

Foreign Direct Investment and Labor-Market Outcomes^{*}

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1. Introduction

The multinationalization of production is perhaps the most striking and distinguishing characteristic of the process of globalization over the last two decades. The share of cross-border capital flows accounted for by the foreign direct investment (FDI) of multinationals has been rising in recent years. In fact, in recent decades cross-border flows of FDI have grown at much faster rates than have flows of goods and services or people. UNCTAD (2001) reports that from 1986 through 2000, worldwide cross-border outflows of FDI rose at an annualized rate of 26.2%, versus a rate of just 15.4% for worldwide exports of goods and services. In the second half of the 1990s this difference widened to 37.0% versus just 1.9%.

Given this context, it is not surprising that multinational enterprises are also central to academic and political debates about the consequences of globalization. The FDI activity of multinationals is claimed to have a host of effects on economic growth and development, the level and incidence of national tax regimes, the labor and environmental regulatory capacities of host countries, and many dimensions of labor market performance. Each of these relationships has important implications for the politics of globalization and the evolution of economic policymaking around the world. This is especially true in the EU, for which single-market reforms and the creation of the EMU has dramatically liberalized both intra-EU and external foreign investment policies.

In this paper, we examine the relationship between foreign investment in Europe and labor market outcomes. How is the multinationalization of production likely to affect the level and distribution of wages and employment? What are its consequences for the volatility of labor market outcomes and the perceptions of risk among workers? Does foreign ownership make a difference for how firms and workers share profits? Answering these questions is critical for

assessing the welfare effects of foreign investment and for beginning to construct a systematic account of the political economy of foreign ownership in Europe.

In this paper, we argue that any assessment of the impact of FDI activity by multinational enterprises requires first an evaluation of the determinants of this activity. Why firms go abroad has important consequences for the effects of their investments on domestic labor markets. We review evidence in this paper that there exists substantial heterogeneity both across countries and over time in the types of European FDI. Some investment looks horizontal in that it is motivated primarily by the desire to produce goods and services for consumers in the host country. Some, however, looks vertical in that investments are designed to take advantage of international factor-price differences and produce goods for export. Other foreign investment in Europe does not fit easily into either of these two standard categories.

Furthermore, we argue that the composition of FDI within a given European country varies significantly with a set of host-country policies and characteristics. Multinationals appear to tailor their operations based on considerations such as host-country size, per capita income, and policy choices such as EU membership and corporate tax rates. This evidence along with cross-country and over-time heterogeneity in industry composition, external orientation, and factor intensity belies the conventional view that all FDI into Europe is market-seeking horizontal investment. Moreover, it suggests that government policy may play an important role in shaping the composition of inward FDI flows, above and beyond their overall level. All of these patterns have important consequences for the host-country labor-market impacts of FDI and their variation across Europe.

Having documented this heterogeneity, we turn next to consider the labor-market impacts of FDI. Does the nationality of firm ownership matter for the level, distribution, and volatility of

worker earnings and ownership? More specifically, we consider four dimensions to this question: the relative demand (and thus earnings and/or employment) between more-skilled and less-skilled workers economy-wide; the absolute earnings of each worker type; labor-demand elasticities and the volatility of worker earnings; and profit sharing. For all these dimensions, we present both theoretical and empirical evidence that the answer to this question is “yes.”

The paper has three additional sections. Section two examines the patterns of foreign direct investment in Europe by multinational enterprises. Section three discusses the labor-market consequences of this FDI. Section four concludes.

2. Vertical and Horizontal FDI into Europe: Evidence and Causes¹

In general, a firm becomes multinational when through FDI it establishes in two or more countries business enterprises in which it exercises some minimum level of ownership control. Over the last two decades, in the international-trade literature in economics, there has been substantial progress in modeling multinational firms in general equilibrium. This theoretical literature contains mostly uni-dimensional theories of multinationals, which focus on either *horizontal* or *vertical FDI*.²

The vertical-FDI view is that multinationals arise to take advantage of international factor-price differences.³ Suppose that firms engage in two activities: headquarter services (e.g., R&D and advertising) and production. Headquarter services use relatively intensively physical or human capital, while production uses relatively intensively in manual labor. If factor prices differ across countries, then firms can become multinational by locating production in countries where manual-labor costs are low and headquarters in countries where skilled-labor costs are

¹ This section (text and tables) draws heavily from the discussion in Slaughter (2003).

² This discussion focuses on general-equilibrium trade models of multinational firms. For a discussion of partial equilibrium treatments, see Caves (1996) and Markusen (1995, 2002).

³ See Helpman (1984) and Helpman and Krugman (1985). This view is related to models of foreign outsourcing, in which the vertical separation of production occurs *without* multinationals. See, e.g., Feenstra and Hanson (1996).

low. Firm-wide production costs are lower with this fragmented structure than they would be if the firm remained integrated in a single country.

The horizontal-FDI view is that multinationals arise because trade barriers make exporting costly.⁴ Most formalizations of this idea assume that firms have a high-fixed-cost headquarters and one or more production plants. When trade costs are low, a firm produces all output in domestic plants and serve foreign consumers through exports. When trade costs are high, a firm becomes multinational by building production plants at both home and abroad, each serving just that country's consumers. This type of FDI is called horizontal because the multinational performs the same range of activities (here, production) in all countries.

These two views of multinationals have much in common. Both are typically interpreted as applying to manufacturing. In each case, multinationals arise to avoid duplicating headquarter activities. They also raise world welfare by making global production more efficient. An important dimension along which the two views can differ is in how FDI affects factor incomes within and across countries. If FDI is vertical, then multinationals may reduce absolute wage differences across countries and alter relative wages within countries. If FDI is horizontal, then multinationals may raise income in each country without necessarily changing its distribution. We discuss these issues more in the next section.

Recent academic empirical work tends to conclude that most real-world FDI is horizontal, not vertical. Consider these three findings. First, for decades most FDI flowed from large, rich countries to other large, rich countries (e.g., Markusen, 1995; Lipsey, 1999, 2002).⁵ That multinationals locate most production in similar, high-wage economies may be consistent with

⁴ See Markusen and Venables (1998, 2000). Trade models of this variety are similar to older theories of tariff-jumping FDI. See Caves (1996) for a discussion. There have been some attempts to integrate models of horizontal and vertical FDI into a single framework. See an overview in Markusen (2002).

⁵ In a regression setting, Carr, Markusen, and Maskus (2001) find that sales by affiliates of foreign multinationals in the United States or by foreign affiliates of U.S. multinationals are higher for countries whose GDP is more similar to U.S. GDP.

FDI being driven more by market access than by wage differences. Second, sales by foreign affiliates of U.S. multinationals are higher in countries with higher tariffs and transport costs on U.S. goods (Brainard, 1997; Carr, Markusen, and Maskus, 2001). This appears consistent with FDI motivated by market access. Third, U.S. firms serve foreign markets more through FDI and less through exports the larger is the scale of corporate operations relative to the scale of production (Brainard, 1997; Yeaple, 2001). This supports the idea that multinationals arise when scale economies in headquarter activities are strong relative to scale economies in production.⁶

When considering FDI from the United States into Europe, in light of their similarly high levels of development relative to the rest of the world, one might presume this FDI to be predominantly horizontal in nature. But several recent studies demonstrate that European FDI over the 1980s and 1990s has been more complex than one of just horizontal FDI (studies using data on U.S. as well as European-headquartered multinationals): Barba Navaretti, Haaland, and Venables (2002), Barrell and Pain (1999), Braconier and Ekholm (2001), and Hanson, Mataloni, and Slaughter (2001). As Slaughter (2003) and others emphasize, the 1990s are especially important to examine because some broad European patterns in this decade look quite different from those of the 1980s.

This section will summarize some of the evidence on the nature of European FDI (in particular, the evidence presented in Slaughter, 2003). If horizontal FDI truly characterized the lion's share of multinational activity, then the data would be predominated by manufacturing affiliates producing and selling into host markets without obvious variation in factor intensities.

The main message here is there is substantial heterogeneity both across countries and over time

⁶ Some representative statements on the predominance of horizontal FDI are Brainard (1997, p. 539)--“The finding that rising per-worker income differentials reduce affiliate sales ... [is] inconsistent with explanations of multinational activity that depend on factor-proportion differences [i.e., vertical FDI]”—and Markusen and Maskus (1999, abstract and p. 16)—“Econometric tests give strong support to the horizontal model and overwhelmingly reject the vertical model ... The [vertical] model should clearly not be taken seriously as a description of the world.”

in the types of European FDI. Some looks horizontal, some vertical, and some something else in non-manufacturing activities. The data indicate a richer picture of European FDI than one of just horizontal FDI of manufacturing activity flowing from one high-income region into another. Manufacturing accounts for less than half of all European FDI, in many countries just a minority fraction. Firms clearly do more than make goods; they may sell goods, and/or make services as well. And regardless of the composition of industries, different affiliates have different degrees of vertical links to their U.S. parents through cross-border outsourcing and also different degrees of external orientation in terms of exports. All this suggests that government policy may play an important role in shaping the *composition* of inward FDI, above and beyond its overall *level*.

2.1 Vertical and Horizontal FDI into Europe: Evidence

The tables in this section cover data for majority-owned, non-bank affiliates of U.S.-headquartered corporations, as tracked by the U.S. Bureau of Economic Analysis (BEA). The full data cover affiliate operations in Europe for the four most-recent BEA benchmark-survey years: 1982, 1989, 1994, and 1999. See Slaughter (2003) for a detailed data discussion.⁷

Table 1 has a distributional focus: how important high-income countries are for the overall European operations of U.S. multinationals. For three years—1982, 1989, and 1999—it reports the share of affiliate activity in Europe—sales or employment in all industries or just manufacturing—accounted for by a set of high-income European countries, defined as countries with a 1982 real per capita gross domestic product of at least \$10,000.⁸ Thus, for example, in 1982 these high-income countries accounted for 96.0 percent of the European sales of U.S. affiliates in all industries.

⁷ Note that in the BEA data, each affiliate is measured as a business enterprise, not an establishment (as in other micro-level research, e.g., work using the U.S. Longitudinal Research Database or the U.K. Annual Respondents Database). The BEA does not track the number of establishments.

⁸ These countries were Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Italy, Luxembourg, Netherlands, Norway, Sweden, Switzerland, and United Kingdom.

The important message of Table 2 is that over the past two decades high-income countries account for a declining share of total European affiliate activity. All four rows show declining shares from 1982 up to 1999, with larger declines in the 1990s versus 1980s. This intra-European shift is consistent with similar intra-European data for all inward FDI in Barba Navaretti, et al. (2002) and Braconier and Ekholm (2001). These falling shares could be consistent with horizontal FDI (to the extent that it is driven by rising incomes and thus market size outside this group of countries) or vertical FDI (to the extent that it is driven by lower factor costs, even if the differentials were closing, outside this group of countries).

Table 2 disaggregates the intra-European focus of Table 1 for all individual countries for which various employment aggregates are consistently reported by the BEA. For three years—1982, 1989, and 1999—it reports both the level (in thousands of workers) and Europe-wide share of employment in both all industries and just manufacturing for 18 European countries plus a 19th “Other” aggregate. This aggregate covers much of central and Eastern Europe, yet over the 1990s nearly 75 percent of this group’s total employment was accounted for by three countries—the Czech Republic, Hungary, and Poland.

There are two notable features of Table 2. One is just the cross-country variation at each point in time in the absolute level of employment. Each year the three largest countries in terms of absolute affiliate employment are the United Kingdom, Germany, and France; together these three countries account for about two-thirds of total European employment. Belgium, Italy, the Netherlands, and Spain are the next largest FDI recipients in terms of absolute employment. All other countries account for less than about 2 percent of total employment.

A second notable feature of Table 2 is the evolution over time in country employment shares. For many countries, the shares move little decade by decade. That said, notable increases in all-

industry employment shares include France in the 1980s; Sweden in the 1990s; and, most dramatically at fully six percentage points, the Other group in the 1990s. These were matched by notable declines in all-industry employment shares in the 1990s in Belgium, Germany, Italy and the United Kingdom. There is even more volatility in the manufacturing employment shares over the 1990s. During that decade Ireland's and Sweden's share each rose by about one percentage point, both of which were dwarfed by the dramatic 7.7 percentage-point increase for Other. These increases were matched by declining shares over the 1990s in the same four countries as above—with the most dramatic fall of 6.3 percentage points in the United Kingdom.

These changes in shares, especially for manufacturing employment, appear consistent with shifts from relatively high-wage countries to relatively low-wage countries. Table 5 will offer some direct wage evidence for affiliates. Note that the shift was concentrated in the 1990s, coincident with the fall of communism and the rise of market forces throughout much of central and eastern Europe. This coincidence suggests that U.S. firms were responding to these dramatic policy changes.

A caveat to interpreting these shifting shares, however, is that the direction of change of employment shares need not match the direction of change of employment levels. This matters especially for the 1990s, during which only one country in Table 2, Belgium, experienced a fall in the absolute number of manufacturing employees. Despite its sizable drop in manufacturing employment share, even in the United Kingdom absolute employment over this decade actually rose by 3,700. Of course, in many cases share and level changes have the same sign: the dramatic rise in Other's total-employment share over the 1990s occurred via an absolute employment rise of 207,800. But an environment in which a country's falling employment share

is accounted for by positive employment growth that is slower than in other countries can be very different from one in which its falling share is accounted for by employment contractions.

Table 3 shifts focus from the distribution of affiliate total activity across countries to the industrial distribution of affiliate activity within countries. For two years—1982 and 1999—and a large number of countries and country groups, it reports the distribution for each country-year of total affiliate sales across five broad industries: manufacturing; wholesale trade; finance, insurance, and real estate (FIRE); other services (e.g., retail trade, legal services, management consulting); and other industries, of which petroleum is typically the main activity. Thus, in the entire world in 1982, 37.1 percent of all affiliate sales were in manufacturing, and so on.

One important pattern in Table 3 is the evolution over time in affiliate industry composition common to most countries or country groups. The typical pattern is one of a falling sales share in other industries offsetting rising sales shares in the other four groups. This cross-industry evolution reflects in part changes in world oil prices, which were relatively high in 1982 and relatively low in 1999. But it probably also reflects forces like rising incomes, which stimulate demand for many services such as FIRE and retail trade. Seen in this light, the rise over time in sales shares for non-manufacturing, non-oil activities reflects the evolving output compositions of many countries.

A second important pattern in Table 3 is the cross-country differences in affiliate industry composition, common trends over time aside. The industry mix in Europe is not too dissimilar from that in the rest of the world. But within Europe, countries show substantial variation. Affiliates are more heavily concentrated in manufacturing in France, Germany, Ireland, and Spain. Affiliates in the United Kingdom are more heavily concentrated in FIRE, other services, and other industries. Norway also shares this concentration in other industries, consistent with

the two countries benefiting from production of North Sea oil. And several countries have affiliates whose sales are heavily concentrated in wholesale trade relative to Europe overall: Austria, Belgium, Denmark, Finland, Luxembourg, Netherlands, and Switzerland. The magnitude of these cross-country differences is quite large in many cases. In 1999 about 75 percent of Ireland's and Spain's total affiliate sales were in manufacturing, whereas about 75 percent of Switzerland's total affiliate sales that year were in wholesale trade.

This cross-country variation in affiliate industry composition goes against the idea that all FDI into Europe is driven by the same forces and thus likely to look the same across countries. The variation is sizable and, in many cases, growing over time. It suggests that multinationals tailor their industry choices to a set of country characteristics.

Table 4 shifts focus to the external orientation of U.S. affiliates operating in Europe. For three years—1982, 1989, and 1999—it reports what share of total affiliate sales are exported out of the host country. Thus, for example, worldwide in 1982 affiliates sent 34.6 percent of their total sales to customers outside their respective host countries.⁹

The main message of Table 4 is the cross-country variation in affiliate export intensity: some countries have high and/or rising export shares, while others have low and/or falling export shares. As the second row of Table 4 indicates, the export orientation of all European affiliates aggregated together is about that of all affiliates worldwide, at just over one third. But export shares are well over half and indeed are approaching 75 percent in Belgium, Ireland, Luxembourg, Netherlands, and Switzerland. At the other extreme, export shares are low and/or falling in countries such as Denmark, France, Germany, and the United Kingdom.

⁹ The complement of exports in total sales is same-country or local sales. These local sales are defined by whether or not the entity to which an affiliate sells a good resides in the same country as the affiliate. These entities can, of course, turn around and export their purchased goods to foreign markets. Given that such second-party exports are not captured in the data, the measured ratio of affiliate exports to total sales is a lower bound for the true value.

In the empirical literature on multinationals, many studies treat all output by foreign affiliates in a country as destined for the local market, and then examine which country and industry characteristics are correlated with affiliate total sales (e.g., Brainard, 1997; Markusen and Maskus, 1999; Yeaple, 2001; Carr, et al., 2001). This empirical choice at least partly reflects many standard models, which assume that all affiliate sales are local-market sales. Table 4 indicates that multinationals clearly choose their destination of sales.

The last table of this section, Table 5, presents evidence on labor costs and the factor intensity of affiliates. For a large set of countries in each of two years—1982 and 1994—this table reports the level and share of affiliate production-worker employment in manufacturing and also the average affiliate hourly compensation for these production workers. In its benchmark-survey years before 1999 the BEA required foreign affiliates in manufacturing to distinguish non-production from production employment. Following a number of studies in the trade-and-wages literature, one can define the former to be more-skilled and the latter to be less-skilled.

Compared to the world, European affiliates employ relatively more non-production workers. This is consistent with the higher European wages for production workers, and suggests that affiliates choose relative employments in response to the relative wages they face. Many countries within Europe show similar co-variation between relative production employment and production compensation. Ireland, Greece, Portugal, Spain, and Other are all low-wage countries within Europe where affiliates employ a high share of production workers. France, Germany, and the United Kingdom are all high-wage countries within Europe where affiliates employ a low share of production workers. Similar evidence on this point was found by Lipsey, Kravis, and Roldan (1982), who estimated a positive correlation between affiliate capital per worker and affiliate wages.

There is a central conclusion to this Section 2.1: *there exists substantial heterogeneity both across countries and over time in the types of European FDI*. Some looks horizontal, some vertical, and some something else. This cross-country and over-time heterogeneity in industry composition, external orientation, and factor intensity belies the notion that all FDI into Europe is market-seeking horizontal investment.

2.2 Vertical and Horizontal FDI into Europe: Causes

The heterogeneity seen in Tables 1 through 5 is consistent with the idea that multinationals tailor their European operations to a set of host-country conditions and policies. Regression analysis investigating the role of these conditions and policies appears in studies such as Barba Navaretti, Haaland, and Venables (2002), Barrell and Pain (1999), and Braconier and Ekholm (2001), and Slaughter (2003).

Regression analysis in these studies confirms that multinationals seem to tailor their European operations based on factors such as host-country size, per capita income, and policies such as EU membership and corporate tax rates. A representative set of results appear in Slaughter (2003).

A first consideration might be the determinants of the absolute level of affiliate activity in a country—e.g., total affiliate sales. Slaughter (2003) finds that for five broad industry groups (both manufacturing and non-manufacturing), sales (and also export sales) are rising in per capita GDP and GDP, falling in distance from the United States and in the corporate tax rate. EU membership is significantly positively correlated with manufacturing and FIRE activity. In short, countries that are richer per capita, have larger markets, lower taxes, and are closer to the United States have larger levels of FDI activity in all industries.

This result helps explain the *aggregate level* of U.S. FDI into European countries, but it does not shed light on the forces behind the *industry composition* of FDI documented in Section 2. To better understand these composition issues, Slaughter (2003) examines the *share* of total affiliate sales in each country-year accounted for by each of the five industry groups. These specifications capture the differential impact of country variables on particular industries relative to all industries taken together, as the dependent variable implicitly controls for unobserved variables that affect all industries in the same manner.

This framework reveals interesting differences in the effect of various country characteristics on affiliate industry composition. Per capita GDP is significantly negatively correlated with manufacturing activity, but positively correlated with wholesale (significantly) and FIRE activity. GDP is significantly positively correlated with services activity, but negatively so for wholesaling. Distance is significantly negatively correlated with manufacturing and FIRE activity, but significantly positively correlated with wholesaling and other industries. Corporate tax rates are significantly positively correlated with manufacturing activity, but (borderline) significantly negatively correlated with FIRE's share. Finally, EU membership is significantly positively correlated with manufacturing, but significantly negatively correlated with wholesaling. Many of these correlations accord with economic intuition.¹⁰

Similar compositional findings are obtained from regressions studying the external orientation of affiliates (i.e., regressions using as regressands the share of exports in affiliate total sales). Affiliates are more export intensive in host countries that are smaller (measured in terms

¹⁰ Consider manufacturing, for example. Countries with lower per capita income and presumably lower wages attract a higher mix of manufacturing, an industry for which labor costs are relatively important. And to the extent that many manufactured goods are taxable across borders via tariffs and other non-tariff barriers, U.S. firms contemplating selling to the EU market may prefer producing “behind the walls” inside an EU country. FIRE activity is concentrated in countries with high per capita GDP, consistent with these services being a luxury good demanded predominantly by high-income individuals. And other services being concentrated in high-GDP countries accords with the idea that many of these other services—e.g., retail trade—depend on the overall purchasing power of the host country. For more on the role of taxation, see the evidence in Hines (2001).

of GDP), more productive (measured in terms of per capita GDP), and lower-tax (in terms of corporate tax rates).

To conclude Section 2.2, the overall message from existing research is that the composition of FDI within a given European country varies significantly with a set of host-country policies and characteristics. Multinationals appear to tailor their operations based on considerations such as host-country size, per capita income, and policy choices such as EU membership and corporate tax rates. This evidence, along with the heterogeneity documented in Section 2.1, presents a richer picture European FDI than one of just horizontal FDI of manufacturing activity flowing from one high-income region into another. Manufacturing accounts for less than half of all European FDI, in many countries a very small fraction. And regardless of the composition of industries, different affiliates have different degrees of vertical links to their parents through cross-border outsourcing and also different degrees of external orientation in terms of domestic sales versus exports. All of this suggests that government policy may play an important role in shaping the *composition* of inward FDI flows, above and beyond their overall *level*.

This also suggests that the host-country labor-market impacts of FDI may be quite different across regions. It is to this next question that we now turn.

3. The Labor-Market Consequences of European FDI

How are European labor markets impacted by FDI activity? There are several dimensions on which labor relations between workers and firms may depend on the nationality of ownership of those firms. In this section we consider four such dimensions: the relative demand (and thus earnings and/or employment) between more-skilled and less-skilled workers economy-wide; the absolute earnings of each worker type; labor-demand elasticities and the volatility of worker earnings; and profit sharing. The first three dimensions of labor-market outcomes are issues

arising in perfectly-competitive labor markets, while the fourth extends this benchmark framework to important issues of non-competitive interactions as well. In each case, we present both theory and existing empirical evidence. *The important message is that there is both theoretical and empirical evidence that nationality of ownership does indeed matter for several labor-market outcomes.*¹¹

3.1 FDI and the Relative Demand Between More- and Less-Skilled Workers

In many European countries in recent decades, economy-wide labor demand appears to have shifted away from less-skilled workers and towards more-skilled workers. These shifts have appeared in aggregate labor markets through some mix of higher income inequality across skill groups (e.g., the United Kingdom) and unemployment increases disproportionately falling on less-skilled workers (e.g., Germany and France).

There is by now a very-large research area investigating the relative contribution to these trends of forces such as technological change, international trade, immigration, and FDI. We do not intend to survey this literature, but instead to simply highlight the theory and empirical evidence on the particular role that FDI may be playing.¹² We first address the theory.

Most previous work on the effect of FDI on labor demand has examined the issue from the perspective of vertical FDI. One such example is Feenstra and Hanson (1996), who develop a North-South model to examine the potential effects of FDI inflows on wages in both the host and parent countries. Here, a final good is produced from a continuum of intermediate inputs which vary in the relative amounts of skilled and unskilled labor required. The South has a comparative advantage in unskilled-labor-intensive production. This attracts FDI from the

¹¹ To keep issues manageable, our contrast between employment in foreign-owned versus domestically owned firms does not consider possible links between these two firms. In particular, we do not consider the important issue of whether foreign-owned firms generate knowledge spillovers for domestic firms in host countries. For evidence on this question, a representative recent study that examines U.K. evidence is Haskel, Pereira, and Slaughter (2002).

¹² For a representative survey, see Johnson and Slaughter (2001).

North, which in turn transfers some number of "marginal" inputs from North production to South production. Interestingly, with greater FDI the relative demand for more-skilled labor (and thus the skill premium) *rises* in both the North and the South both regions now produce a more skilled-labor-intensive mix of activities.

The rise in the South is to be noted here. If it is assumed that inward FDI entails new activities that are more skill-intensive than the host country's existing activities, then aggregate host-country demand for skills increases. In contrast, if the inward FDI brings in the opposite kinds of activities, i.e., those that use intensively less-skilled labor, then economy-wide demand for skills should fall, not rise. This is the case in Helpman's (1984) vertical FDI framework, where by assumption the assembly activity that multinationals locate in low-wage countries involves only less-skilled labor. In general, then, standard models of vertical FDI predict that inward FDI can either raise or lower a host country's demand for skills. It all depends on the skill mix of FDI activities relative to those already performed in the host country.

What about models of horizontal FDI? The same ambiguity exists here as well regarding the net impact of inward FDI on relative demand and wages. One representative example is Markusen and Venables (1998), who analyze the influence of horizontal FDI on relative wages in the parent and host countries. They discuss in great detail the ambiguous labor-demand effects of various parameter changes, such as endowment growth or trade-cost declines. For example, they show that world endowment growth leads to a greater role for multinationals but also to ambiguous labor-demand effects. If initially national firms predominate, then growth triggers a "regime shift" towards more multinationals. Because multinationals are assumed to be more skilled-labor intensive than national firms are, demand for skills rises. But if initially there are relatively few national firms, then growth can lower the skill premium. Here, growth leads to

greater firm-scale effects. Since skilled labor makes the firm-specific assets, firm-scale effects arise mainly with multinational assembly operations that use less skilled labor.

In summary, theory suggests greater MNE activity can either raise or lower the skill-mix of activities performed within a host country, and thus help raise or lower wage inequality. These ambiguities highlight the need for empirical work to help inform which equilibrium states of the model seem relevant.

Some empirical studies have found cases where inward FDI appears to raise host-country demand for skills, while others have found no clear link between inward FDI and labor demand. Feenstra and Hanson (1997) find substantial evidence that U.S. FDI into Mexico contributed to rising Mexican demand for more-skilled workers across both regions and industries. In contrast, Slaughter (2000) and Blonigen and Slaughter (2001) find no systematic correlation between skill upgrading within U.S. industries and either outward or inward FDI.

3.2 FDI and the Absolute Level of Worker Earnings

Distinct from interest in *relative* labor demand and earnings, one may also be interested in the impact of FDI on labor demand and earnings in *absolute* terms. Several studies—of both developed and developing countries—have documented that establishments owned by MNEs pay *higher* wages than do domestically owned establishments. This is true even controlling for a wide range of observable worker and/or plant characteristics such as industry, region, and overall size. The magnitudes involved are big. Doms and Jensen (1998) document that for U.S. manufacturing plants in 1987, worker multinational wages exceeded domestically owned wages by a range of 5 to 15 percent, with larger differentials for production workers rather than non-production workers.¹³

¹³ Production workers receive an average of 6.9 percent less at comparable domestic plants employing more than 500 employees and 15.2 percent less at comparable domestic plants employing fewer than 500 employees. Non-production workers receive an average of 5.0 percent less at comparable domestic plants employing more than 500 employees and 9.5 percent less at comparable domestic plants employing fewer than 500 employees. For additional U.S. evidence see Howenstine and Zeile

What accounts for this “multinational wage premium” remains unknown, largely because this cross-sectional evidence is consistent with several alternative explanations, about which very little is currently known. The premium could be accounted for by higher worker productivity due to superior technology and/or capital at multinationals. This explanation accords with the common thread in models of both vertical and horizontal FDI that multinational firms possess certain “knowledge assets” such as patents, copyrights, and other intellectual-property assets obtained through R&D and related activities. It also accords with existing empirical evidence that multinationals are especially R&D-intensive relative to purely domestic firms.¹⁴

There are at least two more possible explanations of the multinational wage premium, which are addressed in the next two sections of this paper. One is that multinationals pay more to compensate workers for the greater labor-market volatility associated with MNEs—e.g., for the greater risk of plant shut-downs. If workers for MNEs face a greater risk of job separation because MNEs have more elastic labor demands than purely domestic firms do, then to compensate they may receive higher wages. The other possibility is that multinationals are more profitable and therefore able to share more rents with workers.

Regardless of the cause(s) of the multinational wage premium, its existence is very important for considering how the globalization of production affects economic insecurity and political economy more generally. All else equal, this premium is very likely to make multinational employees feel *more* economically secure. The possibly contrasting issues of labor-demand elasticities and wage premia suggest that the net impact of MNEs on worker insecurity is *ex ante* unclear. Whether the wage premiums are sufficient to compensate workers for increases in risks

(1994). Griffith (1999) presents similar evidence for the United Kingdom; Globerman, et al (1994) for Canada; Aitken et al (1996) for Mexico and Venezuela; and Te Velde and Morrissey (2001) for five African countries.

¹⁴ Slaughter (1998) documents that in recent decades the parents of U.S.-headquartered multinationals have performed 50% to 60% of total U.S. R&D.

from higher elasticities is an empirical question. Section 3.3 now turns to this issue of worker insecurity; Section 3.4 will consider profit sharing.

3.3 FDI, Labor-Demand Elasticities, and Worker Insecurity¹⁵

3.3.1 Worker Insecurity in Labor-Market Equilibrium

To establish a connection between foreign direct investment and the risks facing workers in the labor market, we start by identifying in general terms those factors that generate employment and wage volatility for workers. Figure 1 visualizes equilibrium in a standard competitive labor market. The vertical axis plots wages, and the horizontal axis employment (measured in people or, if issues like overtime are thought to be important, hours).¹⁶

The labor-supply curve, LS, is aggregated across individuals, and is typically assumed to be upward sloping. At each point along the supply schedule, the elasticity of labor supply, η^S , is defined as the percentage change in the quantity of labor supplied by workers in response to a one-percent increase in the price of labor. An increase in wages is typically thought to generate both a substitution effect and an income effect among persons who work. Higher wages raise the opportunity cost of choosing leisure rather than work, and thus induce people to substitute towards more work. But higher wages also raise total income from the initial amount of work, and thus induce people to work less and choose more leisure. The substitution effect typically dominates, and thus higher wages induce more work. Aggregated across workers, LS thus slopes up.

The labor-demand curve, LD, is aggregated across firms, and is typically assumed to be downward sloping. At each point along the demand schedule, the elasticity of labor demand, η^D , is defined as the percentage decline (in absolute value) in the quantity of labor demanded by that firm in response to a one-percent increase in the price of labor. This elasticity consists of two parts. One

¹⁵ This section (text and tables) draws heavily from the discussion in Scheve and Slaughter (2002).

is the substitution effect. It tells, for a given level of output, how much the firm substitutes away from labor towards other factors of production when wages rise. The second is the scale effect. It tells how much labor demand changes after a wage change thanks to the change in the firm's output. Higher wages imply higher costs and thus, moving along the product-market demand schedule, lower firm output. When wages rise, both the substitution and scale effects reduce the quantity of labor demanded. The firm substitutes away from labor towards other factors, and with higher costs the firm produces less such that it demands less of all factors, including labor.

Labor-market equilibrium prevails at the intersection of LD and LS at point E, where the quantity of labor supplied equals the quantity of labor demanded. At that point, suppose that η^S and η^D are the relevant elasticities. We introduce volatility into the labor market by assuming that the position of the LD schedule is stochastic. This accords with a wide range of empirical evidence that labor-market volatility stems mainly from movements in LD rather than LS.

To see what forces drive volatility in LD, note that the labor demand schedule for each firm traces out the *marginal revenue product* of its workers as the wage rate varies. Each profit-maximizing firm hires workers until the wage paid to the last worker hired just equals the value of output—i.e., revenue—generated by that last worker. Vary the wage facing the firm, and the optimal number of workers to hire by this maximization rule varies. For each firm, the product prices and technology it faces are two key determinants of marginal revenue products.

Aggregated across all firms, then, the position of the LD schedule depends crucially on all relevant product prices and production technologies. Movements in prices and technologies trigger movements in LD and thus in equilibrium wages and/or employment. Define \hat{mrp} as the percentage shift in the LD schedule due to shocks to prices and/or technologies. It is then

¹⁶ For a formal derivation of key labor-market concepts such as elasticities, see Hamermesh (1993). For discussion of labor-

straightforward to show that the resulting percentage change in equilibrium wages and employment are respectively given by $\hat{w} = \left(\frac{\eta^D}{\eta^S + \eta^D} \right) \hat{mrp}$ and $\hat{e} = \left(\frac{\eta^D \eta^S}{\eta^S + \eta^D} \right) \hat{mrp}$. Treating \hat{mrp} as a random variable

and the elasticities as parameters, then $Var(\hat{w}) = \left(\frac{\eta^D}{\eta^S + \eta^D} \right)^2 Var(\hat{mrp})$ and $Var(\hat{e}) = \left(\frac{\eta^D \eta^S}{\eta^S + \eta^D} \right)^2 Var(\hat{mrp})$.

For workers, the critical issue to note in the above expressions is that volatility in labor-market outcomes depends not just on the volatility of LD shifters such as product prices and production technology. It also depends on the magnitudes of the elasticities of labor supply and demand. If elasticities are assumed to be fixed, then greater labor-market volatility arises if and only if there is greater aggregate volatility in prices or technology. But this is not the only way to generate greater labor-market volatility. It can also be generated from increasing the elasticity of demand for labor, holding fixed the amount of aggregate risk. For some given values of $Var(\hat{mrp})$ and η^S , as η^D rises so too does $Var(\hat{w})$ and $Var(\hat{e})$. Higher labor-demand elasticities trigger more-volatile labor-market responses to price or technology shocks to labor demand.

This can be envisioned graphically by comparing the consequences for wages and employment of equal shifts in the labor demand curves LD and LD' in Figure 1. In this figure, an increase in labor demand elasticity—perhaps induced by foreign investment as will be discussed below—would appear as a flattening of the labor demand schedule around the point E. LD' is one such labor demand schedule. For an equal shift in LD and LD' from a shock to prices and/or technology, there is a greater adjustment in wages and employment along the LD' schedule characterized by more elastic demand.

demand elasticities in general equilibrium trade models, see Reddy (2000).

In sum, this discussion suggests at least two mechanisms by which FDI investment may increase labor market volatility and the risks facing workers. The first is, of course, that if FDI increases the variance of firms' marginal revenue products it will increase labor market volatility. The second is that more-elastic labor demands should also tend to raise employment and wage volatility and thus economic insecurity.

Although the first mechanism—often referred to as the exposure of domestic labor markets to international shocks—is often discussed, the empirical evidence is mixed. Rodrik (1997) presents evidence that exposure to external risk, measured by the interaction between trade openness and the standard deviation of a country's terms of trade, is positively correlated with growth volatility. Iversen and Cusack (2000) argue that it is not sufficient to show that international-price volatility is correlated with growth volatility. Rather, they claim it is necessary either that price volatility in international markets be greater than in domestic markets or that trade concentrates more than it diversifies economic risks. Iversen and Cusack then present evidence that, at least for advanced economies, there is no correlation between trade- or capital-market openness and volatility in output, earnings, or employment. They therefore dismiss the argument that international economic integration increases economic insecurity.

While this line of research has investigated reasonable hypotheses about how integration may increase economic insecurity, the discussion above highlights the fact that it is *not* necessary for integration to increase the magnitude of price and/or technology shocks for it to increase individual economic insecurity in terms of riskier employment and/or wage outcomes. Thus, a lack of correlation between volatility in terms-of-trade and volatility in employment, wages, and output does not necessarily imply that international economic integration generally and foreign investment specifically has not contributed to increased economic insecurity. We must evaluate

the possibility that integration and FDI in particular makes labor demands more elastic and thus increases the risks facing workers in the labor market.

3.3.2 How FDI Can Make Labor Demands More Elastic: Theory and Evidence

Standard models in international trade predict that greater FDI by multinationals should make labor demands more elastic through both the scale and substitution effects. This should boost insecurity via the greater labor-market volatility just described. Consider each effect in turn.

Many models predict that FDI and its related international trade make product markets more competitive. Through the scale effect, this should make labor demands more elastic. For example, liberalization of FDI policies can force domestic firms to face heightened foreign competition. Or developments abroad (e.g., capital accumulation via FDI) can be communicated to domestic producers as more-intense foreign competition. In these cases more competitive product markets mean that a given increase in wages and thus costs translate into larger declines in output and thus demand for all factors. Different models predict different magnitudes of FDI and/or trade's impact on product-market demand.¹⁷

The second way through which FDI can increase labor-demand elasticities is through the substitution effect. Suppose that a firm is vertically integrated with a number of production stages. Stages can move abroad either within firms as multinationals establish foreign affiliates (e.g., Helpman 1984) or arm's length by importing the output of those stages from other firms (e.g., Feenstra and Hanson 1997). Globalization of production thus gives firms access to foreign factors of production as well as domestic ones, either directly through foreign affiliates or indirectly through intermediate inputs. This expands the set of factors firms can substitute

¹⁷ One example is a monopolistically-competitive industry producing for Dixit-Stiglitz consumers who value product variety (e.g., Helpman and Krugman, 1985). Here the representative firm is usually assumed to face a demand elasticity (greater than one) that equals the elasticity of substitution (EOS) among product varieties in consumers' utility function. But the actual

towards in response to higher domestic wages beyond just domestic non-labor factors to include foreign factors as well. Thus, greater FDI raises labor-demand elasticities.

In the literature on globalization and labor markets, there are several recent studies indicating that MNEs and FDI influence labor-demand elasticities in the ways just discussed. Using industry-level data for U.S. manufacturing, Slaughter (2001) estimates that demand for production labor became more elastic from 1960 to the early 1990s, and that these increases were correlated with FDI outflows by U.S.-headquartered MNEs. Using industry-level data for all U.K. manufacturing from 1958 to 1986, Fabbri, Haskel, and Slaughter (2003) estimate increases in labor-demand elasticities for both production and non-production labor.

One important margin on which MNEs may affect elasticities is on the extensive margin of plant shutdowns. In response to wage increases, MNEs may be more likely than domestic firms to respond by closing entire plants. Evidence that multinational plants are more likely to close than are domestically owned plants has now been documented for the manufacturing sectors in at least three countries. For the United Kingdom, Fabbri, et al (2003) estimate that multinational plants—again, both U.K.- and foreign-owned—are more likely to shut down than domestic plants are (conditional on a set of operational advantages enjoyed by multinationals that make them less likely to shut down, like being older and larger). Gorg and Strobl (2002) find that foreign-owned plants in Irish manufacturing are more likely to exit. And for the United States, Bernard and Jensen (2002) report higher death probabilities for plants owned by firms that hold at least 10% of their assets outside the United States.

To summarize, standard economic models of labor markets suggest that the globalization of production via MNEs may increase labor-demand elasticities. This, in turn, will tend to make labor-

demand elasticity is only approximately equal to the EOS. It equals EOS plus a second term, $\frac{(1-EOS)}{N}$, where N is the number

market outcomes more volatile and thus workers more insecure. This analysis suggests an empirical test of whether individual self-assessments of economic insecurity are related to FDI exposure in the labor market.

3.3.3 Empirical Evidence on Link between FDI and Worker Insecurity

Scheve and Slaughter (2002) report empirical evidence on the impact of international capital mobility on economic insecurity. They evaluate how individual self-assessments of economic insecurity—understood as an individual’s subjective perception of risk (Dominitz and Manski 1997)—correlate with the presence of highly mobile capital in the form of FDI in the industries in which individuals work.

The individual-level data in their analysis are from the *British Household Panel Survey* (BHPS). This study is a nationally-representative sample of more than 5,000 U.K. households and over 9,000 individuals surveyed annually from 1991 to 1999. It records detailed information about each respondent’s perceptions of economic insecurity, employment, wages, and many other characteristics. The most important pieces of survey information required for the analysis is a measure of economic insecurity, identification of the respondents’ industry of employment, and repeated measurement of the same individual over time.

Economic insecurity is measured by responses to the following question asked in each of the nine years of the panel.

“I’m going to read out a list of various aspects of jobs, and after each one I’d like you to tell me from this card which number best describes how satisfied or dissatisfied you are with that particular aspect of your own present job—job security.”

The ordered responses are on a seven-point scale ranging from “not satisfied at all” to “completely satisfied.” It is important to note that this question measures the anxiety or stress

of firms in the industry. As N rises—thanks, for example, to FDI by foreign MNEs—so, too, does this elasticity.

associated with the perception of an economic risk rather than the perception itself. This characteristic of the data means that the analysis assumes that perceptions of economic insecurity generate anxiety or lack of satisfaction, and thus that the BHPS question correlates with individual economic insecurity—albeit mediated by individual characteristics and environmental factors.

Using this BHPS question, they constructed the variable *Insecurity* by coding responses in the reverse order from the original question with a range from 1 for individuals who give the response “completely satisfied” to a 7 for those individuals giving the response “not satisfied at all.” Higher values of *Insecurity* thus indicate less satisfaction with job security.

Consistent with the theoretical framework above, the primary hypothesis to be tested is that high FDI activity in industries may generate economic insecurity among workers in those industries by increasing labor-demand elasticities. To test this hypothesis, they constructed the variable *FDI* as a dichotomous industry-level variable (2-digit SIC80 industries) set equal to one if two conditions were met: if the industry had any positive FDI investment, inward or outward, and if the industry’s activities do not require producers and consumers to be in the same geographic location. If either of these conditions were not met, *FDI* was set equal to zero (see Scheve and Slaughter, 2002, for details).

The logic in defining *FDI* with these two conditions runs as follows. The first condition for an individual’s industry of employment to have positive FDI investment is straightforward. Any inward or outward FDI activity satisfies this. The second condition recognizes that FDI activity is less likely to alter labor-demand elasticities if business activities cannot be outsourced across countries because the consumer and producer must be in the same geographic location. Consider the examples of wholesale trade, retail trade, and personal services (e.g., haircuts). The large

majority of business activities in these industries require the co-location of producers and consumers: customers interacting with sales clerks, or sitting in the barber's chair. The notions of economic insecurity related to FDI that we discussed above focus on the ability of MNEs to shift business activities across countries (i.e., on the substitution effect). In reality, in many industries, FDI does not have this characteristic; indeed, this FDI arises precisely because foreign customers cannot be served at a distance via international trade. Accordingly, the *FDI* variable identifies not all industries with FDI, but instead only those industries with FDI in which business activities can be outsourced across countries. So for industries such as wholesale trade, retail trade, and personal services, *FDI* was coded as zero regardless of the data on actual FDI.

By matching each BHPS observation with the relevant industry FDI information, they examine how self-assessments of economic insecurity relate to FDI activity.¹⁸ The starting point for their analysis is to examine cross-sectional variation in economic insecurity for each year of the panel. Table 6 reports the results of this cross-sectional analysis. These results are ordinary least squares coefficient estimates of the regression of *Insecurity* on *FDI* and various demographic control variables. The key finding is that FDI activity is positively correlated with individual economic insecurity. Holding other factors constant, individuals employed in FDI sectors systematically report less satisfaction with their job security. The coefficient estimate for the variable *FDI* ranges between 0.274 (with a standard error of 0.070) in 1994 to 0.397 (with a standard error of 0.071) in 1993. In every year, the estimated parameter is significantly different from zero at at least the 99% level. Although there is some variation across years in the size of the estimate, in most years it is very close to 0.30 and no trend is evident. These cross-sectional

¹⁸ The analyses reported below are based on the BHPS sub-sample of private sector, full-time workers who are not self-employed. It is for this group of workers that our theoretical framework most directly applies. See Scheve and Slaughter (2002) for a discussion of the robustness of the results for larger samples.

results are strongly consistent with the hypothesis that FDI activity generates economic insecurity among workers.

Despite the robustness of the correlation between *FDI* and the measure of economic insecurity, there are number of reasons to be concerned about the validity of these inferences. The period-by-period cross-sectional analysis is inefficient. Further, and more importantly, unmeasured and perhaps unobservable differences among individuals—such as variation in risk aversion—are likely correlated with both perceptions of economic insecurity and the propensity to be employed in a FDI exposed sector—correlations which would bias cross-sectional parameter estimates.

To address these concerns, Scheve and Slaughter (2002) pooled the panel data sets and explicitly modeled individual-specific effects. Table 7 reports the results of the fixed-effects estimator of the pooled model.¹⁹ The main substantive finding is, as in Table 6, a continued positive correlation between *FDI* and the dependent variable *Insecurity*. The specification includes a full set of year indicator variables; the coefficients of which indicate whether mean levels of insecurity deviated in each year from the base year 1991. The parameter estimates are negative for every year except 1992, and turn significantly negative in both specifications after 1995. This indicates lower average levels of insecurity in later years. It is broadly consistent with the pattern of U.K. macroeconomic performance over the 1990s: initial recession followed by increasingly strong economic growth.

It is important to contrast the sources of variation in Tables 6 and 7 that are generating the main finding of a positive correlation between FDI presence and economic insecurity. The cross-section estimates of Table 6 exploit variation across individuals in their industry of employment and economic insecurity at a single point in time. In contrast, the panel estimates of

Table 7 identify off of changes in FDI exposure over time. Individuals for whom there is no change in the FDI activity in their industry and who also do not change their industry of employment have their FDI-presence measure fully absorbed by their individual fixed effects. Variation across these individuals was used in Table 6 but is not in Table 7. Instead, identification in Table 7 comes from changes over time in individuals' self-assessments of economic insecurity that occur either with changes over time in FDI activity in individuals' industry of employment and/or with changes over time in individuals' industry of employment.

3.4 FDI and Profit Sharing Between Workers and Firms²⁰

The preceding discussion of Section 3 has been largely from the perspective of competitive labor markets in which workers earn their marginal revenue product. In reality, however, there is ample evidence that worker earnings depend on firm profitability. Many empirical studies have documented a robustly positive correlation between wages for various micro-units—firms, individuals, union-firm bargaining units—with profits per worker at the level of that micro-unit's firm and/or industry. These industry profits are interpreted as prosperity in the product market enjoyed by firms and available for sharing with workers.

A common feature of these studies is they delineate product markets by the same country as that of the micro-units. That is, wages for micro-units located in a specific country are linked with measures of firm or industry profitability constructed using data for operations in that same country. Such profit measures implicitly assume that national borders bound the product markets whose prosperity is relevant to wages. But is there *international* rent sharing, with profits shared across borders? And in particular, might the nationality of firm ownership matter for profit sharing?

¹⁹ See Scheve and Slaughter (2002) for further discussion of alternative estimators and additional specifications.

²⁰ This section draws heavily from the discussions in and findings of Budd and Slaughter (2003) and Budd, Konings, and Slaughter (2002).

These questions have been examined recently by Budd and Slaughter (2003) and Budd, Konings, and Slaughter (2002). This section summarizes their approaches and empirical findings.

One way to formalize how the patterns of profit sharing may differ between multinational and purely-domestic firms is to start with the typical closed-economy set-up in which risk-neutral workers enjoy some bargaining power for negotiating with their firm over wages. In a Nash bargaining setting, the negotiated wage equals some base “outside” wage (that workers can earn if negotiations break down) plus some fraction of the relevant profits, where the size of this fraction depends on the degree of worker bargaining power.

There are at least two important ways in which the nature of this generalized wage bargain may differ between multinational and purely-domestic firms. One is that workers may enjoy less bargaining power with multinationals than with domestics because multinationals have higher labor-demand elasticities. This argument follows directly from the analysis of Section 3.3, and it has been forwarded by Rodrik (1997) and others. All else equal, this differential bargaining power would suggest that any “pass-through” of profits to wages will differ across firm types.

The other way is that the relevant scope of profits to negotiate over may differ across firm types. Workers within a multinational may negotiate over not just profits in the host country but also profits within the firm in other countries (and multinationals may agree with such a perspective, based on firm-wide compensation policies). Or by virtue of having well-established foreign production options, multinational firms may have a different outside option from domestic firms—in particular, a lower threshold at which they will cease wage negotiations.

In general, one can formalize several ways in which patterns of profit sharing will depend on the nationality of firm ownership. The empirical evidence in Budd and Slaughter (2003) and Budd, et al (2002) confirms the relevance of these channels.

For a sample of 1,014 Canadian manufacturing union contracts from 1980 through 1992, Budd and Slaughter (2003) find that U.S.-industry profitability affects Canadian wage outcomes and that the pattern of rent sharing varies significantly across international linkages including multinational ownership (as well as union type and trade barriers). Higher Canadian-industry profits raise wages for employees of Canadian-owned firms, but higher Canadian-industry profits generally have a much smaller (or no) effect on the wages of Canadian employees of U.S.-owned firms. Conversely, higher U.S. profits lower wages for employees of Canadian-owned firms, but higher U.S. profits raise or have zero effect on wages for employees of U.S.-owned firms.

Budd, et al (2002) shift focus to the issue of whether intra-multinational wage bargaining depends on profitability of both parent and affiliate operations. They use a unique firm-level panel data set of multinational parents and their foreign affiliates that spans 1993 through 1998, with a total of 865 parents and 1919 foreign affiliates in 14 European countries. Using both fixed-effects and generalized method-of-moments estimators, they estimate that affiliate wage levels depend on both affiliate *and* parent profitability, with many specifications indicating parents share profits only with majority-owned affiliates and even more strongly with fully-owned affiliates.

The magnitudes of profit sharing in these multinationals studies are on par with those found in related closed-economy analyses. For example, central estimates in Budd, et al (2002) indicate that a doubling of parent profitability raises affiliate wages by somewhere between one and five percent, which can explain over 20 percent of the observed variation in affiliate wages. This magnitude of cross-border profit sharing within multinationals appears to be economically important, especially in light of the fact documented in Barba Navaretti, et al (2002) that today in Europe nearly 20 percent of all manufacturing employees worked in foreign-owned affiliates.

4. Conclusions

In this paper, we examine the relationship between foreign investment in Europe and labor market outcomes. We contend that any assessment of the impact of FDI activity by multinational enterprises requires first an evaluation of the determinants of this activity. Why firms go abroad has important consequences for the effects of their investments on domestic labor markets. We review evidence in this paper that there exists substantial heterogeneity both across countries and over time in the types of European FDI. Some investment looks horizontal in that it is motivated primarily by the desire to produce goods and services for consumers in the host country. Some, however, looks vertical in that investments are designed to take advantage of international factor-price differences and produce goods for export. Other foreign investment in Europe does not fit easily into either of these two standard categories.

Furthermore, we argue that the composition of FDI within a given European country varies significantly with a set of host-country policies and characteristics. Multinationals appear to tailor their operations based on considerations such as host-country size, per capita income, and policy choices such as EU membership and corporate tax rates. This evidence along with cross-country and over-time heterogeneity in industry composition, external orientation, and factor intensity belies the conventional view that all FDI into Europe is market-seeking horizontal investment. Moreover, it suggests that government policy may play an important role in shaping the composition of inward FDI flows, above and beyond their overall level. All of these patterns have important consequences for the host-country labor-market impacts of FDI and their variation across Europe.

Having documented this heterogeneity, we turn next to consider the labor-market impacts of FDI. Does the nationality of firm ownership matter for the level, distribution, and volatility of

worker earnings and ownership? More specifically, we consider four dimensions to this question: the relative demand (and thus earnings and/or employment) between more-skilled and less-skilled workers economy-wide; the absolute earnings of each worker type; labor-demand elasticities and the volatility of worker earnings; and profit sharing. For all these dimensions, we present both theoretical and empirical evidence that the answer to this question is “yes.”

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Table 1
The Share of High-Income Countries in European Activity
of Affiliates of U.S. Multinational Firms

Activity	1982	1989	1999
Sales, All Industries	96.0	92.6	87.2
Employment, All Industries	91.7	91.1	84.5
Sales, Manufacturing	92.1	89.9	83.0
Employment, Manufacturing	90.9	89.7	80.5

Notes: Cell entries report the share (in percentage terms) of the Europe-wide activity (as measured by that cell's row) of majority-owned affiliates of U.S. multinational firms accounted for by countries with a 1982 real per capita gross domestic product of at least \$10,000. (These countries were Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Italy, Luxembourg, Netherlands, Norway, Sweden, Switzerland, and United Kingdom).

Source: Bureau of Economic Analysis, U.S. Department of Commerce. This table is taken from Slaughter (2003).

Table 2
The Level and Share of Individual Countries in European Employment
of Affiliates of U.S. Multinational Firms

Country	Industry Group	1982 Level	1982 Share	1989 Level	1989 Share	1999 Level	1999 Share
Austria	All Industries	23.0	1.0	17.8	0.8	30.0	0.9
	Manufacturing	12.8	0.8	13.0	0.6	18.8	1.0
Belgium	All Industries	120.3	5.4	114.3	5.0	113.0	3.3
	Manufacturing	86.8	5.3	80.9	5.4	68.9	3.6
Denmark	All Industries	17.4	0.8	16.9	0.7	31.0	0.9
	Manufacturing	7.4	0.5	6.6	0.4	15.5	0.8
Finland	All Industries	5.0	0.2	7.1	0.3	14.0	0.4
	Manufacturing	N.A.	N.A.	1.3	0.1	6.1	0.3
France	All Industries	293.2	13.0	333.5	14.5	479.0	14.0
	Manufacturing	208.6	12.8	189.8	12.6	250.2	13.0
Germany	All Industries	502.1	22.3	493.7	21.4	632.0	18.5
	Manufacturing	404.2	24.8	383.7	25.4	446.3	23.3
Greece	All Industries	11.2	0.5	13.2	0.6	12.0	0.4
	Manufacturing	6.0	0.4	6.1	0.4	6.8	0.4
Ireland	All Industries	35.1	1.6	40.8	1.8	81.0	2.4
	Manufacturing	31.7	2.0	37.4	2.5	64.9	3.4
Italy	All Industries	173.4	7.7	159.7	6.9	186.0	5.4
	Manufacturing	131.1	8.1	116.9	7.8	122.4	6.4
Luxembourg	All Industries	7.1	0.3	7.7	0.3	9.0	0.3
	Manufacturing	7.0	0.4	7.1	0.5	7.7	0.4
Netherlands	All Industries	104.0	4.6	115.5	5.0	179.0	5.2
	Manufacturing	69.3	4.3	70.5	4.7	80.1	4.2

Table 2
The Share of Individual Countries in European Employment
of Affiliates of U.S. Multinational Firms

Country	Industry Group	1982 Level	1982 Share	1989 Level	1989 Share	1999 Level	1999 Share
Norway	All Industries	16.6	0.7	18.5	0.8	27.0	0.8
	Manufacturing	5.2	0.3	2.3	0.2	7.3	0.4
Portugal	All Industries	19.7	0.9	21.2	0.9	35.0	1.0
	Manufacturing	14.3	0.9	13.1	0.9	24.6	1.3
Spain	All Industries	113.5	5.0	120.0	5.2	164.0	4.8
	Manufacturing	92.3	5.7	93.5	6.2	114.9	6.0
Sweden	All Industries	30.8	1.4	26.0	1.1	70.0	2.0
	Manufacturing	15.8	1.0	13.1	0.9	38.7	2.0
Switzerland	All Industries	39.8	1.8	40.1	1.7	53.0	1.5
	Manufacturing	14.7	0.9	11.5	0.8	17.0	0.9
Turkey	All Industries	5.2	0.2	9.2	0.4	29.0	0.8
	Manufacturing	2.6	0.2	5.0	0.3	14.0	0.7
U.K.	All Industries	729.3	32.4	749.3	32.5	1,065.0	31.2
	Manufacturing	516.0	31.7	462.2	30.6	465.9	24.3
Other	All Industries	1.6	0.1	1.2	0.1	209.0	6.1
	Manufacturing	0.0	0.0	0.1	0.0	149.4	7.8

Notes: Cell entries report the level (in thousands) or share (in percentage terms) of European employment of majority-owned affiliates of U.S. multinational firms accounted for by the country in that cell's row, with two different industry groups reported for each country. The country group "Other" consists of all other European countries not listed individually. Over the 1990s approximately 75% of this group's activity was accounted for by the Czech Republic, Hungary, and Poland. "N.A." indicates data not available due to confidentiality requirements.

Source: Bureau of Economic Analysis, U.S. Department of Commerce. This table is taken from Slaughter (2003).

Table 3
The Cross-Country Industry Composition in Sales
of Affiliates of U.S. Multinational Firms

Country	Year	Manuf.	Whole.	FIRE	Serv.	Other
World	1982	37.1	15.6	3.2	2.4	41.6
	1999	46.2	20.1	7.1	6.7	19.9
Europe	1982	39.7	21.9	1.7	2.9	33.8
	1999	47.1	24.1	6.2	7.4	15.1
Austria	1982	N.A.	37.3	0.1	5.5	N.A.
	1999	49.9	35.1	1.4	5.8	7.9
Belgium	1982	41.8	23.2	1.0	2.5	31.4
	1999	44.6	37.6	3.1	5.2	9.4
Denmark	1982	15.2	22.2	0.4	2.1	60.2
	1999	31.6	44.2	7.6	8.8	7.9
Finland	1982	5.0	46.2	0.0	N.A.	N.A.
	1999	38.0	43.3	2.6	4.6	11.5
France	1982	46.7	24.0	0.6	4.2	24.5
	1999	54.0	23.0	2.2	10.7	10.0
Germany	1982	56.6	10.2	0.8	1.5	30.9
	1999	62.7	14.9	5.6	4.6	12.1
Greece	1982	20.8	12.0	0.1	N.A.	N.A.
	1999	38.8	39.7	4.8	2.8	13.8
Ireland	1982	67.8	6.8	0.6	N.A.	N.A.
	1999	75.4	7.6	3.8	10.3	2.8
Italy	1982	41.0	20.5	0.6	2.3	35.6
	1999	45.7	26.7	1.7	10.5	15.4

Table 3
The Cross-Country Industry Composition in Sales
of Affiliates of U.S. Multinational Firms

Country	Year	Manuf.	Whole.	FIRE	Serv.	Other
Luxembourg	1982	61.2	2.6	1.5	0.0	34.7
	1999	35.2	48.3	7.0	1.7	7.7
Netherlands	1982	40.2	20.5	1.4	5.0	33.0
	1999	34.0	45.0	4.7	5.8	10.5
Norway	1982	6.4	11.9	0.0	2.1	79.6
	1999	13.7	23.0	1.0	5.4	56.8
Portugal	1982	45.0	23.5	0.0	N.A.	N.A.
	1999	47.9	33.7	2.6	3.6	12.3
Spain	1982	74.7	11.7	0.5	4.9	8.1
	1999	73.0	16.9	1.9	5.0	3.2
Sweden	1982	31.4	29.4	0.3	3.2	35.8
	1999	54.0	29.8	4.2	4.9	7.1
Switzerland	1982	5.4	54.8	0.6	1.8	37.4
	1999	16.4	72.7	2.6	3.8	4.5
Turkey	1982	19.0	N.A.	0.0	N.A.	N.A.
	1999	53.0	39.4	N.A.	2.8	N.A.
U.K.	1982	37.6	19.8	4.0	3.1	35.5
	1999	39.0	11.1	13.0	10.0	27.0
Other	1982	N.A.	N.A.	0.6	7.4	N.A.
	1999	59.3	20.7	N.A.	2.9	N.A.

Notes: Cell entries report the share (in percentage terms) of that row's country-year sales of majority-owned affiliates of U.S. multinational firms accounted for by that column's industry. "Manuf." represents manufacturing; "whole." represents wholesale trade; "FIRE" represents finance, insurance, and real estate; "Serv." represents other services; and "Other" represents all other industries, of which petroleum is a major component. The country group "Other" consists of all other European countries not listed individually. Over the 1990s approximately 75% of this group's activity was accounted for by the Czech Republic, Hungary, and Poland. "N.A." indicates data not available due to confidentiality requirements.

Source: Bureau of Economic Analysis, U.S. Department of Commerce. This table is taken from Slaughter (2003).

Table 4
Exports as a Share of Total Sales
for Affiliates of U.S. Multinational Firms

Country	1982	1989	1999
World	34.6	32.3	33.8
Europe	37.3	35.2	36.0
Austria	19.0	22.6	45.6
Belgium	56.4	58.9	56.6
Denmark	23.3	24.7	27.2
Finland	2.4	17.2	22.2
France	27.2	26.6	27.2
Germany	28.4	32.6	27.6
Ireland	60.4	66.0	75.9
Italy	16.3	16.8	20.7
Luxembourg	74.5	72.4	70.4
Netherlands	55.2	56.8	56.0
Norway	N.A.	45.2	31.0
Portugal	N.A.	N.A.	19.1
Spain	19.6	24.5	28.6
Sweden	17.5	17.8	39.1
Switzerland	83.3	72.3	70.4
Turkey	N.A.	5.23	24.6
United Kingdom	31.0	25.1	19.8
Other	N.A.	56.9	25.5

Notes: Cell entries report the share (in percentage terms) of that country-year's total sales of majority-owned affiliates of U.S. multinational firms that were exported out of the host country. The country group "Other" consists of all other European countries not listed individually: see Table 2. "N.A." indicates data not available due to confidentiality requirements.

Source: Bureau of Economic Analysis, U.S. Department of Commerce. This table is taken from Slaughter (2003).

Table 5
The Cross-Country Skill Composition in Manufacturing
of Affiliates of U.S. Multinational Firms

Country	Year	Total Empl.	Prod. Empl.	Prod. Share	Hourly Comp.
World	1982	3357.6	1940.5	57.8	7.27
	1994	3516.0	2093.4	59.5	12.57
Europe	1982	1627.7	886.5	54.5	9.44
	1994	1590.0	915.0	57.6	18.80
Austria	1982	12.8	7.5	58.6	8.14
	1994	13.0	8.2	63.1	18.86
Belgium	1982	86.8	51.8	59.7	10.66
	1994	62.4	39.6	63.5	23.11
Denmark	1982	7.4	4.5	60.8	8.99
	1994	7.8	4.7	60.3	20.40
Finland	1982	N.A.	N.A.	N.A.	N.A.
	1994	3.7	2.4	64.9	19.62
France	1982	208.6	102.7	49.2	10.48
	1994	215.0	110.6	51.4	20.34
Germany	1982	404.2	219.7	54.4	11.50
	1994	394.5	225.0	57.0	27.22
Greece	1982	6.0	3.8	63.3	5.07
	1994	5.5	3.4	61.8	13.73
Ireland	1982	31.7	21.7	68.4	6.15
	1994	44.5	28.7	64.5	13.22
Italy	1982	131.1	69.0	52.6	9.03
	1994	113.2	61.7	54.5	18.06

Table 5
The Cross-Country Skill Composition in Manufacturing
of Affiliates of U.S. Multinational Firms

Country	Year	Total Empl.	Prod. Empl.	Prod. Share	Hourly Comp.
Luxembourg	1982	7.0	3.7	52.9	13.00
	1994	6.9	4.1	59.4	26.11
Netherlands	1982	69.3	38.8	56.0	10.39
	1994	70.7	41.8	59.1	21.10
Norway	1982	5.2	2.3	44.2	12.82
	1994	4.7	2.8	59.6	18.95
Portugal	1982	14.3	8.6	60.1	3.54
	1994	16.8	11.2	66.7	7.80
Spain	1982	92.3	53.4	57.8	7.27
	1994	90.6	60.5	66.8	15.60
Sweden	1982	15.8	6.8	43.0	10.31
	1994	13.7	7.8	56.9	15.55
Switzerland	1982	14.7	7.4	50.3	11.71
	1994	13.9	7.7	55.4	26.38
Turkey	1982	2.6	1.7	65.4	3.49
	1994	10.5	5.8	55.2	7.01
U.K.	1982	516.0	282.0	54.6	8.12
	1994	435.3	244.3	56.1	14.95
Other	1982	N.A.	N.A.	N.A.	N.A.
	1994	67.3	44.8	66.6	2.97

Notes: Cell entries report various manufacturing-employment data for the indicated country-years. "Total Empl." is total employment in thousands; "Prod. Empl." is production-worker employment in thousands; "Prod. Share" is the production-worker share of total employment; and "Hourly Comp." is the average hourly compensation for production workers in nominal U.S. dollars. The country group "Other" consists of all other European countries not listed individually. Over the 1990s approximately 75% of this group's activity was accounted for by the Czech Republic, Hungary, and Poland. "N.A." indicates data not available due to confidentiality requirements.

Source: Bureau of Economic Analysis, U.S. Department of Commerce. This table is taken from Slaughter (2003).

Figure 1: Labor Market Equilibrium

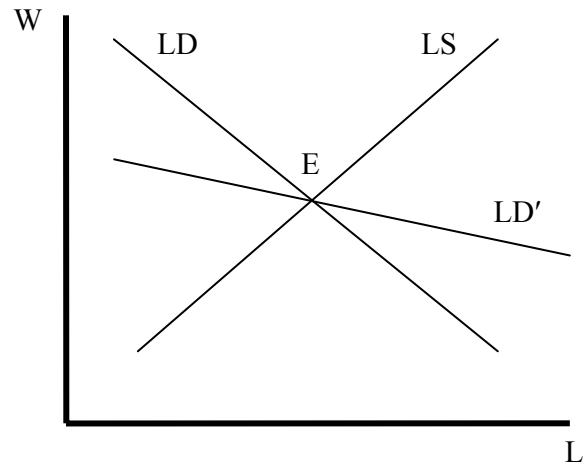


Table 6: Cross-Sectional Analysis of Economic Insecurity and FDI

Regressor	Year								
	1991	1992	1993	1994	1995	1996	1997	1998	1999
<i>FDI</i>	0.311 (0.079)	0.322 (0.073)	0.397 (0.071)	0.274 (0.070)	0.315 (0.069)	0.278 (0.063)	0.296 (0.060)	0.371 (0.053)	0.300 (0.050)
<i>Gender</i>	-0.289 (0.081)	-0.334 (0.074)	-0.285 (0.071)	-0.336 (0.070)	-0.164 (0.071)	-0.158 (0.064)	-0.109 (0.063)	-0.176 (0.054)	-0.106 (0.052)
<i>Education</i>	0.062 (0.045)	0.113 (0.042)	0.135 (0.041)	0.078 (0.042)	0.189 (0.039)	0.128 (0.036)	0.011 (0.036)	0.047 (0.032)	0.000 (0.030)
<i>Age</i>	0.009 (0.003)	0.007 (0.003)	0.011 (0.003)	0.012 (0.003)	0.011 (0.003)	0.009 (0.003)	0.011 (0.003)	0.011 (0.002)	0.010 (0.002)
<i>Income</i>	-0.001 (0.003)	0.000 (0.002)	-0.005 (0.003)	0.001 (0.002)	-0.005 (0.002)	0.000 (0.002)	-0.003 (0.002)	-0.002 (0.001)	-0.003 (0.001)
<i>Constant</i>	2.519 (0.186)	2.497 (0.175)	2.174 (0.168)	2.230 (0.165)	2.031 (0.160)	2.027 (0.152)	2.232 (0.150)	2.059 (0.135)	2.318 (0.127)
S.E.R.	1.967	1.726	1.636	1.679	1.619	1.548	1.519	1.444	1.566
Observations	2,649	2,385	2,280	2,410	2,377	2,525	2,695	3,060	4,059

Notes: These results are ordinary least squares regression coefficient estimates for each year. Each cell reports the coefficient estimate and, in parentheses, its heteroskedastic-consistent standard error. For variable definitions, see the text. This table is taken from Scheve and Slaughter (2002).

Table 7: Panel Analysis of Economic Insecurity and FDI

Regressor	Fixed Effects
<i>FDI</i>	0.105 (0.032)
<i>Year 1992</i>	0.099 (0.039)
<i>Year 1993</i>	-0.027 (0.041)
<i>Year 1994</i>	-0.014 (0.041)
<i>Year 1995</i>	-0.020 (0.042)
<i>Year 1996</i>	-0.127 (0.042)
<i>Year 1997</i>	-0.205 (0.041)
<i>Year 1998</i>	-0.203 (0.042)
<i>Year 1999</i>	-0.174 (0.042)
<i>Constant</i>	2.855 (0.032)
Observations	24,636
Individuals	7,320
T	$1 \leq T \leq 9$

Notes: Each cell reports the coefficient estimate and, in parentheses, its standard error. For variable definitions, see the text. This table is taken from Scheve and Slaughter (2002).