



Made in China, sold in Norway: Local labor market effects of an import shock[☆]



Ragnhild Balsvik^a, Sissel Jensen^a, Kjell G. Salvanes^{a,b,c,*}

^a Norwegian School of Economics, Helleveien 30, 5045 Bergen, Norway

^b IZA (Bonn, Germany)

^c CEE (LSE, UK)

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ABSTRACT

We analyze whether increased exposure to import competition from China threatens the Nordic model. We find negative employment effects for low-skilled workers, and observe that low-skilled workers tend to be pushed into unemployment or leave the labor force altogether. We find no evidence of wage effects. We partly expect this in a Nordic model where firms are flexible at the employment margin, while centralized wage bargaining provides less flexibility at the wage margin. The import shock is smaller, and our estimates suggest that import competition from China explains almost 10% of the reduction in the manufacturing employment share from 1996 to 2007 which is half of the effect found by Autor et al. (2013) for the US.

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1. Introduction

The rise of China as a major exporter in the world economy is an important feature of the current globalization process. Between 1993 and 2010, the share of world merchandise exports originating in China grew from 2.5% to 10.6%, making China in 2010 the largest exporter in the world. Parallel to this increase in exports from low-cost countries, scholars have pointed out that imports from developing countries in general, and from China in particular, could have disruptive effects on labor markets in developed countries and especially harm low-skilled workers in industries competing with imports from low-cost countries.

In this paper, we investigate the impact in Norwegian labor markets of the increased exposure to imports from China. Together with the other Nordic countries, the social and economic system of Norway has been termed the Nordic model. Salient features of the Nordic model are labor market institutions that include strong labor unions and employer associations, and centralized wage bargaining that produces a

relatively compressed wage structure (Aaberge et al. (2000), Hægeland et al. (1999), and Kahn (1998)).¹ At the same time, the rules for employment protection have few limitations preventing firms from dismissing workers collectively when under stress. In the case of dismissal, generous unemployment benefits and disability pensions provide workers with insurance from the negative income consequences.² To finance the generous welfare state, the Nordic model relies on high labor force participation and therefore emphasizes policies to support this. By assessing the impact of the Chinese trade shock on employment and on other labor market outcomes, we consider to what extent could the Chinese trade shock threaten the Nordic model.

Until recently there has been limited evidence finding clear labor market effects of trade shocks Krugman (2008). The main conclusion from the earlier literature using data from the 1980s and early 1990s was that the rising wage inequality observed in many countries was mainly because of skill-biased technological change and not trade Berman et al. (1998).³ As trade has increased between developed

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* Corresponding author.

E-mail addresses: ragnhild.balsvik@nhh.no (R. Balsvik), sissel.jensen@nhh.no (S. Jensen), kjell.salvanes@nhh.no (K.G. Salvanes).

¹ Moene and Wallerstein (1997) and Agell and Lommerud (1997) discuss various consequences of low wage inequality for growth and innovation.

² Indeed, Andersen et al. (2007) argue that the key feature of the Nordic model is the mutually supportive interaction of risk sharing and globalization.

³ Salvanes and Førre (2004) reach a similar conclusion using data from Norway for the period 1986–94.

countries and low-cost countries, a number of recent studies have found labor market effects of trade shocks. In Norway, the total import share from low-wage countries increased from 7% in 1996 to 13% in 2007, with most of this increase coming from China.

A growing body of research examines the regional dimensions of trade shocks by taking into account the fact that regional differences in the production and employment structure within countries tend to make some regions more susceptible to trade shocks. Our analysis is based on the approach developed by Autor et al. (2013), who investigate the impact of increased exposure to imports from China on various labor market outcomes in US commuting zones. Autor et al. (2013) (hereafter ADH) find quite large labor market effects. They estimate that around 20% of the reduction in the employment share of manufacturing in the US from 1990 to 2007 resulted from the increase in import competition from China during the period.⁴ The results in ADH complement the industry-level analysis of Bernard et al. (2006), who find that US manufacturing plant survival and growth are negatively associated with industry-level exposure to import competition from low-wage countries. Several studies focusing on wage effects of trade shocks find evidence of larger effects for the more exposed firms or occupations.⁵

Like most OECD countries, Norway has also experienced reductions in manufacturing employment together with increases in imports from China. Fig. 1 compares these developments in Norway and the US. As shown, in both countries imports from China have increased more than sixfold, while the manufacturing employment share has declined. We expect that increased imports from China have affected labor markets also in Norway, but the differences in institutions between the US and Norway could lead to different outcomes. The limited wage flexibility arising from centralized wage bargaining, combined with flexibility in employment adjustment and a generous welfare state, lead us to expect a clear impact of trade shocks on employment, but a more limited impact on earnings. In addition, the composition of the manufacturing sectors in the US and Norway are rather different. Compared to the US, Norwegian manufacturing is more resource based, exports a larger share of its production, but has lower R&D intensity. In addition, at the national level, Norwegian manufacturing employment has been relatively less important in the sectors where Chinese export capacity has increased the most.

We find a negative impact of exposure to competition from China on the manufacturing employment share in Norwegian local labor markets. This is related to imports of intermediate products, rather than imports of products for final consumption. Further, competition from China in Norwegian export markets plays a limited role. First, we find that the import shock is smaller than for the US. The median regional labor market in Norway has an import exposure to of 4000 NOK per worker, which is about one third of the exposure for the median region in the US. Secondly, we find that the total effect is smaller than for the US although the structure of the effect is similar. We find that an increase in regional exposure to imports from China of 10,000 Norwegian kroner (NOK) per worker results in a decline in the manufacturing employment share of 0.125 percentage points. As a point of comparison, ADH find for the US that an increase in exposure to imports from China of 1000 US dollars (USD) (equal to approximately 7000 NOK) results in a decline in the manufacturing employment share of about 0.6 percentage points. In a similar analysis for Spain, Donoso et al. (2014) find a large negative effect on manufacturing employment that is about twice the impact identified by ADH for the US. In the German case, Dauth et al. (forthcoming) find that increased exposure to imports from China reduces the manufacturing employment share in local

⁴ Early studies exploiting regional variations in exposure to trade shocks largely focus on trade shocks arising from changes in trade policy; see e.g. Topalova (2010), Chiquiar (2008), and Kovak (2013).

⁵ For firm level studies, see for example Verhoogen (2008), Amiti and Davis (2012), Hummels et al. (2014), while Ebenstein et al. (2011) analyze the effects of trade shocks at the occupation level.

labor markets by about 0.14 percentage points, although Germany's improved export opportunities thanks to the rise of China compensate for this negative effect. We do not find that export opportunities to China compensate for the negative impact of import competition in the case of Norway. Further, we find that unskilled workers, who to some extent are pushed into unemployment or out of the labor force altogether, bear the brunt of the reduction in manufacturing employment caused by the Chinese import shock. However, as opposed to the US case, we do not find negative wage effects. These latter results are to be expected in a Nordic welfare state with central wage bargaining and flexible rules for employment adjustment.

The remainder of the paper is structured as follows. Section 2 provides a brief comparison of several different countries and their exposures to the increase in Chinese export capacity. Section 3 presents our empirical strategy. We provide a brief description of our data sources in Section 4, along with descriptive statistics for our measures of regional exposure to competition from China, and we document the regional differences in manufacturing employment structure. Section 5 presents our estimation results and Section 6 concludes. We refer at various points to the accompanying online appendix to the paper for further details.

2. Chinese export capacity and the industry structure of importing countries

The increase in Chinese exports has not been uniform across industries and products. Countries that in 1996 had a large share of manufacturing employment in industries that experienced subsequent large increases in Chinese export capacity are likely to be more exposed to competition from China. We compare different countries' exposures to competition from China by computing the within-country correlation coefficient between the manufacturing employment share in each of 20 industries and the change in the value of Chinese exports of products from that industry. Fig. 2 plots the resulting correlation coefficients for OECD countries, where Norway appears to be the least-exposed country.⁶ Norway has a correlation coefficient of just -0.284 , whereas the corresponding value for the US is 0.154 .⁷

On the one hand, the composition of Norwegian manufacturing in 1996 was such that the subsequent rise of China is likely to have generated less competitive pressure on manufacturing production than in many other OECD countries. One reason is that Norway is largely a resource-based economy and a large share of Norwegian exports rely on transforming raw materials to other products through energy-intensive production processes. The rise of China has contributed to increasing the demand for many of the raw materials Norway exports. On the other hand, the R&D intensity of Norwegian manufacturing is low relative to the OECD average. In evidence, according to Eurostat, R&D expenditure in the private sector in Norway in 2009 was some 0.95% of GDP, while the OECD average was 1.25% and that for the most R&D-intensive European Union (EU) countries was 2%. Such low R&D intensity could contribute to making Norwegian industries more vulnerable to competition from China than similar industries with higher R&D intensities in other OECD countries.⁸

⁶ Country data for each industry's employment share (i.e. the percentage of the total employment in manufacturing) are from the OECD STAN indicators database, while the data for total exports from China across the 20 different industries are from the OECD STAN bilateral trade database.

⁷ Fig. 1 in the online appendix plots the data that provide the basis for the correlation coefficients for Norway and the US in Fig. 2.

⁸ See, for instance, Bloom et al. (2011), who find that competition from China in OECD countries has led to the reallocation of labor toward more innovative and technologically advanced firms that are better able to survive the competition from low-cost countries.

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