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Giuseppe Bertola

Trade, Manufacturing and the Economics of Europe's Emergencies

To prevent deterioration of the planet's climate and shelter the European economy from international tensions, the EU's policy plan is not only to reduce carbon-intensive energy production and diversify energy sources (European Commission 2022) and boost production of ammunition (European Commission 2023a), but also to boost manufacturing of clean energy and military equipment in the EU. The Net-Zero Industry Act proposal (European Commission 2023b) would like "manufacturing capacity of strategic net-zero technologies to meet at least 40 percent of the EU's annual deployment needs by 2030," and it aims to achieve this objective by intense solar energy investments with obvious superficial appeal but dubious environmental and security advantages (Vezzoni 2023). And a communication in March 2024 (European Commission 2024) advocates strengthening of joint procurement programs, notes that "78 percent of the defense acquisitions by EU member states between the start of Russia's war of aggression and June 2023 were made from outside the EU, with the US alone representing 63 percent," and invites member states "to make steady progress towards procuring at least 50 percent of their defense investments within the EU by 2030 and 60 percent by 2035."

Local production can be a means to an end if it is more secure than distant production, but, as discussed in what follows, it increases the cost of facing global challenges, as do the subsidies needed to make it profitable for domestic firms. Public opinion backlash is likely if that cost is not accounted for, because local manufacturing is viewed as a positive side effect for the whole economy rather than for special interests, and it becomes apparent without having been communicated clearly.

THE COST OF FIGHTING WARS AND CLIMATE CHANGE

War is bloody and expensive. The economic cost of war is obvious when one sees that Europe and the US are providing weapons and paying Ukrainians to fight Russia on their behalf, just like Britain paid coalition partners to fight France in Napoleonic times, which in this and other ways (briefly reviewed below) resembles the current situation.¹ It is less obvious if one sees that war sometimes increases not only the profits and stock prices of arms makers and dealers,

¹ Roberts (2014) provides an interesting account of that period's economic policies, as well as of the battles and romance that recent and less recent movies focus on.

- KEY MESSAGES
- **Decarbonization and security are worthy goals, but it would be a mistake to think that protection and subsidization of domestic manufacturing reduce their cost**
 - **Trade restrictions decrease economic efficiency. Creating manufacturing jobs may sound like a benefit, but in advanced countries it increases costs**
 - **Subsidy-based policies are prone to capture by special interests and need to be funded by tax or debt, which introduce distortions of their own and reduce economic efficiency**
 - **In theory and in history, wars and climate change are bad, and worse when sanctions and environmental policies cut off beneficial trade opportunities**
 - **Circumstances may call for building costly walls around a fortress Europe, but strengthening markets, trust, and policies within the EU should have the highest priority**

but also overall employment and production.² However, jobs are inputs, not outputs, and what ultimately matters for economic welfare is consumption. In wartime, paying the military and purchasing weapons requires much of earned income to be taxed away or saved, typically in the form of special war bonds or more general government debt.³ Otherwise, consumer spending would cause inflation, or would need to be restrained by rationing.

Income that is not consumed can be earned across the country's border, where foreigners who export more than they import accumulate claims on the future production of the country at war. This accounting constrains flows of current income and production, hence past savings do not matter: seizing the enemies' financial assets would prevent them from spending in the future, but it does not relax the flow resource con-

² War generally decreases production and income, which, however, do increase in countries that fight wars away from their territory. For literature reviews and empirical results – see e. g., Thies and Baum (2020); Chupilkin and Kóczán (2022).

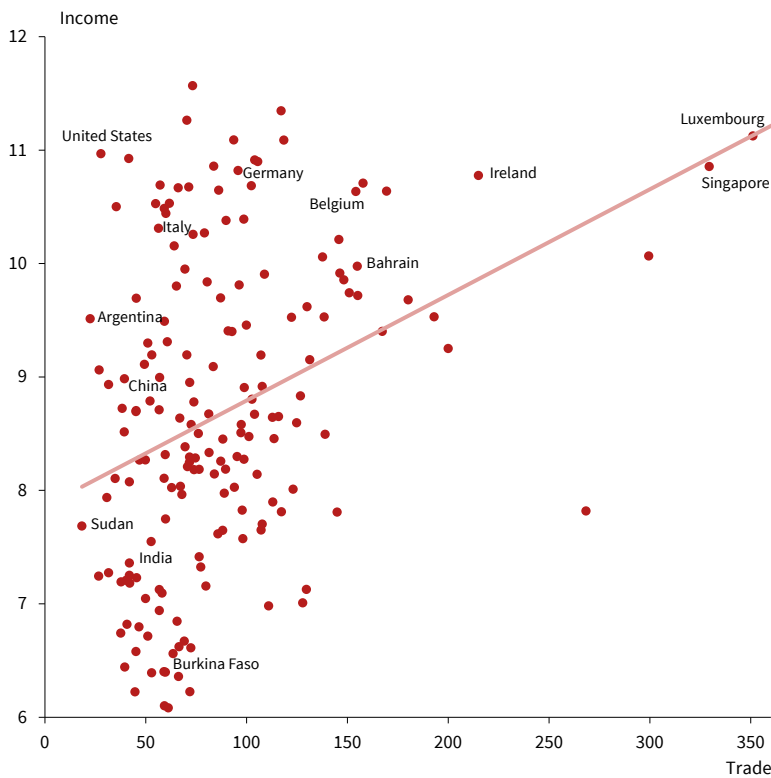
³ Thierry Breton, the European Commissioner in charge of industry, has expressed support for issuance of European war bonds and use of the proceeds to buy weapons manufactured in Europe.



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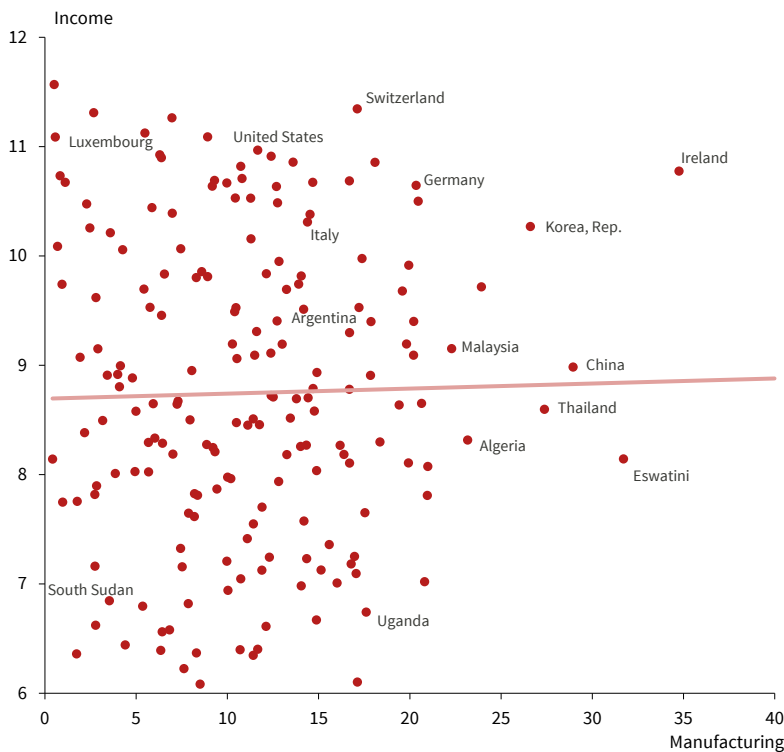
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Figure 1
The Cross-country Relationship between Income per Capita and Trade 2015



Note: Income is the logarithm of GNI (formerly GNP) in constant 2015 US dollars, divided by mid-year population. Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product (GDP). Source: World Bank; OECD. © ifo Institute

Figure 2
The Cross-country Relationship between Income per Capita and the Manufacturing Share of Production 2015



Note: Income is the logarithm GNI (formerly GNP) in constant 2015 US dollars, divided by mid-year population. Manufacturing is the percentage in GDP of the value added of industries belonging to divisions 15–37 of ISIC revision 3. Source: World Bank; OECD. © ifo Institute

straint – especially when those assets are frozen and trade is restricted by sanctions – and would damage trust in international finance and future borrowing opportunities.

All this applies equally well to the cost of waging war and to that of combating climate change. Just as battles require soldiers, so recycling requires human resources and clean energy production requires investment in equipment that, like guns and tanks, needs to be produced instead of consumer goods. Somebody somewhere must not be spending their income on what they personally enjoy, because it is taxed away or saved.

WHAT COULD REDUCE THE COST OF FIGHTING...

At the global level, or in a country that neither imports nor exports anything, more investment in weapons requires less consumption or more production, which requires more painful work unless productivity increases. One might hope for higher productivity because the economic system somehow becomes more efficient. World War Two did end the Great Recession, and it spurred technological progress in transportation and energy production. However, higher production and productivity in war results mostly from tremendous effort and comes with loss not only of life but of consumption: virtually no cars were produced for non-military use throughout World War Two.

It is also misleading to think that paying compatriots to produce equipment conveys economic benefits because, outside recessions, this need not be a way to procure gun shells and solar cells at the lowest cost, i.e., in exchange for the fewest enjoyable goods or services. Production is most efficient, and economic welfare highest, when workers do what they do best and exchange their production for what others do more easily. This is what happens in families, cities, regions, as well as in the world across countries.

Figure 1 illustrates this point by displaying the cross-country relationship between income per capita and trade. Countries that trade a lot tend to have high income, like Ireland. Countries that do not tend to have low income, like Sudan. Almost all other country names are not shown in the figure, but the message of the data is conveyed simply by the strongly increasing regression line. Economic success is positively associated with the intensity of trade, an empirical relationship driven not only by country size and geographical proximity, which is what it is (Frankel and Romer 1999), but also by ports and roads and legal constraints, which governments build or dismantle.

Trade can help make fights less costly, and so can division of labor in production supply chains. Some workers design and distribute, others make parts and assemble them, and an appropriate distribution of tasks reduces the overall cost of producing and delivering goods. This also happens at all levels within an economy, and across countries when trade is possible.

Another common but misguided notion is that makers of physical things enjoy higher economic welfare than providers of ideas and services. In history, trading peoples like the Phoenicians and the Dutch have often been richer than the people who produced the goods they traded. In cross-country data, there is no relationship between per capita income and the manufacturing share of production, which are plotted against each other in Figure 2. Germany and Switzerland have high income and above-average manufacturing shares, like Italy's and Uganda's, but the horizontal regression line indicates that economic success is not at all related to the share of manufacturing in production.

Neither this lack of relationship nor the very positive one seen in Figure 1 are coincidences, and both are theoretically sensible in an integrated economy.⁴ Manufacturing jobs are good when the alternative is back-breaking agricultural work, not when it is work in knowledge-intensive services. Countries that trade with each other and specialize are differently placed in this respect at different points in time.⁵ The same is true within countries, as high incomes are not necessarily found where the factories are in and around a city, and within families, where relatively high-income members may or may not be producing things rather than ideas and services.

The popularity of manufacturing in advanced countries is perhaps rooted in nostalgic memories of getting rich with urbanization, industrialization, and post-war adoption of new American technologies. But those were different times. Putting lead back in gasoline would not reenact economic miracles, and reshoring manufacturing would not make Europe rich again. Creating manufacturing jobs may sound like a benefit, but in advanced countries it increases costs.

...AND WHAT INCREASES IT

War and climate change are both bad news, and their interaction with trade policy and industrial policy makes them worse. While trade does not always prevent wars (Martin et al. 2008), wars definitely make it difficult to trade, which increases their cost. Sanctions currently create a situation comparable to Napoleon's Continental System blockade of British trade, which tried to make Europeans eat beet sugar and drink herbal tea or chicory.⁶ Autarchy is a byproduct of war, but producing or preparing to produce locally what

would be more cheaply produced somewhere else is a more expensive weapon than tanks and fortifications.

Trade restrictions also worsen the economic consequences of climate change, which will diminish agricultural production in some regions but increase it elsewhere. Not only the quality of wine produced in Northern Europe but also grain production in Russia are favored by recent climate developments (USDA 2023). Econometric estimates on regional data predict that climate change will drastically reduce aggregate income, but increase it by 10–20 percent in Canada and Russia and decrease it by more than 30 percent in Sub-Saharan Africa and inner Brazil (Kotz et al. 2024). Trade can and hopefully will reduce real income losses.

Being equipped for autarchy is a good idea if war comes in the future, but it is costly, especially so when local production is fostered by the public subsidies also deployed in the fight against climate change. Subsidies that lower the price of desirable expenditures (like locally produced electric cars or batteries) are prone to capture by special interests and need to be funded by tax or debt, which introduce distortions of their own. They have long been a resilient policy feature of developing countries, and of all populist governments that refrain from imposing taxes that increase the price of undesirable expenditures (like diesel cars) and directly address the distortion that needs to be corrected.

In the pandemic, war, and climate emergencies, subsidies and trade restrictions that privilege domestic production have become pervasive in advanced countries, and most notably in the US (Evenett et al. 2024). Production efficiency must be low, and costs high, in a policy environment that relies on subsidies to make investment and consumption more secure and sustainable, and dislikes international trade and supply chains.

The cost is sometimes visible, as it will be in the price of imports when the Carbon Border Adjustment Mechanism will make them more expensive. But it is too often disguised by views of protection of manufacturing as a good thing in itself – the polar opposite of views about immigration, which appears to be resented as much as it historically was at the time of what is in some languages called “Barbaric invasions” and in others “migrations of people” (Völkerwanderung), even though it could reduce production costs and is not particularly intense.⁷

POLICY CONCLUSIONS

It would not be a good idea to surrender in the fights of war or climate change, but it is crucial to face reality and fight them well. Economics is the art of choos-

⁴ An equally naïve inspection of the relationship between income growth and changes in trade and manufacturing as shares of production delivers a similar message. For the fewer countries with available data (which do not include China) between 1990 and 2015, real income grew a little more strongly where imports and exports increased faster, and actually grew more slowly where manufacturing increased more.

⁵ See Rodrik (2016) for a discussion of measurement issues and of the history of industrialization and deindustrialization in more or less developed countries.

⁶ Beet sugar was fine, but now that we can import less expensive cane sugar, we do. Lack of access to caffeine was definitely not fine, and spurred plenty of illegal imports of real tea and coffee, also for the benefit of ruling relatives of Napoleon and for his own use.

⁷ Eurostat reports that in 2022, 8.5 percent of EU residents were born in non-EU countries, and an additional 3.9 percent in an EU country different from the one of residence; in the US, the OECD records 14 percent foreign-born residents in 2021.

ing, even when all choices are unpalatable. Politics is the art of compromising and focusing on the common good rather than on popular myopic misguided objectives.

To avoid a future backlash, it is important to recognize and communicate clearly that relying on local manufacturing rather than on strangers' willingness to trade is costly. The cost may, of course, be justified by the need to increase economic security, but it should be made as small as possible by resisting attempts on the part of special interests to capture subsidies, and by expanding trade whenever possible.

Strengthening markets, trust, and policies within the EU is more important and fruitful than building costly walls around a fortress Europe. Restricting market interactions puts the European economy on a slippery slope, because it is not clear that security concerns cease to be relevant inside an EU that finds it difficult to field a joint army that would be disproportionately staffed and equipped by some countries' citizens and firms, or indeed inside countries where regions and social strata supply different shares of military labor. Because the production share of manufacturing and of weapons is different across member states inside the EU, and across regions of member countries, opening the Pandora's box of trade restrictions and subsidies unleashes special interests and endangers the economic efficiency fostered by common markets and common policies.

In an extremely fragmented Europe, isolated small city-states might feel very secure with respect to international tensions, all the more so if they arm themselves well and refrain from trading with strangers. But they would certainly be much poorer and much more exposed to the consequences of local weather and natural catastrophes than cities that can access the social and market insurance instruments that were introduced along with industrialization and financial markets in each nation a long time ago, and are still less developed at the EU level than they are in the US and have become in China.

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