup>48</sup> Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton University Press 1984) 68–69; Duncan Snidal, 'Coordination versus Prisoners' Dilemma: Implications for International Cooperation and Regimes' (1985) 79 *The American Political Science Review* 923, 926–27.

their ability to compete with other countries with weaker labour regulations; or alternatively, gain a comparative advantage compared to countries with stronger regulations. The result would be a reduction of labour standards in all countries, meaning no social gains in the short-term and no longer-term developmental gains. Moreover, because all countries would defect in the end, not even early defectors would gain a substantial comparative advantage from this reduction of labour standards, and thus the advantages of defection would never be realised in full. Instead, each state would be stuck in a low-level equilibrium 'trap' with low payoffs in both social and economic dimensions.

Evolutionary and epistemic models, however, suggest two possible solutions to this collective action problem so described. The first method is to play the game for an indeterminate duration. Evolutionary models predict that when games are played repeatedly, actors can reach an equilibrium of cooperation through a learning process of observation and experimentation.<sup>49</sup> With regards to the prisoner's dilemma, while in a single-play of the game the narrow self-interest of states generally leads to non-cooperation, in a repeated prisoner's dilemma, states have greater incentives to cooperate. This is because, in such an ongoing relationship, the choices of actors are influenced by their concerns about the future.<sup>50</sup> Actors are aware that their decisions in a current 'round' will bear circumstances in future 'rounds', and will therefore consider beforehand these possible future reactions by other actors, and reflect them in their current decisions. Assuming that their relationship will be repeated for an

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<sup>49</sup> H. Peyton Young, *Individual Strategy and Social Structure: An Evolutionary Theory of Institutions* (Princeton University Press 1998) 3–6, 25–30.

<sup>50</sup> Russell Hardin, *Collective Action* (Resources for the Future 1982) 13; Robert Axelrod and Robert O. Keohane, 'Achieving Cooperation under Anarchy: Strategies and Institutions' (1985) 38 *World Politics* 226, 232.

indeterminate amount of time,<sup>51</sup> such long-term reciprocity between countries better facilitates cooperation.<sup>52</sup>

A second possible solution to the collective action problem is to play the game with the assistance of a correlating device. A correlating device, also known as a 'choreographer', is a 'commonly observable event' that signals to each player a suggested strategy to follow.<sup>53</sup> The operation of a correlating device contributes to the creation of a 'correlated equilibrium'. This is a Nash equilibrium under which each player 'chooses a best response to the move of the other, assuming the other carries out the choreographer's directive'.<sup>54</sup> In these circumstances, the suggested strategy of the correlating device will serve as the best possible response for each player to follow, and from which rational players will have no incentive to deviate.<sup>55</sup> A correlating device can thus coordinate the actions of different actors around its directions, and by those means help them achieve stable and mutually-beneficial cooperative outcomes.<sup>56</sup>

When applying these solutions in a prisoner's dilemma game, indeterminate play may be enough to generate a Pareto-optimal equilibrium under which cooperation emerges.<sup>57</sup> However, even a situation of a prisoner's dilemma that is played indeterminately may benefit from a correlating device as an additional measure that can foster cooperation. This is because after cooperation has been

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<sup>51</sup> Hargreaves Heap and Varoufakis (n 46) 191.

<sup>52</sup> Hardin, *Collective Action* (n 50) 13; Robert Axelrod, *The Evolution of Cooperation* (Basic Books 1984) 12.

<sup>53</sup> Gintis, *The Bounds of Reason: Game Theory and the Unification of the Behavioral Sciences* (n 4) 44.

<sup>54</sup> *ibid.* This idea was originally suggested by Aumann, see: n 3.

<sup>55</sup> Gintis, *The Bounds of Reason: Game Theory and the Unification of the Behavioral Sciences* (n 4) 142–43.

<sup>56</sup> Deakin, 'Legal Evolution: Integrating Economic and Systemic Approaches' (n 5) 667–68.

<sup>57</sup> Hargreaves Heap and Varoufakis (n 46) 196–202; Deakin, 'Legal Evolution: Integrating Economic and Systemic Approaches' (n 5) 666.

achieved under these circumstances, states continue to constantly face strong incentives to defect.<sup>58</sup>

Moreover, even after an equilibrium of cooperation has been achieved in a prisoner's dilemma, according to evolutionary game theory<sup>59</sup> there is still a 'mismatch risk' that can 'tip' the efficient strategy of cooperation to an inefficient state of non-cooperation. This is because when a norm of cooperation forms as an evolutionarily stable strategy,<sup>60</sup> cooperating actors can still experience random mutations to their strategies throughout the course of the repeated play.<sup>61</sup> Simultaneous mutations to actors' strategies, from cooperation to defection, can lead to the 'tipping' of the cooperating equilibrium towards an equilibrium of defection. In this situation it is rational for all actors to defect. Moreover, where there is a 'mismatch risk', a smaller number of mutations will be sufficient for such 'tipping' to occur.<sup>62</sup> Even a Pareto optimal strategy, which provides the highest payoffs to all actors, may not be stable in this scenario.<sup>63</sup> When the 'mismatch risk' of the cooperating strategy being 'tipped' is greater than the potential gains to actors from continuing to follow that strategy, it will be undermined. In such circumstances there is a need for an external institution

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<sup>58</sup> Snidal, 'Coordination versus Prisoners' Dilemma: Implications for International Cooperation and Regimes' (n 48) 926; Axelrod and Keohane (n 50) 244.

<sup>59</sup> Evolutionary game theory refers to a 'process of weaning strategies', that is, 'strategies (varieties of behaviour) with some surviving and some disappearing depending on their "success"'. See: Hargreaves Heap and Varoufakis (n 46) 213.

<sup>60</sup> An evolutionarily stable strategy (ESS) is a 'strategy such that, if most of the members of a population adopt it, there is no "mutant" strategy that would give higher reproductive fitness'. See: J. Maynard Smith and G. R. Price, 'The Logic of Animal Conflict' (1973) 246 *Nature* 15, 15. Outside the biological context, the 'fitness' of a strategy is judged according to other kinds of payoffs, such as economic and social gains.

<sup>61</sup> Paul G. Mahoney and Chris W. Sanchirico, 'Competing Norms and Social Evolution: Is the Fittest Norm Efficient?' (2001) 149 *University of Pennsylvania Law Review* 2027, 2044.

<sup>62</sup> *ibid* 2046–47.

<sup>63</sup> *ibid* 2028–29.

that will alter the payoffs and by that guide the evolutionary process back to the efficient strategy.<sup>64</sup> This is the role played by the correlating device.<sup>65</sup>

### C. The Stag Hunt Game

The second relevant game theoretical model to the collective action problem is the stag hunt game. Again, actors can either cooperate (hunt a stag together) or defect (hunt a hare alone). As the stag is more valuable than the hare, cooperation will lead to higher payoffs as opposed to defection. However, without enough actors working together, the stag cannot be hunted, and the cooperating agents will be left empty handed<sup>66</sup> (see Figure 2 below). Therefore, if the game is played once, a rational actor will choose to defect (and settle with a hare), if he rationally believes that others are going to defect.<sup>67</sup> In other words, defection is an actor's best response strategy<sup>68</sup> when others are rationally expected to defect, because it will provide the actor with the largest payoffs in these circumstances. However, cooperation is the better strategy if each party believes that the other will cooperate. Accordingly, there are two Nash equilibria in the stag hunt game (the shadowed boxes).<sup>69</sup>

<i>Stag hunt</i>	<i>Stag</i>	<i>Hare</i>
<i>Stag</i>	3,3	0,2

<sup>64</sup> *ibid* 2029.

<sup>65</sup> Samuel Bowles and Herbert Gintis, *A Cooperative Species: Human Reciprocity and its Evolution* (Princeton University Press 2011) 89–90.

<sup>66</sup> Ken Binmore, Alan Kirman and Piero Tani, 'Introduction: Famous Gamesters' in Ken Binmore, Alan Kirman and Piero Tani (eds), *Frontiers of Game Theory* (MIT Press 1993) 1, 18.

<sup>67</sup> Douglas G. Baird, Robert H. Gertner and Randal C. Picker, *Game Theory and the Law* (Harvard University Press 1994) 36.

<sup>68</sup> On best response strategy, see: Hargreaves Heap and Varoufakis (n 46) 42.

<sup>69</sup> Binmore, Kirman and Tani (n 66) 18.

<i>Hare</i>	2,0	2,2
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**Figure 2**

The idea that international labour regulation is a version of the stag hunt game has been argued and developed by Alan Hyde. The main distinction between the stag hunt game and the prisoner's dilemma relates to Hyde's characterisation of the payoffs from defection from certain international labour standards. These payoffs, which Hyde identifies as improved access to trade and investment are characterised in his model as 'short-term' and relatively limited in scale. By viewing payoffs from defection as relatively low and of short duration, Hyde concludes that cooperating countries will not generally gain from defection. Thus for him, international labour law is a stag hunt game.<sup>70</sup> Guy Davidov, on the other hand, argues against the assumption that countries do not gain a competitive advantage by defecting from these labour standards. According to his argument, when developing countries compete with developed ones, often the only way for them to attract investment is by reducing their costs of labour.<sup>71</sup> It follows that if some countries will benefit from lowering their labour standards, there are incentives to defect from cooperation, which results again in a prisoner's dilemma scenario.

On a closer reflection it is clear that the question of whether the collective action problem is better characterised here as a prisoner's dilemma or a stag hunt game does not help us resolve the problem. In fact, both models contribute to the

<sup>70</sup> Hyde, 'A Stag Hunt Account and Defense of Transnational Labour Standards—A Preliminary Look at the Problem' (n 8) 10–13; Hyde, 'The ILO in the Stag Hunt for Global Labor Rights' (n 8) 162–65.

<sup>71</sup> Guy Davidov, 'Comment on Alan Hyde: The Perils of Economic Justifications for International Labor Standards' (n 8) 183–84.

understanding of this situation, while leading to similar conclusions. In a prisoner's dilemma game, if played once, actors' self-interest always leads them to not cooperate. In a stag hunt game, actors will rationally cooperate if they have reason to think that their counterparty will also cooperate, otherwise they will not.<sup>72</sup> It is therefore understood that either way, there is a need to foster cooperation between actors. In both cases the question then is how to generate trust between states on compliance with international labour standards.<sup>73</sup> With trust, states will be able to escape the non-cooperative equilibrium outcome and achieve higher payoffs in the prisoner's dilemma game, and select the equilibrium outcome with the higher payoffs in the stag hunt game. The two measures that are discussed in this paper: indeterminate play and the correlating device, can promote trust and cooperation in both of these game-theoretical models.<sup>74</sup>

The difference between the two models is that while in a prisoner's dilemma there is one Nash equilibrium of mutual defection, in the stag hunt game there is an additional Nash equilibrium of cooperation. But this does not mean that cooperation is inherently more likely in the stag hunt game. On the contrary, evolutionary models predict that when a group of actors play the stag hunt game repeatedly, they can end up both ways, either all cooperating ('hunting stag') or all defecting (hunting hare').<sup>75</sup> In these circumstances, where there are two possible equilibrium outcomes, there is a

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<sup>72</sup> Osborne (n 44) 27–28.

<sup>73</sup> For the stag hunt game, see: Hyde, 'A Stag Hunt Account and Defense of Transnational Labour Standards—A Preliminary Look at the Problem' (n 8) 19; for the prisoner's dilemma see: Hargreaves Heap and Varoufakis (n 46) 176.

<sup>74</sup> On the benefits of indeterminate play for the promotion of cooperation in the stag hunt game, see, for example: Kenneth A. Oye, 'Explaining Cooperation Under Anarchy: Hypotheses and Strategies' (1985) 38 *World Politics* 1, 13–14. See in this regard also: Hyde, 'A Stag Hunt Account and Defense of Transnational Labour Standards—A Preliminary Look at the Problem' (n 8) 15–16. On the possible benefits of indeterminate play in support of the role of the correlating device (in the context of the prisoner's dilemma game), see: Bowles and Gintis (n 65) 90.

<sup>75</sup> Hargreaves Heap and Varoufakis (n 46) 216–17.

need for an equilibrium selection device, such as the correlating device, that could assist in selecting the cooperating equilibrium.<sup>76</sup>

#### **D. The Hawk-Dove Game**

Hyde's characterisation of international labour law as a stag hunt game is based on a distinction between different types of labour standards. More specifically, it rests on the argument that compliance with some labour standards is always in countries' interests, thus leading to the highest possible payoffs.<sup>77</sup> According to this argument, however, adherence to certain other labour standards might not be in the economic interest of all countries; thus there is in their case a real temptation for defection, which in turn will result in a prisoner's dilemma situation.<sup>78</sup> Hyde is correct to bring into the analysis the symbiotic relationship between labour standards and long-term economic growth, but contrary to his argument, the prisoner's dilemma is not the only way to model the outcome.

As we have seen in section 2 above, there is a growing understanding that labour rights should be adapted to countries' levels of development.<sup>79</sup> This is because, at higher levels of development, countries have greater capacity to comply with more protective labour standards. This adherence creates a virtuous circle: observing higher standards, far from entailing an economic burden, will embed practices which serve to enhance firms' productive efficiency.<sup>80</sup> The implication of this observation for the current discussion is that the question of whether labour standards are too 'costly' for countries, with the implication that defection would provide them with higher payoffs,

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<sup>76</sup> Hyde, 'A Stag Hunt Account and Defense of Transnational Labour Standards—A Preliminary Look at the Problem' (n 8) 17–19.

<sup>77</sup> *ibid* 11–14.

<sup>78</sup> *ibid* 25.

<sup>79</sup> See discussion accompanying notes 30–33.

<sup>80</sup> Streeck (n 20) 200–201.

does not solely depend on the type of the right or standard in question, but also on a given country's level of development. Developed countries can be expected to derive high payoffs from respecting highly protective labour standards, while developing countries could expect to gain by defecting even from more 'basic' ones.

The understanding that differences in countries' level of development create asymmetric interests between them has consequences for the appropriate game theoretical characterisation of international labour regulation. While the prisoner's dilemma and stag hunt games assume that actors are symmetrical in terms of their economic power,<sup>81</sup> in reality there are great asymmetries between states, both in terms of their powers and in terms of their interests. In this scenario, the game theoretical model that best resembles the situation at hand is the hawk-dove game.

The hawk-dove model describes a game in which actors can choose to act aggressively ('hawk') or peacefully ('dove'). If both act peacefully, they equally divide the payoffs between them; but if one acts peacefully while the other acts aggressively, the latter gains all of the benefits to himself. If both act aggressively, the actors will fight over the resource, creating losses for both sides (see Figure 3 below). One of the actors will eventually win in this fight and capture all the gains, while the other will both leave empty handed and suffer losses from the battle.<sup>82</sup> In such circumstances, it is better for a 'weak' actor who is facing a 'strong' hawk to play dove, even if he is exploited by the other actor. Since this weak actor will not be able to benefit from the resource, its best response strategy in such circumstances will be to avoid the harm of the fight. In this asymmetrical game, models predict that a convention will emerge according to which 'strong' actors regularly play hawk and

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<sup>81</sup> Duncan Snidal, 'Relative Gains and the Pattern of International Cooperation' (1991) 85 *The American Political Science Review* 701, 705–706.

<sup>82</sup> Robert Sugden, *The Economics of Rights, Co-operation and Welfare* (Basil Blackwell 1986) 59–60.

'weak' actors regularly play dove. Such a convention will generate a stable, but highly unequal, equilibrium.<sup>83</sup> Accordingly, the two Nash equilibria are the bottom left-hand and the top right-hand boxes (the shadowed boxes).<sup>84</sup>

<i>Hawk-dove</i>	<i>Dove</i>	<i>Hawk</i>
<i>Dove</i>	2,2	0,3
<i>Hawk</i>	3,0	-1,-1

**Figure 3**

Applying the hawk-dove game model to global labour governance, it can be seen that power differences between developed and developing states, along with their diverging interests, might well result in a one-sided arrangement, disproportionately favouring the interests of developed states. Therefore, although the Pareto-superior outcome is one where the payoffs from cooperation are shared equally (the top left-hand box), it is in the interest of powerful countries to maintain an unequal relationship with weaker developing countries in order to preserve their relative advantage.

In terms of market access, it is generally agreed that the current state of liberalised trade provides developed countries with significantly more access to developing countries' markets than the other way around.<sup>85</sup> This can be explained by the greater bargaining power of developed countries in the negotiations over

<sup>83</sup> *ibid* 91.

<sup>84</sup> Hargreaves Heap and Varoufakis (n 46) 73.

<sup>85</sup> Joseph E. Stiglitz, *Making Globalization Work* (W. W. Norton & Company 2006) 62.

international trade agreements. Developing countries face barriers that constrain both their ability to influence these agreements, as well as to stand up for their interests afterwards through the dispute settlement system.<sup>86</sup> Indeed, the result of these power differences is that many of the current trade restricting measures, such as tariffs, subsidies and antidumping duties, place developing countries at a systematic disadvantage.<sup>87</sup> Developed countries impose tariffs against developing countries that are four times higher than the tariffs imposed against other developed ones.<sup>88</sup>

In this highly asymmetric hawk-dove scenario, international labour law is inherently unstable. This is because adherence to a system of international labour standards will tend to benefit developed countries, but not developing countries, which will benefit from defecting against some of these standards. As Davidov acknowledges, when developing countries compete with developed ones over investments, '[i]f they "cooperate" with developed countries and toughen their labor standards, they will not enjoy any piece of the investment'.<sup>89</sup> As he suggests, compliance with labour standards makes it possible for a powerful actor 'to secure an investment while also maintaining high labor standards (=the stag)', with the weak actor 'being left with nothing at all'.<sup>90</sup> However, it is important to recognise the hawk-dove nature of this interaction as this provides the key not just to understanding the dilemmas of international labour regulation in a globalised trading regime, but also to resolving these dilemmas.

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<sup>86</sup> Michael Trebilcock, Robert Howse and Antonia Eliason, *The Regulation of International Trade* (4th edn, Routledge 2013) 615–20. See also: Stiglitz (n 85) 76. Developing countries are also constrained by their dependency on access to developed countries' markets. See: Simon Deakin, 'Labour Law and Development in the Long Run' in Shelley Marshall and Colin Fenwick (eds), *Labour Regulation and Development: Socio-Legal Perspectives* (Edward Elgar 2016) 33, 37.

<sup>87</sup> Trebilcock, Howse and Eliason (n 86) 606–607.

<sup>88</sup> Stiglitz (n 85) 78.

<sup>89</sup> Davidov, 'Comment on Alan Hyde: The Perils of Economic Justifications for International Labor Standards' (n 8) 184.

<sup>90</sup> *ibid.*

The characterisation of labour regulation in terms of a hawk-dove game undoubtedly poses problems for any attempt to see international standards as an effective solution to the collective action problem in this context.

In the hawk-dove game model, indeterminate play by itself will be ineffective. This is because in the course of the evolutionary play of the hawk-dove game, an equilibrium that favours the strong actor will eventually emerge.<sup>91</sup> The strong actor has no incentive to change his ‘hawk’ strategy, no matter how many times the game is played, leaving no choice to the weak actor but to continue playing ‘dove’.

In these circumstances, there is a need to alter the payoff structure of the game, which, again, can in principle be achieved through a correlating device. However, when it comes to the hawk-dove game, the operation of a correlating device entails special difficulties. The reason is that the asymmetries between the actors make it more difficult to influence the payoffs of the strong actor and to make it in his interest to change his strategy. In order to overcome this problem, a unique form of the correlating device is needed, one which is tailored to the circumstances of the hawk-dove game.

#### **4. International Labour Law and International Trade Law are Complementary in Fostering Global Cooperation on Labour Rights**

##### **A. The Possibility of Promoting Collective Action with an Accommodated Approach to International Labour Regulation**

As discussed above, when international labour standards are adapted to the political and economic settings of countries, they are able to properly support development

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<sup>91</sup> Hargreaves Heap and Varoufakis (n 46) 251–52.

efforts. The current discussion will therefore examine whether international labour standards that do not produce completely uniform effects can still serve as a form of cooperation between states that can prevent a race to the bottom.

The basic 2 x 2 representation of the game-theoretical models, as described thus far, where actors can either cooperate or defect, is inevitably an oversimplification of a more complex reality. In practice, there is a range of intermediate policy decisions available to countries between these two extremes.<sup>92</sup> Indeed, the flexibility of international labour standards allows different countries to tailor them to different levels of economic development.<sup>93</sup> Moreover, excluding the core labour standards, states are not obliged to adhere to any ILO convention they did not choose to ratify. The latitude given to states means that the highest level of cooperation will not necessarily be pursued; but there are in fact many different levels of cooperation available to every country.

In such circumstances, when there are 'graduated' levels of cooperation available, the fullest level of cooperation might not be the only Pareto-efficient outcome. Under a prisoner's dilemma game, for example, it has been shown that all parties in this case will benefit by improving their initial situation of non-cooperation, also by pursuing a variety of partial levels of cooperation.<sup>94</sup> Furthermore, according to this game theoretical model, it is not necessary that only what seems to be the fullest level of cooperation will always lead to the best possible outcome for the actors involved. In reality, due to lack of information and the complexity of situations, the

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<sup>92</sup> Snidal, 'Coordination versus Prisoners' Dilemma: Implications for International Cooperation and Regimes' (n 48) 925; Barbara Koremenos, Charles Lipson and Duncan Snidal, 'The Rational Design of International Institutions' (2001) 55 *International Organization* 761, 765.

<sup>93</sup> Laurence R. Helfer, 'Understanding Change in International Organizations: Globalization and Innovation in the ILO' (2006) 59 *Vanderbilt Law Review* 649, 675–76. See also: note 34.

<sup>94</sup> Snidal, 'Coordination versus Prisoners' Dilemma: Implications for International Cooperation and Regimes' (n 48) 928.

optimal form of cooperation is not always apparent.<sup>95</sup> It is therefore understood that in order for countries to avoid destructive competition, full cooperation – namely universal and uniform application of all labour laws – is not necessarily the only available solution. Countries might still be able to cooperate for the benefit of all, by ensuring intermediate levels of labour rights enforcement.

Deciding on the exact level of cooperation is ultimately a question of distribution of costs and benefits among countries. Through negotiations, each country will pursue the level of cooperation that will suit its interests most effectively. However, it should be kept in mind that an 'optimal' level of cooperation is not an objective matter; it is largely dependent upon the unique preferences of each of the actors involved.<sup>96</sup> The asymmetry between states leads them to evaluate the welfare gains from each cooperation differently. Therefore, when states negotiate a particular cooperative strategy, issues that are crucial to developing countries might be less crucial for developed countries, and vice versa.<sup>97</sup> This means that reciprocal relationships between different states do not necessarily require them to adopt identical obligations.<sup>98</sup>

A possible implication for the current discussion is that an accommodated approach to labour rights may well serve as a form of cooperation that serves the interests of all countries. Differences in the 'measurement of payoffs'<sup>99</sup> between countries with different levels of development may enable agreement that grants developing countries access to international trade without committing them to compliance with the higher labour standards observed in developed countries. This is

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<sup>95</sup> *ibid.*

<sup>96</sup> *ibid*; Koremenos, Lipson and Snidal (n 92) 765, 775.

<sup>97</sup> Snidal, 'The Game Theory of International Politics' (n 36) 47–48.

<sup>98</sup> Robert O. Keohane, 'Reciprocity in International Relations' (1986) 40 *International Organization* 1, 7–8.

<sup>99</sup> Snidal, 'The Game Theory of International Politics' (n 36) 48.

because the benefits of liberalised trade for developed countries will sufficiently outweigh the costs to them of competition from developing countries for them to desist from a strategy of defecting against international labour standards.<sup>100</sup>

Developed countries generally hold a comparative advantage in higher value exports whereas developing countries' advantage tends to be in the least value added exports. Specifically, developed countries focus more on the production of capital-intensive goods rather than labour-intensive goods,<sup>101</sup> and thus may be less influenced by any asymmetries in the costs of labour.<sup>102</sup> For these reasons, full equalisation of labour costs is not a precondition for the integration of countries at different levels of development into a common international trading regime. However, for mutual gains to be realised, certain institutional complementarities between international labour law and international trade law need to be put in place.

## **B. International Trade Law as a Mechanism that Creates an Indefinitely Repeated Play**

In understanding these complementarities, the first step is to see international trade regime as a means of establishing relationships between states which have an

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<sup>100</sup> Joseph Stiglitz, for example, remarks that '[t]he advanced industrial countries have long benefited from the raw materials they get from the developing world. More recently, their consumers have benefited enormously from low-cost manufactured goods of increasingly high quality.' See: Stiglitz (n 85) 100.

<sup>101</sup> Trebilcock, Howse and Eliason (n 86) 621–22.

<sup>102</sup> As Joseph Stiglitz and Andrew Charlton argue, 'what developing countries do in opening up their markets to developed countries has a much smaller impact on the developed countries than the converse-what the developed countries do in opening up their markets to the developing world. In short, the developed countries themselves gain from liberalizing their own markets, because they are able to adjust, and the disturbances posed to them by developing countries are small.' See: Joseph E. Stiglitz and Andrew Charlton, *Fair Trade for All: How Trade can Promote Development* (OUP 2005) 108.

indeterminate duration.<sup>103</sup> Thus in the presence of international agreement on trade, a game theoretical analysis of states' interactions over labour standards should not be analysed according to a single-play game – rather it should be analysed as an indefinitely repeated play.

As discussed above, indefinitely repeated play supports cooperation. Thus, if we assume a prisoner's dilemma scenario, it may be that such an indeterminate relationship between nations can be sufficient to promote cooperation over labour regulations. The repeated play established by international trade encourages countries to regulate their labour conditions, eventually reaching an equilibrium in which cooperation is the dominant strategy. In these circumstances, international labour standards may not be needed, and it suffices that each country develops its own domestic labour standards.

This is a good argument as far as it goes but it does not take account of asymmetries between states. Consider, for example, the approach adopted by the European states when establishing the European Economic Community in the Treaty of Rome in 1957. While created a transnational trading regime, the EEC Treaty also assumed that there was no need for the harmonisation of labour regulations through a centralised mechanism, and that social policies could be set at the national level

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<sup>103</sup> While the agreement establishing the World Trade Organization addresses the possibility of withdrawals by particular countries (art XV), it does not contain a termination clause. See: Marrakesh Agreement Establishing the World Trade Organization, 1867 UNTS 154, (1994) 33 ILM 1144. 'A treaty that does not contain an express termination clause is considered to continue indefinitely, although it may be terminated at any time by consent of all the parties'. See: Laurence R Helfer, 'Terminating Treaties' in Duncan B. Hollis (ed), *The Oxford Guide to Treaties* (OUP 2012) 634, 644. John Setear similarly argues that 'the law of treaties, as well as the provisions of particular treaties, should encourage repeated interactions among nations and the adoption of certain strategies tending to lead to international cooperation'. See: John K. Setear, 'An Iterative Perspective on Treaties: A Synthesis of International Relations Theory and International Law' (1996) 37 *Harvard International Law Journal* 139, 140. Jack Goldsmith and Eric Posner argue, on the other hand, that the Vienna Convention does not promote 'iteration beyond that contemplated in the underlying treaty itself'. See: Goldsmith and Posner (n 36) 97–98.

instead. This is because the drafters of the Treaty assumed that trade itself would be sufficient to ensure, with only a few exceptions, that labour standards would ‘level up’.<sup>104</sup> However, today, with greater asymmetries between states, both within the EU and to a greater extent at the international level, the situation is better characterised as a hawk-dove game, rendering indefinitely repeated play as an insufficient solution to foster cooperation over labour regulation.<sup>105</sup>

This perspective points to the need for international labour standards to be developed in a way that complements international trade law. In this regard, a second implication of the indeterminate relationship established through international trade is that, in the presence of such agreement, states may be more willing to cooperate on a regime of differentiated labour standards (the accommodated approach to labour regulation), as opposed to a regime of strict uniformity. If states can expect to enjoy the fruits of cooperation in trade over an extended period of time, they may be prepared to trade off short-term disruption to their economies from the opening up of competition, lessening the need for full and immediate harmonisation of labour standards across states at different levels of development.<sup>106</sup>

### **C. International Labour Law as a Correlating Device**

In what sense precisely can an ‘accommodating’ version of international labour law complement the indefinite-play aspect of international trade law? Correlating devices

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<sup>104</sup> Simon Deakin, 'The Lisbon Treaty, the Viking and Laval Judgments and the Financial Crisis: In Search of New Foundations for Europe's "Social Market Economy"' in Niklas Bruun, Klaus Lörcher and Isabelle Schömann (eds), *The Lisbon Treaty and Social Europe* (Hart Publishing 2012) 19, 22.

<sup>105</sup> Simon Deakin, 'Two Types of Regulatory Competition: Competitive Federalism versus Reflexive Harmonisation. A Law and Economics Perspective on Centros' (1999) 2 *Cambridge Yearbook of European Legal Studies* 231, 234–236.

<sup>106</sup> Snidal, 'The Game Theory of International Politics' (n 36) 49.

can take the form of social norms<sup>107</sup> and legal rules,<sup>108</sup> among others. In the context of the current discussion, it will be argued that international labour law should be seen as a correlating device, which enables states to coordinate their strategies with respect to the labour standards that apply at national level in different countries.

As a correlating device, international labour law provides countries with information on strategies through the ILO's system of international labour standards, which are expressed principally through ILO conventions and recommendations. Normally, under a prisoner's dilemma, it would not be in the narrow interest of states to observe and enforce international labour standards. Similarly, under a stag hunt game, states might choose the low-risk equilibrium, and to not enforce these standards. International labour law, as global 'choreographer', addresses these problems and incentivises states to cooperate and comply with the globally agreed rights. Indeed, just as in a 'correlated equilibrium', if each state assumes that other countries will behave according to the relevant standards, the 'first best' strategic response for each state will be to follow the strategy suggested by the 'choreographer'. Overall, as a correlating device, international labour law creates a 'correlated equilibrium' where it is in the interest of all states to cooperate on international labour standards, allowing them to achieve a better outcome than their initial non-cooperative situation.

The operation of international labour law as a correlating device will be discussed in more detail by focusing on one of its operational measures – the rights to freedom of association and collective bargaining. These rights are of particular importance to the role of international labour law as a correlating device. First,

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<sup>107</sup> Gintis, 'Social Norms as Choreography' (n 4); Gintis, *The Bounds of Reason: Game Theory and the Unification of the Behavioral Sciences* (n 4) 142.

<sup>108</sup> Deakin, 'Legal Evolution: Integrating Economic and Systemic Approaches' (n 5) 669.

because they are a source for the creation of other rights, and by that they thicken and expand the set of suggested strategies that this correlating device issues. Second, they also serve as an enforcement measure that contributes to the overall compliance with these suggested strategies.

**(i) Freedom of association as a correlating device**

As shown in the discussion thus far, reciprocity between countries with regards to compliance with international labour standards is an essential component in order to foster cooperation.<sup>109</sup> However, under conditions of multilateralism, the relationship between states is associated with 'diffuse reciprocity'. That is, the benefits from cooperation will be only roughly distributed, from a long-term and aggregated perspective.<sup>110</sup> Indeed, ILO member states comply with certain labour standards with the expectation that others will do the same, but these obligations are not strictly contingent on compliance of the same equivalence by other countries.<sup>111</sup> Moreover, it can be argued that such 'specific reciprocity' is also not desirable in the realm of labour law. Due to the internal value of labour rights, it would be implausible to decrease labour standards merely as a retaliation measure. In any event, the absence of 'specific reciprocity' in global labour governance creates a 'sanctioning problem',

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<sup>109</sup> See also: Keohane, *After Hegemony: Cooperation and Discord in World Political Economy* (n 48) 214; Keohane, 'Reciprocity in International Relations' (n 98) 1–2; Axelrod and Keohane (n 50) 249.

<sup>110</sup> John Gerard Ruggie, 'Multilateralism: The Anatomy of an Institution' (1992) 46 *International Organization* 561, 571.

<sup>111</sup> See in this regard Keohane, 'Reciprocity in International Relations' (n 98) 4–8.

where defection does not invoke a punishment.<sup>112</sup> This lack of retaliation incentivises states to defect from cooperation.<sup>113</sup>

It follows that the global labour rights regime requires constant monitoring and enforcement in order to ensure cooperation. Indeed, in lieu of reciprocity, rationalist theory literature refers to international organisations as an alternative means to facilitate cooperation.<sup>114</sup> This is achieved, among other means, by monitoring and implementing the agreed commitments.<sup>115</sup> The problem is that in the realm of labour law, the ILO's supervisory system is reliant on enforcement measures and self-reports by the member states themselves. These states might not always be eager to fully comply with these roles. Individual states may prefer defection if they think they can achieve higher gains (under a prisoner's dilemma) or if they think other countries are not sufficiently cooperating (under both a prisoner's dilemma and stag hunt games).

While states face conflicting interests with regards to the enforcement of labour regulations, local unions hold a different perspective than their home-governments. In this context, the specific interests of trade unions render them the most appropriate actor to monitor and enforce labour law commitments as part of a global cooperation regime. From a rational theory perspective, Russell Hardin adopts the notion of 'encapsulated interest', according to which trust emerges when an actor's 'own interests are encapsulated in the interests of the Trusted'.<sup>116</sup> Such 'strategic trust'

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<sup>112</sup> Axelrod and Keohane (n 50) 235.

<sup>113</sup> Joseph M. Grieco, 'Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism' (1988) 42 *International Organization* 485, 497; Brian C. Rathbun, 'Before Hegemony: Generalized Trust and the Creation and Design of International Security Organizations' (2011) 65 *International Organization* 243, 244.

<sup>114</sup> Keohane, *After Hegemony: Cooperation and Discord in World Political Economy* (n 48) 84; Axelrod and Keohane (n 50) 237.

<sup>115</sup> Rathbun (n 113) 243–44.

<sup>116</sup> Russell Hardin, *Trust* (Polity Press 2006) 19.

serves as the basis for cooperation.<sup>117</sup> It follows that while states cannot necessarily trust other states due to their incentives to defect from cooperation, the case is different when it comes to trade unions within these states. The interest of trade unions is that employers comply with standards flowing from international labour law, which inevitably leads to their home-state not defecting from cooperation. Therefore, a country's interest that foreign countries will comply with labour standards is 'encapsulated' in the interests of the unions within *these foreign* countries. The active presence of independent trade unions *in all countries* can thus contribute to the creation of 'strategic trust' between states. The more trade unions can operate freely across the world, the higher trust countries will have that their counterparties are complying with the agreed level of labour standards, and by those means upholding their end in the cooperation agreement. Such reassurance will then also contribute to the willingness of countries to comply with their own labour law commitments.

Due to these virtues in creating 'strategic trust' and fostering cooperation among countries, freedom of association efficiently supports the operation of international labour law as a correlating device. Through the actions of independent and capable trade unions, the freedom of association standard contributes to effective detection of violations of international labour rights within particular countries. In these circumstances, the recommended strategy that this 'choreographer' suggests is naturally to deal with the violation and comply with the relevant labour standards. This 'suggestion' by the 'choreographer' is ultimately enforced at national level

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<sup>117</sup> Rathbun (n 113) 245–46.

through industrial action and of the exercise of voice by trade unions through collective bargaining and related institutions of 'industrial democracy'.<sup>118</sup>

As discussed, a correlating device provides countries with the best possible response – only as long as other countries behave similarly. The right to freedom of association helps to address this condition. Through the operation of this right across the world, countries can assume that others are also likely to follow the same strategy of the correlating device, that is, to also comply with international labour law. This 'choreographer' should be regarded as trustworthy in the sense that it gives similar directions to all countries, and thus it is worthwhile to follow its advice, because it works through local trade unions – with their interests 'encapsulated' in the interests of foreign countries.

In order to explain the operation of a correlating device, Simon Deakin suggests viewing it as a social institution, through the prism of systems theory. Such an understanding is valuable for the current discussion, as it can shed light on whether freedom of association can meet the criteria for a successful correlating device: can it provide countries with the 'right' signal? According to this approach, correlating devices can be seen as 'adaptive systems, which receive, store and transmit information about their environments while coevolving with them'.<sup>119</sup> The information received from society is processed and 'coded' according to the internal language of the system in question. In the context of the legal system, these codes come in the form of legal concepts that are realised and transmitted back to society through more specific legal rules.<sup>120</sup> This interaction with the environment engenders a learning process, where legal rules are constantly adjusted in light of changing

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<sup>118</sup> Sidney Webb and Beatrice Webb, *Industrial Democracy* (3rd edn, Longmans, Green Co 1920).

<sup>119</sup> Deakin, 'Legal Evolution: Integrating Economic and Systemic Approaches' (n 5) 660.

<sup>120</sup> *ibid* 674–75; Niklas Luhmann, *Law as a Social System* (Klaus A. Ziegert tr, Fatima Kastner, Richard Nobles, David Schiff and Rosamund Ziegert eds, OUP 2004) 253–54, 340–42.

circumstances. At the same time, the efficiency of the legal system is achieved by maintaining certain amount of autonomy, which in turn secures the internal consistency of the rules it produces. Accordingly, the coding of the information into stable legal concepts and rules constrains the outside pressures on the system, as well as ensures the retention of socially useful knowledge. These characteristics of legal institutions are beneficial for a mechanism that indicates suggested strategies for social coordination, making them instrumental for a correlating device.<sup>121</sup>

Applying these ideas to the realm of global labour governance, it will be argued that the rights to freedom of association and collective bargaining should be regarded as a ‘signal’ capable of directing states’ actions, as part of the operation of international labour law as a correlating device. As set out most fundamentally in ILO conventions No. 87 and No. 98, these rights are guided by higher level concepts, such as the requirement of ‘freedom’ when electing representatives and when exercising the right to organise<sup>122</sup> or the prohibition of ‘anti-union discrimination’ and of ‘acts of interference’ in organisation activities.<sup>123</sup> These concepts, when developed and applied in the context of the ILO’s machinery of monitoring and reporting of alleged freedom of association violations,<sup>124</sup> helps to ensure basic consistency in the application of more detailed rules that apply over time and across countries. Over time, countries participating in the ILO machinery should be able to expect that their counterparties will be bound by norms that are similar to those they are complying with. By these

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<sup>121</sup> Deakin, ‘Legal Evolution: Integrating Economic and Systemic Approaches’ (n 5) 675–77; Simon Deakin and Fabio Carvalho, ‘System and Evolution in Corporate Governance’ in Peer Zumbansen and Galf-Peter Calliess (eds), *Law, Economics and Evolutionary Theory* (Edward Elgar 2011) 111, 117–19.

<sup>122</sup> Freedom of Association and Protection of the Right to Organise Convention (adopted 9 July 1948, entered into force 4 July 1950) No. 87, arts 3, 11.

<sup>123</sup> Right to Organise and Collective Bargaining Convention (adopted 1 July 1949, entered into force 18 July 1951) No. 98, arts 1, 2.

<sup>124</sup> Tonia Novitz, ‘The Internationally Recognized Right to Strike: A Past, Present, and Future Basis upon which to Evaluate Remedies for Unlawful Collective Action?’ (2014) 30 *International Journal of Comparative Labour Law and Industrial Relations* 357, 361–362.

means, the ILO system serves to establish an essential feature of any correlating device, that is, the existence of shared common beliefs regarding the signals issued by the ‘choreographer’.<sup>125</sup>

Following this systems theory analysis, it is evident that beyond being stable, the rights to freedom of association and collective bargaining also include various mechanisms that ensure the constant reception of new information from society. Again, this can be seen in the mode of operation of the ILO's Committee on Freedom of Association. The Committee receives complaints from governments or employers' and workers' organizations regarding member states' compliance with freedom of association. The committee itself is also comprised of government representatives, employers, and workers, and the examination is conducted alongside dialogue with the government concerned.<sup>126</sup> This wide participation of relevant actors serves as a fertile platform to re-evaluate the different norms in light of new information from specific incidents.

Moreover, the example of the ILO's Committee on Freedom of Association demonstrates the advantages in terms of the communicative dimension of freedom of association as a correlating device. The decisions made by the Committee, including any new principles it has developed, are transmitted back to society as detailed guidelines, in the form of public reports.<sup>127</sup> These processes ensure effective communication of the legal rules to society, and that is, according to systems theory, a precondition for their capacity to shape social outcomes.<sup>128</sup> Finally, the composition

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<sup>125</sup> Deakin, 'Legal Evolution: Integrating Economic and Systemic Approaches' (n 5) 669.

<sup>126</sup> *Special Procedures for the Examination in the International Labour Organization of Complaints Alleging Violations of Freedom of Association - Annex 1* <[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:62:557330787195725::NO:62:P62\\_LI ST\\_ENTRIE\\_ID:2565060:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:62:557330787195725::NO:62:P62_LI ST_ENTRIE_ID:2565060:NO)> accessed 22 December 2018, paras 7, 31, 44.

<sup>127</sup> See: ILO, *Freedom of Association: Digest of Decisions and Principles of the Freedom of Association Committee of the Governing Body of the ILO* (5th rev edn, International Labour Office 2006).

<sup>128</sup> Deakin, 'Legal Evolution: Integrating Economic and Systemic Approaches' (n 5) 676–77.

of the Committee also contributes to its ability to influence society. It has been acknowledged in this regard that legal rules are more likely to be effective when they are aligned with prevailing practices,<sup>129</sup> and when they reflect an understanding of the relevant market actors.<sup>130</sup> Indeed, the involvement of employers and workers in the application of freedom of association, contributes to the evolution of norms in a manner that is more aligned with the practical needs of society and existing practices, and thus contributes to more successful communications with society.

### **(ii) Freedom of association in a hawk-dove game**

Nonetheless, when the relationship between states in a liberalised trading regime is characterised as a hawk-dove game, a correlating device might not be successful in promoting cooperation. If we assume that the cooperative equilibrium will disproportionately favour the interests of developed countries, and in the absence of meaningful enforcement or reciprocity, it will be in the interest of developing countries to defect from such an arrangement. This is because if the payoffs they are deriving from the cooperation are very little, it will not be worth it for them even if adopting a long-sighted view. A correlating device can respond to this challenge by changing the payoffs of the game, incentivising all countries to cooperate in a more balanced relationship. However, in light of power asymmetries, it would be difficult to influence the interests of the more powerful states, and to enforce upon them such a correlated equilibrium. Moreover, with the scepticism regarding the value of the agreement to all actors, and with lack of trust that all actors will cooperate, the correlating device faces further obstacles.

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<sup>129</sup> *ibid* 677.

<sup>130</sup> Deakin and Sarkar (n 18) 456.

In these circumstances, a possible way forward would be to promote international labour regulation that while not casting an excessive economic burden on developing countries, will at the same time contribute to a progressive upgrade in their level of development. The improvements in the economic growth of developing countries will make it more worthwhile for them to participate in the global labour regulatory regime. That, along with the gradual reduction of the high asymmetries between states – will manage to progressively alter the structure of the game model – from a hawk-dove game towards a prisoner's dilemma or a stag hunt game, where all parties can benefit from cooperation. In this sense, international labour law can contribute as a correlating device, if it promotes an accommodated approach to labour regulation.

In this context, it is arguable that freedom of association and collective bargaining can be particularly valuable for this purpose, as they are suitable for adapting international labour standards to countries' levels of development. Workplace regulation that is based upon deliberation and collective bargaining between workers and employers in the workplace and at the national level, can serve as a valuable tool to properly adapt labour regulations to different economic and political settings.

Freedom of association and collective bargaining are suitable for tailoring workplace regulations to different levels of development, as they provide the framework for workers and employers to design their own workplace norms and processes. The content of any agreement between the parties will be, by definition,

agreed upon by employers or their representatives.<sup>131</sup> Employers are not expected to agree to conform with labour law commitments that might endanger their ability to compete in international markets. Hence, it is not unreasonable to assume that agreements reached between workers and employers are likely to conform to the economic efficiency of the workplace.

As the parties themselves determine the content of collective agreements, the rights to freedom of association and collective bargaining do not necessitate the imposition of a uniform economic cost for firms.<sup>132</sup> However, even assuming that these rights will eventually incur a cost on employers, this does not mean that such a cost is inconsistent with economic development. The costs tied to a duty to negotiate and consult with trade unions and the costs imposed as a result of agreements reached in collective bargaining, are classified as private costs, namely, 'the financial expense[s] borne by the business enterprise.'<sup>133</sup> These private costs should, however, be distinguished from social costs, that is, 'the sum of total burdens ultimately falling on everyone in the community as a result of the operations which this enterprise carries on'.<sup>134</sup> The difference between these two costs points to the fact that the economic gains that the business might achieve by low labour regulations does not necessarily correlate with social efficiency.<sup>135</sup> Businesses that operate in an unregulated economic

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<sup>131</sup> Brian Langille further stresses that freedom of association and collective bargaining do not 'guarantee any substantive outcome', emphasising that collective bargaining 'is purely procedural'. See: Brian A Langille, 'Core Labour Rights – The True Story (Reply to Alston)' (2005) 16 EJIL 409, 430–31. Alan Bogg, on the other hand, offers a more substantive conceptualisation of these rights by using a capabilities approach framework. See: Alan Bogg, 'The Constitution of Capabilities: The Case of Freedom of Association' in Brian Langille (ed), *The Capability Approach to Labour Law* (OUP 2019) 241.

<sup>132</sup> Antonio Lo Faro, *Regulating Social Europe: Reality and Myth of Collective Bargaining in the EC Legal Order* (Hart Publishing 2000) 152–53.

<sup>133</sup> John Maurice Clark, *Social Control of Business* (2nd edn, McGraw-Hill Book Company 1939) 108.

<sup>134</sup> *ibid.*

<sup>135</sup> Paolo Ramazzotti and Marco Rangone, 'Unemployment as a Social Cost' in Wolfram Elsner, Pietro Frigato and Paolo Ramazzotti (eds), *Social Costs and Public Action in Modern Capitalism: Essays Inspired by Karl William Kapp's Theory of Social Costs* (Routledge 2006) 136, 137.

environment are able to shift parts of the production costs to other people or society in general.<sup>136</sup> In the context of labour regulation, it has been previously argued that lowering working conditions below a certain point will not reduce costs, but simply shift them to workers and society.<sup>137</sup> Accordingly, workplace regulation through freedom of association and collective bargaining can improve working conditions and prevent this externality. Moreover, according to new-institutionalist approaches to labour markets, labour regulation responds to market failures, such as information asymmetries, thus leading to positive market impacts.<sup>138</sup> Overall, such wider social gains obtained by labour regulation can potentially outweigh the possible additional costs on businesses.

## 5. Conclusion

This study has reconsidered the problem of the race to the bottom of international labour standards, in light of recent developments in evolutionary and epistemic game theory and considering recent empirical evidence on the long-term economic benefits of labour rights. Game theory teaches us that countries are facing a collective action problem, where even the first to defect from labour standards eventually loses in the race to the bottom. In response, the game theoretical analysis pursued in this paper suggests a novel characterisation of global labour governance, according to three

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<sup>136</sup> K. William Kapp, *The Social Costs of Private Enterprise* (Schocken Books 1950) 11. See also: James A. Swaney and Martin A. Evers, 'The Social Cost Concepts of K. William Kapp and Karl Polanyi' (1989) 23 *Journal of Economic Issues* 7, 8–12.

<sup>137</sup> D. R. Stabile, 'Pigou, Clark and Modern Economics: The Quality of the Workforce' (1996) 20 *Cambridge Journal of Economics* 277, 277; Clark (n 133) 109–10.

<sup>138</sup> Alan Hyde, 'What is Labour Law?' in Guy Davidov and Brian Langille (eds), *Boundaries and Frontiers of Labour Law: Goals and Means in the Regulation of Work* (Hart Publishing 2006) 37, 53–54; Deakin, 'Chapter 3: The Contribution of Labour Law to Economic and Human Development' (n 17) 108–109; Deakin and Wilkinson (n 7) 293–94.

different game theoretical models, and ultimately offering contributory insights to solving the collective action problem.

To begin with, the paper proposes a new normative framework to conceptualise the relationship between international labour law and international trade law. Specifically, the game theoretical analysis shows the potential complementarity between these seemingly conflicting realms in fostering cooperation over global labour standards. The analysis has revealed that international trade can be seen as a facilitator of indeterminate play between countries. By establishing ongoing trading relationships between countries, long-term reciprocity is created, through which countries know that their decisions in any current 'round' will bear circumstances in future 'rounds'. This indeterminate play encourages countries to regulate their labour conditions, and contributes to the creation of an equilibrium in which cooperation over labour regulations is the dominant strategy. However, the game theoretical analysis has shown that taken by itself, indeterminate play is not a sufficient measure for ensuring global cooperation over labour standards. To this end, a second measure was introduced: the correlating device. The paper has argued in this regard that international labour law should be seen as a correlating device, which can complement the work of international trade law. That is, by coordinating the actions of countries around globally agreed labour rights, international labour law creates a 'correlated equilibrium' where it is in the interest of all countries to cooperate over labour regulations.

The game theoretical analysis has also shown the complementarity of international labour law and international trade, not only for the promotion of labour rights, but also for the promotion of developmental interests. It was stressed that international labour standards that are accommodated to the political and economic

settings of different countries, are able to properly support these countries' development efforts. Accordingly, the solutions to the race to the bottom problem explored in this paper were examined through an accommodated approach to international labour regulation, rather than one which assumes a complete harmonisation of labour standards and resulting uniformity of costs between all countries. Ultimately, the paper has shown that it is possible to solve the collective action problem of labour regulation when promoting a regime of differentiated labour standards, in a way that will be favourable both in the social and economic spheres.

Furthermore, the game theoretical analysis pursued in this study goes beyond the level of the state, exploring how relevant actors – within each state – can affect the economic and policy outcomes at the national level. By taking into consideration the operation of both employers and trade unions, the game theoretical analysis portrays a more accurate picture of the reality faced by states. On this basis, new conclusions have been advanced concerning the virtues of freedom of association and collective bargaining in enhancing international cooperation over labour regulation.

First, it has been argued that freedom of association and collective bargaining are of particular importance to the role of international labour law as a correlating device. This is because the self-interests of trade unions render them as the most appropriate actor to monitor and enforce labour law commitments as part of a global cooperation regime. While countries face constant incentives to defect from cooperation over labour regulation, the interest of trade unions is that employers in all workplaces comply with international labour law. Accordingly, a country's interest that foreign countries will comply with labour standards are 'encapsulated' in the interests of the unions within these foreign countries. It is therefore suggested that the

active presence of independent trade unions can contribute to the creation of 'strategic trust' among countries and thus foster cooperation over labour regulation.

Second, the analysis has also taken account of the power asymmetries between countries under the current trading regime. It was argued that this reality poses special difficulties in incentivising countries towards a cooperative equilibrium over labour regulation. As a response, this paper has highlighted collective bargaining and industrial democracy as appropriate solutions to these circumstances. By tailoring workplace regulations to particular circumstances, collective bargaining de facto promotes an accommodated approach to labour standards, one in which the economic burden imposed on countries is adjusted to their level of development. That way, the correlating device of international labour law directly contributes to countries' developmental efforts.