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Globalization and the ′New Enterprise′

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September 2002

Abstract

Globalization has been identified by many experts as a new way firms organize their activities and as the emergence of human capital as the new stakeholder of the firm. This paper surveys recent work which examines the role of trade integration for these changes in corporate organization. More intense competition and the change in the pattern of specialization following trade liberalization make it both more likely that an organizational equilibrium emerges in which power is delegated to lower levels of the firms' hierarchy empowering human capital. Furthermore, trade integration leads to waves of outsourcing and to a convergence in corporate cultures across countries.

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1. Introduction

What is new about Globalization? Trade economist agree now that the new feature of globalization is an explosion of world trade in intermediate goods and in foreign direct investment, while the trade exposure of rich countries (as measured by the share of trade in percent of GDP) has not increased over the last 100 years.[1] The increase in trade in intermediate goods and in foreign direct investment are both an expression of the new way firms organize their activities. The value chain has become global. The global firm produces one stage of production in one location and exports the input for refinement to a second location. The refined input gets further refinement in a third location. During this refinement process intermediate goods are traded from one location to the next. This way, the international organization of production leads to the observed increase in trade in intermediate goods and in foreign direct investment. [2]

Parallel to these changes in the world economy the corporate sector in rich economies has gone through an enormous amount of reorganization. The nature of the corporation is changing. Corporate reorganization involves the break up of the conglomerate and the emergence of the 'human capital firm'. Markets have been intolerant towards conglomerates and forced firms to sell pieces which do not naturally belong to their core activity. At the same time firms eliminated layers of middle management by introducing more decentralized decision making inside the corporation and by empowering workers at lower levels of the corporate hierarchy. These developments resulted in flatter hierarchies inside firms.[3]

But perhaps the most dramatic change in the nature of the corporation is that human capital has become the new stakeholder in the firm. Rather than plants and machines, human capital and talent are today the new assets of the firm. In the past it was specialized inanimate assets (its machines) what made the firm unique and gave its owner power in the firm. But with the development of financial capital markets financial capital became widespread available and with

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[1]For the debate on globalization see Feenstra (1998), Krugman (1995), and (2000).

[2]The international organization of production has been discussed under the heading 'slicing the value chain' (Hummels, Ishii, and Yi (2001), Krugman (2000)) and 'outsourcing' (Feenstra and Hanson (1996)) in the trade literature.

[3]For a description of trends in corporate reorganization in the 1980s and 1990s see Holmstrom and Kaplan (2001).

it the capital intensity of the firm has stopped to be the critical asset. As human capital cannot be owned by the firm the central focus of corporate governance today is how to provide incentives for talent to prevent it from leaving the firm.[4]

What accounts for these changes in the world economy on the one hand and in the nature of the enterprise on the other? An answer to this question requires the introduction of the theory of the firm into international trade theory. International trade theory explains the international organization of production by firm and country characteristics, but the firm remains a black box. The theory of the firm focuses on a single firm but neglects the market environment in which the firm operates. In Marin and Verdier (2001, 2002) (henceforth MV) we introduce the Aghion and Tirole (1997) theory of the firm into the Helpman and Krugman (1985) theory of international trade to examine the interaction between the firm's mode of organization on the one hand and international trade on the other.[5] More specifically, after introducing the basic framework (section 2) we examine how the trend to flatter corporate hierarchies and the empowerment of human capital are related to an increase in international competition (section 3) on the one hand and to an increase in international trade (section 4) on the other. Section 4 shows also how competition and trade can lead to outsourcing and to convergence in corporate cultures across countries. Section 5 concludes.

2. The Basic Framework

We consider an economy with L workers and n firms. Firms engage in monopolistic competition of the Dixit and Stiglitz type. Each firm has market power because consumers have a preference for variety. Consumers preferences over varieties are

$$U = \left[\int_0^n y(i)^\gamma di \right]^{\frac{1}{\gamma}} \qquad \text{with } 0 \leq \gamma \leq 1$$

where $y(i)$ is consumption of variety i. The parameter γ measures the degree of product differentiation. The larger γ the more similar goods are and the less market power firms have.

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[4]For an argument along this line see Rajan and Zingales (1998).

[5]Grossman and Helpman (2002) and Antràs (2002) introduce the Hart and Moore-firm into trade.

In each firm a CEO/owner (the principal) hires a division manager (the agent) to start a firm and employs workers to produce. Both, the CEO and her division manager, may acquire infomation about profitable projects which can be produced by the firm. However, we assume that the CEO has managerial overload (her costs of infomation collection are convex, while the costs of information collection of the division manager are linear) and thus the more information the CEO collects, the higher is the marginal cost of further information. Each uninformed party prefers to rubber-stamp the other informed party's suggestion if either decides to stay uninformed. This gives decision control to the informed party. In this case, the informed party has "real power" rather than "formal power" in the firm.[6]

The CEO/owner and the division manager's expected payoff under the CEO's formal power are

$$u_P = EB + (1 - E)e\alpha B - g\frac{E^2}{2} - w$$
$$u_A = E\beta b + (1 - E)eb - ke$$

With probability E, the CEO becomes fully informed and picks her preferred project with monetary payoff B, while the agent receives only the expected private benefit βb. With probability $1 - E$, the CEO remains uninformed. The division manager may then learn with probability e and suggest his best project to the CEO (who accepts it). The CEO/owner receives a monetary payoff αB while the agent gets his best private benefit b. Or the agent may remain also uninformed in which case, no project is undertaken. Note that αB is the CEO's expected benefit when the agent's preferred project is implemented with ($0 \leq \alpha \leq 1$). Similarly, βb is the division managers's expected benefit when the CEO's preferred project is implemented with ($0 \leq \beta \leq 1$). α and β are congruence parameters between the CEO and her manager capturing the degree of trust between them. $g\frac{E^2}{2}$ and ke are the costs of information collection of the CEO and her manager, respectively.

The first order conditions of the payoff functions with respect to efforts E and e (not shown) highlight the trade-off between control and initiative in the firm. The CEO controls the more the higher her stakes (the larger B), the larger the

[6]As emphasized by Aghion and Tirole (1997), there are two sources of decision power in the firm, because it is allocated to the manager, "formal power", or because the manager is better informed, "real power".

conflict of interest between her and the manager (the lower α) and the lower the manager's initiative e. The division manager, in turn, has more intitiative the higher his stake (the larber b) and the lower the CEO's interference (the lower E). Thus, hierarchical control comes with the cost of the loss of initiative of lower management.
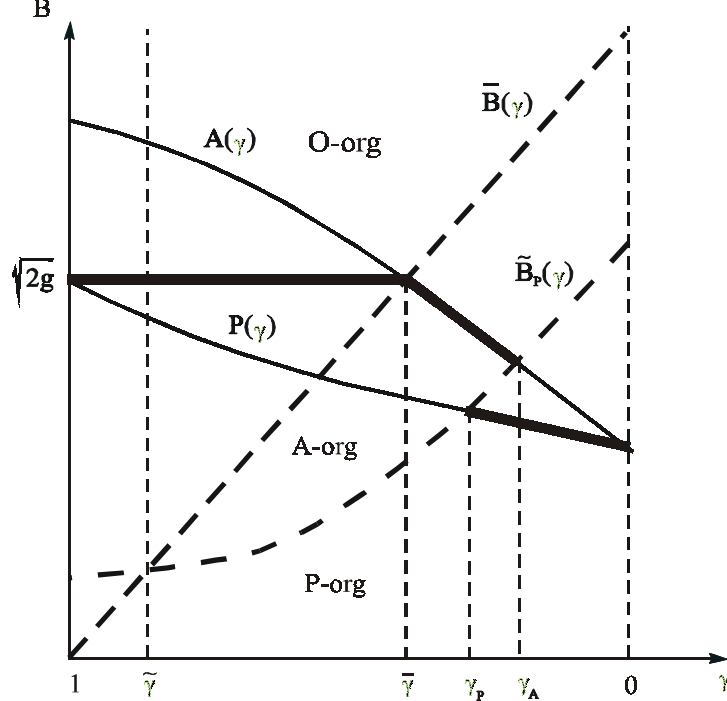
We assume that P-firms under the CEO's formal control have lower marginal costs than A-firms under the division manager's formal control $c_B < c_b = \varphi c_B$ with $\varphi > 1$ so that there is no perfect congruence between the firm and her agent. The idea here is that when the agent has control in the firm he may choose a project which generates high perks for him or which advances his career rather than a project which minimizes the costs of the firm.

3. Competition and Corporate Reorganization

We examine now the question which mode of organization the firm will choose in response to changes in the degree of international competition. We capture the degree of international competition by the parameter γ. With an increase in international trade the size of the market becomes larger, profits increase and new firms enter. The increase in the number of varieties offered in the market makes goods better substitutes for each other increasing γ. Does an increase in international competition (an increase in γ) make it more likely that a P-firm with centralized power at the top of the organization or an A-firm in which the CEO delegates formal power to her division manager emerges in equilibrium? We turn to Figure 1 for an answer.[7]

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[7]For a derivation of Figure 1 see Marin and Verdier (2001).

Figure 1: Allocation of Power and International Competition

The dotted $\widetilde{B}_P(\gamma)$-curve captures the cost of allocating control to the CEO at the top of the organization in terms of the loss in the division manager's initiative. It gives the threshold level of profits of the firm B at which the agent's initiative is killed under the P-organization. Recall that as profits increase the stakes of the CEO/owner rises and she controls more potentially destroying the agent's initiative. $\widetilde{B}_P(\gamma)$ is downward sloping in γ because with an increase in γ the conflict of interest between the CEO and her manager increases. When competition becomes more intense, a given cost differential between the A-firm and the P-firm translates into a larger differential in profits and thus preferences between the CEO and her manager become less congruent. Therefore, the CEO intervenes more making the threshold level of profits killing the divison manager's initiative to go down with an increase in γ. The dotted $\overline{B}(\gamma)$-line captures the benefit of allocating control to the CEO in terms of the firm's profit. It gives the threshold level of profits at which the CEO/owner is indifferent between the O-firm in which she has formal control in the firm without an internal hirarchy (the

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agent's initiative is killed) and the A-firm in which the CEO delegates control to the agent. $\overline{B}(\gamma)$ is downward sloping in γ because with an increase in γ delegating power becomes more costly to the firm as it translates into a larger loss in profits. With a loss of power in the market, the CEO wants more power inside the firm. Therefore, the threshold level of profits goes down with an increase in γ.

In the area below the $\widetilde{B}_P(\gamma)$-curve the firm chooses the P-organization, since the benefit of control outweighs its costs. Below the $\widetilde{B}_P(\gamma)$-curve there is, in fact, no trade-off between control and initiative as is the case in a single Aghion-Tirole-firm when the market environment is ignored. Competition is so weak that the CEO controls and intervenes little because her stakes are small and she cares litte. Therefore, the P-organization gives sufficient incentives to the agent. In the area between the two curves $\widetilde{B}_P(\gamma)$ and $\overline{B}(\gamma)$ the firm chooses the A-organization, since the cost of control outweighs its benefit. Delegation helps to keep the agent's initiative alife, while it does not cost too much in terms of profits as competition is not too tough yet. Above the $\overline{B}(\gamma)$-line firms choose the O-organization as a single managed firm without an internal hierarchy, since the benefit of control outweighs its costs. There is, again, no trade-off between control and initiative. When competition is very intense the CEO's stakes are so large that she kills the agent's initiative even under the A-organization. Therefore, she might as well keep control. At the same time, delegation is extremely costly in terms of profits when competition is tough.

The two curves $A(\gamma)$ and $P(\gamma)$ determine the free entry profit levels of A-firms and P-firms, respectively. Firms enter the market until operating profits are driven down to the level to cover the fixed costs. Both curves slope up with γ since firms require a larger profit to enter the market as firms' revenues decrease with γ. The bold line in Figure 1 describes how free entry profits interact with the firm's optimal choice of organization. It gives the free entry organizational equilibria as a function of the degree of competition γ. With an increase in γ the equilibrium firm organization moves from centralization of power at the top of the firm to decentralization of power to lower management and finally to a single managed firm without an internal hirarchy. With an increase in market competition the conflict of interest between the CEO and her manager becomes more costly to the firm as the power struggle translates in a larger loss in profits. As the stakes rise, the CEO gets more involved in the decisions taken and controls more inside the firm. The increase in the CEO's involvement in the firm comes, however, with the potential cost of loosing the enthusiasm of her manager. To keep his initiative the

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CEO then delegates formal control to her manager and a shift from the P-firm to the A-firm occurs. However, as competition increases further the stakes become so large that the CEO wants control even at the cost of loosing the initiative of her manager and the single managed firm without an internal hierarchy emerges as an equilibrium.

4. Trade and the "Human Capital Firm"

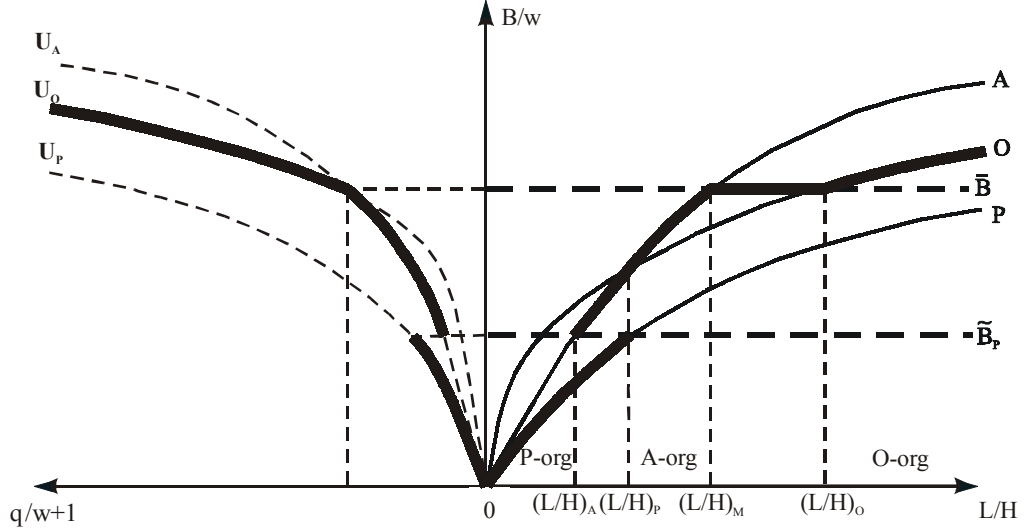### 4.1. The Human Capital Constraint

We now analyze how international trade can explain the emergence of human capital as the new stakeholder in the firm. Consider a human capital rich North and a labor rich South. Each of these economies produces the two goods Y and X with the two factors of production labor L and human capital H with wage rates w and q. We assume that good X is more skill intensive than good Y. Goods Y is homogenous and produced under perfect competition. Goods X is differentiated and produced under monopolistic competition. Consumers preferences over the two goods Y and X are

$$U(X,Y) = X^a Y^{1-a} \qquad with \qquad X = \left[\int_0^n y(i)^\gamma di \right]^{\frac{1}{\gamma}} \qquad and\ 0 \leq \gamma \leq 1$$

In the X-sector firms can choose between three types of organizations, a P-firm in which the owner has formal power, an A-firm in which the owner delegates power to the division manager, and a firm managed by the owner herself without an internal hierarchy. To start a firm the unskilled owner has to hire a skilled manager. The question we address now is how a country's relative factor endowment L/H affects the mode of organization firms choose in the X-sector. Because of page limits, we illustrate this with the help of Figure 2.[8]

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[8]For the model see Marin and Verdier (2002).

Figure 2: Corporate Organization and Factor Endowment

In the right side diagram the two horizontal lines $\widetilde{B}_P$ and $\overline{B}$ capturing the cost and benefit of control inside the firm are already known to us from Figure 1 determining the firm's mode of organization. Below the $\widetilde{B}_P$-line firms choose the P-organization, inbetween the $\widetilde{B}_P$ and $\overline{B}$ lines they go for the A-organization, and above the $\overline{B}$-line firms choose the O-organization. The three curves P, A and O give real profits in terms of unskilled labor B/w of P-firms, A-firms, and O-firms, respectively which are consistent with factor market clearing. The three curves are upward sloping in L/H, because as the country becomes relatively more labor rich the relative wage w/q falls and real profits B/w have to increase to restore factor market equilibrium. An increase in real profits increases the demand for unskilled labor for two reasons. First, production in the X- and Y-sector expands, and this expansion is biased towards the less skill intensive Y-sector. This is a standard Rybzcynsky effect on the output mix. Second, the unskilled principal monitors more, because her stakes rise with an increase in real profits. Via this channel the factor endowment of a country has a direct influence on the behavior inside the firm.

The left side diagram gives the free entry conditions for P-, A-, and O-firms U_P, U_A, U_O, respectively which equate the firms' real profits B/w to the fixed cost

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of market entry $q/w + 1$. The fixed cost involves hiring a skilled manager with a wage rate q to start a firm. The U-curves slope up with q/w and L/H. With an increase in L/H and in real profits B/w market entry becomes attractive. However, firms can enter and run a firm only by hiring a skilled agent. Thus, market entry is constraint by the amount of available human capital H in the country. Firms compete for the scarce talent of agents and bid up the relative wage for human capital q/w. As the start up costs of firms increase, firms require a larger real profit B/w to enter the market.

The bold line in Figure 2 gives the organizational equilibria as a function of a country's relative factor endowment. When the country becomes more labor rich the equilibrium mode of organization moves from the P-firm with centralized power, to the A-firm empowering human capital, and finally to a single managed O-firm.

4.2. Organizational Convergence

We are now ready to determine a country's corporate organization depending on its factor endowment. Consider a human capital rich North located in the interval $[0, (L/H)_A]$ and a labor rich South located in the interval $[(L/H)_O, \infty]$ in the right side diagram of Figure 2. Under autarky, North's firms will choose a P-organization and South's firms will decide for an O-organization. Consider now what happens when these two economies start to trade. We know that the factor endowment of the integrated world economy will be somewhere in between those of the North and the South. In Marin and Verdier (2002) we give conditions that the factor endownment of the integrated world economy is in the interval $[(L/H)_P, (L/H)_M]$. Thus, trade integration will make both North' and South' corporations to converge to an A-organizational equilibrium empowering human capital. This results in waves of outsourcing when the corporate sector in the North and South reorganizes from a P-organization and an O-organization, respectively to an A-organizational equilibrium.[9] Furthermore, we show in MV (2002) that the more dissimilar the North and the South are with respect to their factor endownment, the larger will be their trade volume, and the more likely is organizational convergence.

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[9] A move from a P-organization to an A-organization in which the skilled manager runs the firm can be thought of as the firm outsourcing the division to her manager.

Note that organizational convergence in response to trade will occur also between identical countries. In the 1x1 model of section 3 we have multiple equilibria at intermediate levels of competition in the interval $[\gamma_A, \gamma_P]$ of Figure 1. The country's corporate organization will depend on what firms expect other firms will choose. Therefore, two identical countries may differ in their corporate cultures under autarky. Trade will lead to convergence in corporate cultures across identical countries. To which equilibrium organization the integrated world economy converges remains, however, undetermined.

5. Conclusion

In this paper we examine the role of international competition and international trade for corporate organization between similar and dissimilar countries. International competition and international trade both change the stakes of the firm. International competition increases the stakes by making delegation more costly inside the firm. International trade raises the stakes by increasing the start up costs of firms. This way, competition and trade have a direct influence on the behavior of agents inside the corporation. As the stakes rise the CEO/owner controls more potentially destroying the enthusiasm of lower management. To maintain the initiative of its skilled workforce and to prevent talents from leaving the firm top management decides to change corporate organization and to delegate formal power to lower levels of the corporate hierarchy empowering human capital. Waves of outsourcing result as the world economy reorganizes to the empowerment equilibrium.

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