

## **Has India really become a mobile phone manufacturing giant?<sup>1</sup>**

### **Summary**

The remarkable recent rise in mobile phone exports has been of much interest. In the period April 2017-March 2018, imports of mobile phones amounted to nearly \$3.6 billion while phone exports were a measly \$334 million. Net exports were thus -\$ 3.3 billion. By the financial year April 2022-March 2023, phone imports were down to \$ 1.6 billion, while phone exports were up to nearly \$11 billion. Net exports were thus \$ 9.8 billion, a turnaround of \$ 13.1 billion from 2017-18. Has India become a mobile phone manufacturing giant, as some have said?

Unfortunately not, as this note will argue. Indeed, the lack of progress thus far raises concerns about the government's entire flagship strategy for creating manufacturing jobs, the PLI scheme.

What did that strategy entail in the mobile phone sector? Starting in 2016, the government raised tariffs on imported mobile phone parts, and in April 2018, it imposed a 20% tariff on importing an entire mobile phone. The idea was to have more production of mobile phones in India. In early 2020, the government also introduced the PLI scheme for mobile phones. Essentially, the government pays manufacturers in India – whether Indian or foreign-owned -- a sum of 6% of a phone's invoice price, coming down to 4% in the fifth year for every incremental unit produced in India. In addition, state governments offer tax incentives, power, and land subsidies for locating in their state.

One key deficiency of the scheme is that the subsidy is paid only for finishing the phone in India, not on how much value is added by manufacturing in India. This matters! It turns out that very little apart from assembly is done in India, though manufacturers claim they intend to do more in the future. So India still imports much of what goes into

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the mobile phone, and when we correct for that, it is very hard to maintain that net exports have gone up. Indeed, we cannot even tell from the data whether India is paying out more in subsidies and tax waivers to mobile manufacturers who bring the assembly to India than the value they add in India -- since the value added from the assembly is such a small fraction of the value of a mobile phone.

### **Details**

What excites advocates of schemes like PLI is Figure 1, which graphs imports and exports of mobile phones. Note that imports (the red line) turned down soon after the imposition of tariffs in 2018, while exports (the blue line) started taking off. Net exports (the bars) turned positive five months after the imposition of high tariffs in April 2018.

Unfortunately, these data are not the complete picture, though they are what supporters of the PLI scheme focus on. Could we really have built domestic capacity to manufacture mobile phones in five months? The more likely explanation, according to industry experts we talked to, is that rather than importing finished phones, mobile companies imported completely knocked-down kits (ckd), and then assembled phones in India. If so, where are those ckd imports in the trade data? They certainly are not reflected in Figure 1.

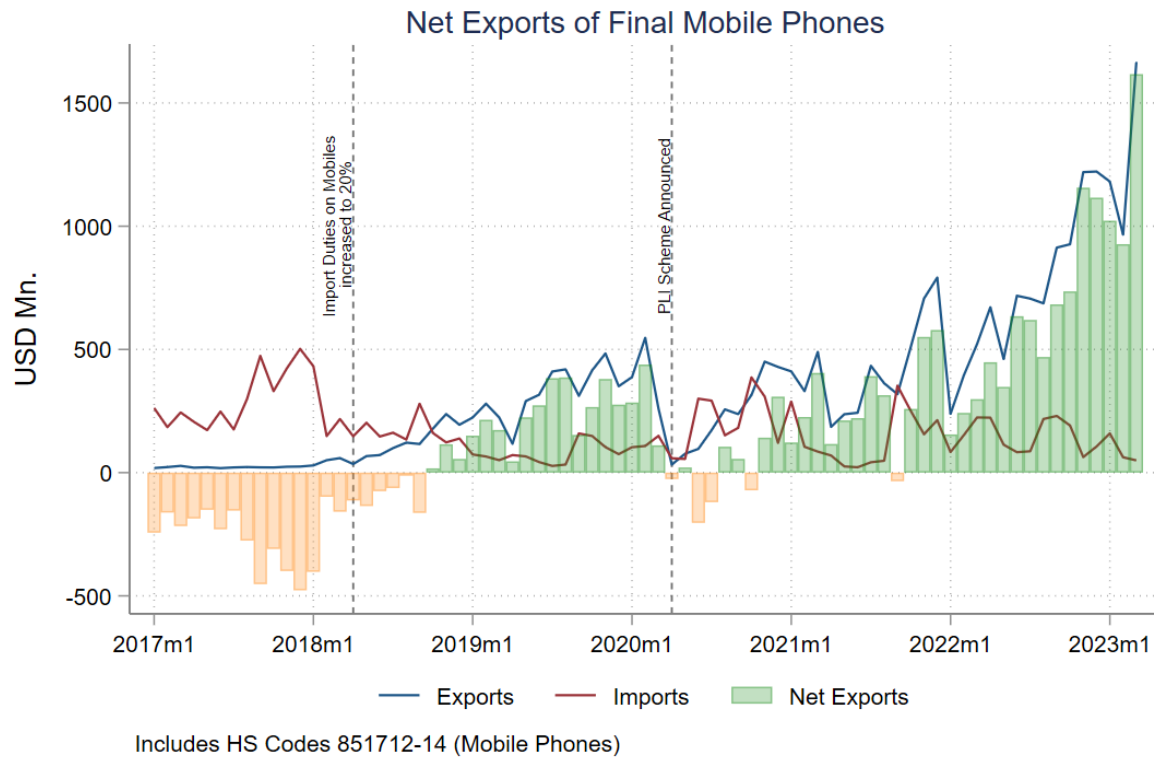


Figure 1: Net exports of final mobile phones

An industry expert suggested to us the trade data we should focus on. Figure 2 shows the trade of semiconductors, PCBAs, displays, cameras, and batteries – key components of mobile manufacturing. We export nothing here, and we see a sudden spurt in imports after the imposition of import tariffs on mobile phones in April 2018.<sup>2</sup>

We also see that when mobile phone exports really take off from the last quarter of 2021 (see Figure 1), there is a commensurate rise in net imports of inputs (see Figure 2). The combined imports of semiconductors, PCBAs, displays, cameras, and batteries amounted to

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<sup>2</sup> That the parts imports were significant even before import tariffs were imposed probably reflects the substantial assembly of mobile phones in India even before any of the government schemes kicked in. Put differently, we were “manufacturing” for domestic consumption even before tariffs and PLI.

\$32.4 billion in FY 2023. These then are the inputs for the mobile phones we produce for the domestic market and for exports.

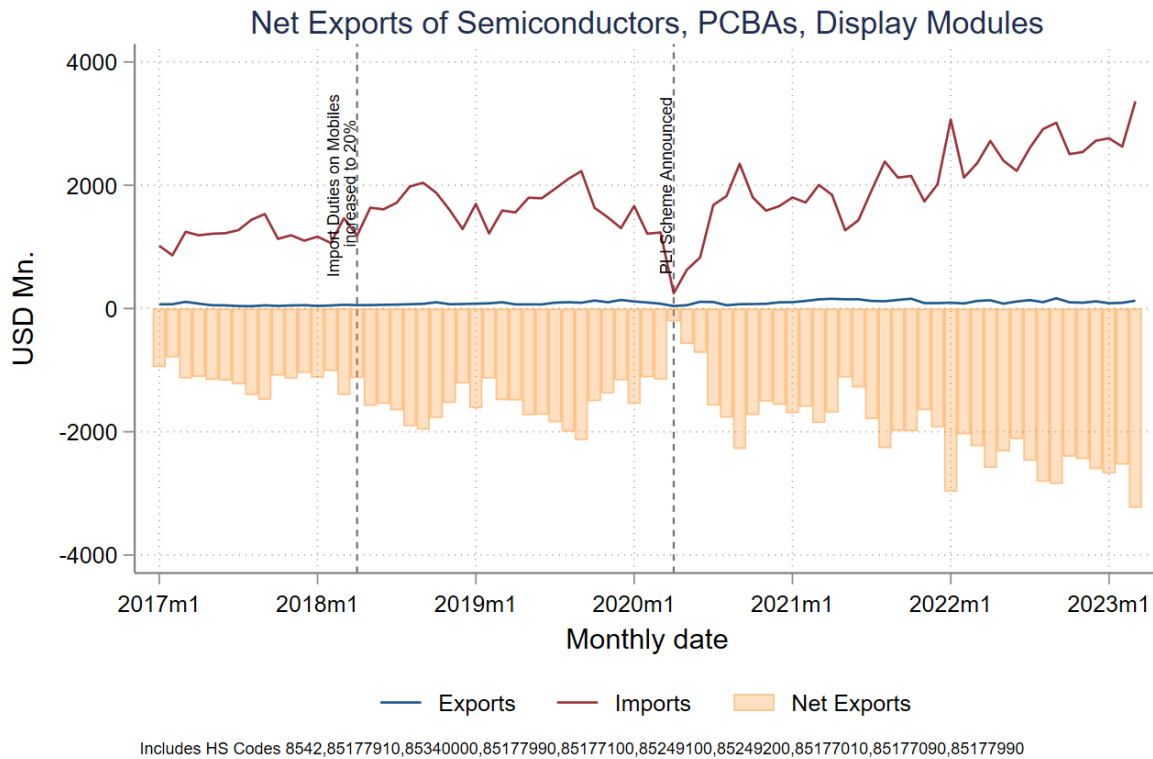
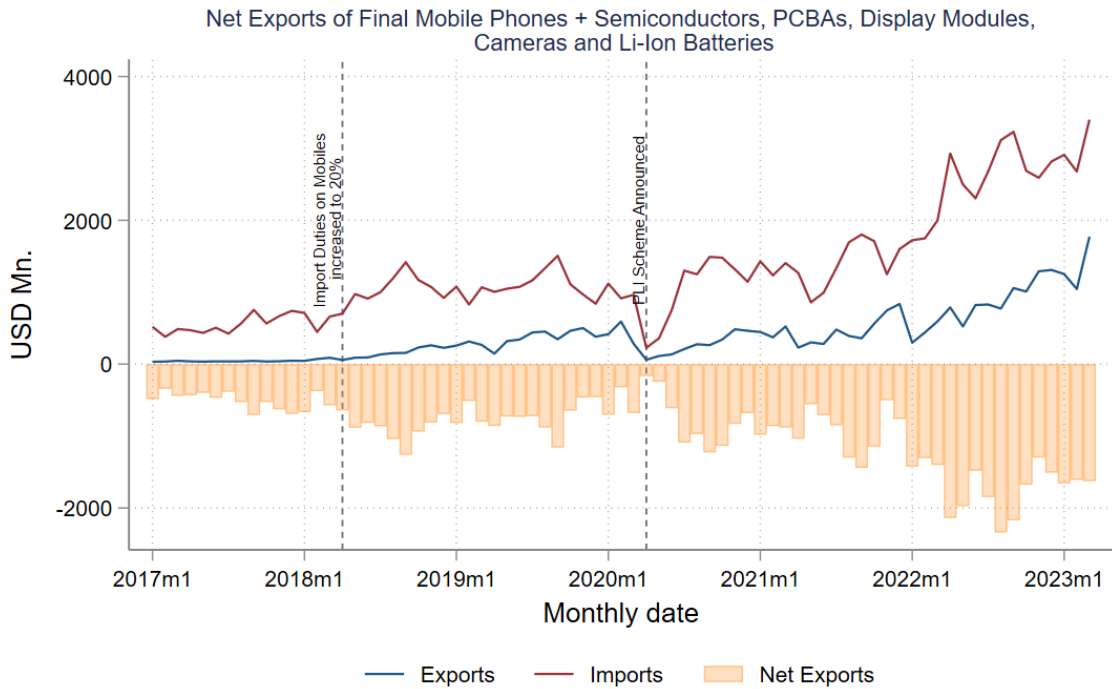


Figure 2: Net Exports of Semi-conductors, PCBA, Display, and other mobile parts

So what is the change in value added once we combine Figure 1 on net exports of finished phones and Figure 2 on net exports of components? This is in Figure 3, where we add the exports, imports, and net exports of final mobile phones and semiconductors, PCBAs, and other mobile parts together. The combined net exports fell from under -\$12.7 billion in FY 2017 to -\$21.3 billion in FY 2023! In other words, it is entirely possible that we have become more dependent on imports during the PLI scheme!



Includes HS Codes 851712-14,8542,85177910,85340000,85177990,85177100,85249100,85249200,85258900,85076000,85044030

Figure 3: Combined Net Export of Final Mobile Phones, semiconductors, PCBA's, and other mobile parts

However, the numbers reported above are aggregate value of imports. It could be that we have reduced the import bill per phone slightly, but the increased dollar value of net imports (from \$12.7 billion to \$23.1 billion) is driven by a dramatic surge in domestic mobile phone demand. That is probably a factor, but after adjusting using publicly available estimates of the increase in domestic demand, it is still the case that net mobile phone exports do not go up over this period.

Another possibility is that inputs such as semiconductors are being imported for other electronic manufacturing too – though we see imports pick up only after tariffs on mobile phones are raised. It may be that tariffs on other electronic goods were also raised as part of the Atmanirbhar program, causing imports of parts for those goods to also go up.

What we have effectively assumed in Figure 3 is that 100% of imports of semiconductors, PCBA, displays, Li-ion batteries, battery chargers, and cameras go into mobile manufacturing. It's possible that Lithium-ion batteries, cameras, and battery chargers have other alternative uses, and the rise in their imports might reflect increasing demand for other products, such as Li-ion batteries for electric vehicles, DSLR cameras, and chargers for other electronic equipment. Figure 4 redraws Figure 3, removing these subparts, and we find no substantial difference in the net exports pattern – it is still hugely negative and has not increased substantially since 2018.

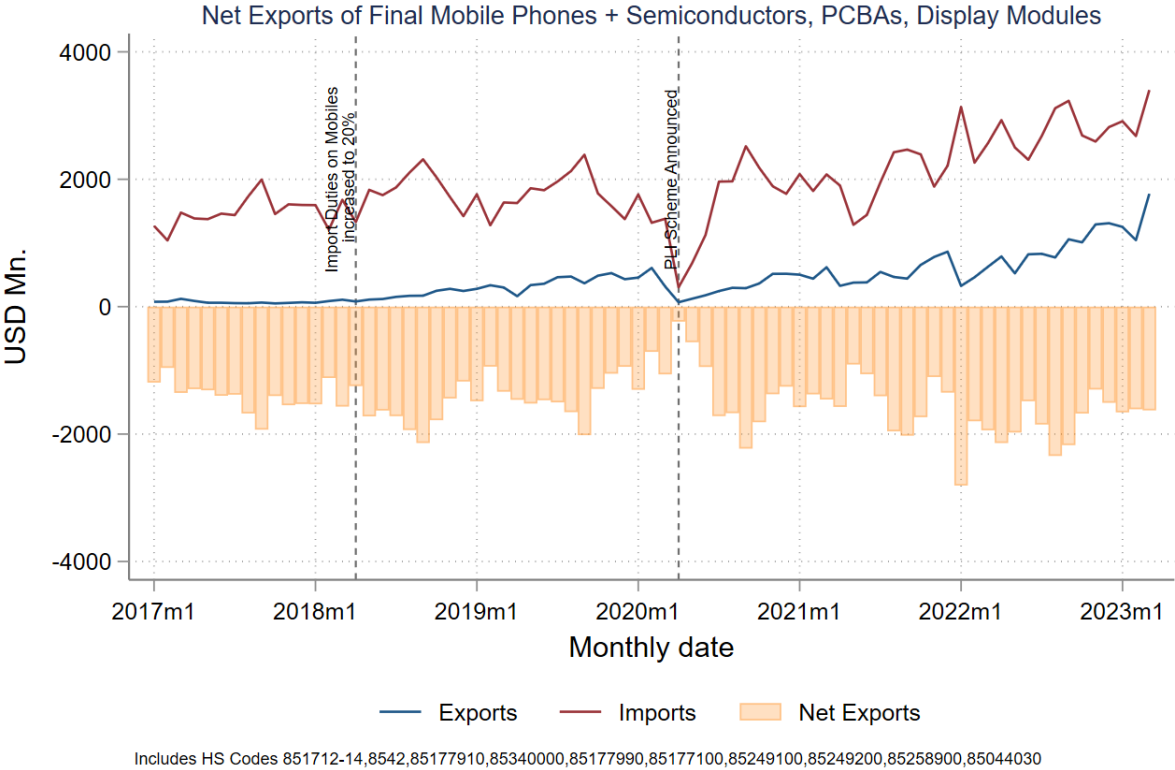


Figure 4: Net exports of final mobile phones, semiconductors, PCBAs, and display modules

What we have in Figure 4 is a lower bound on net imports, the reality is probably much worse for dropping these categories entirely will understate imports. Instead, in Figure 5, we assume three different

scenarios where 40, 60, or 80% of the trade categories that contain mobile phone parts end up in mobile phones. We can see that under these scenarios, net exports of mobile phones and parts go above zero today only if we assume 40% or less of the categories that contain mobile phone inputs are used in mobile phone production (that is, of the semiconductors, PCBAs, batteries, and display boards imported, less than 40 percent of value is used in mobile phones). Any higher use and our net exports are still negative.<sup>3</sup> Our sense, given the other data we have, is that the number is likely to be much higher than 40 percent.

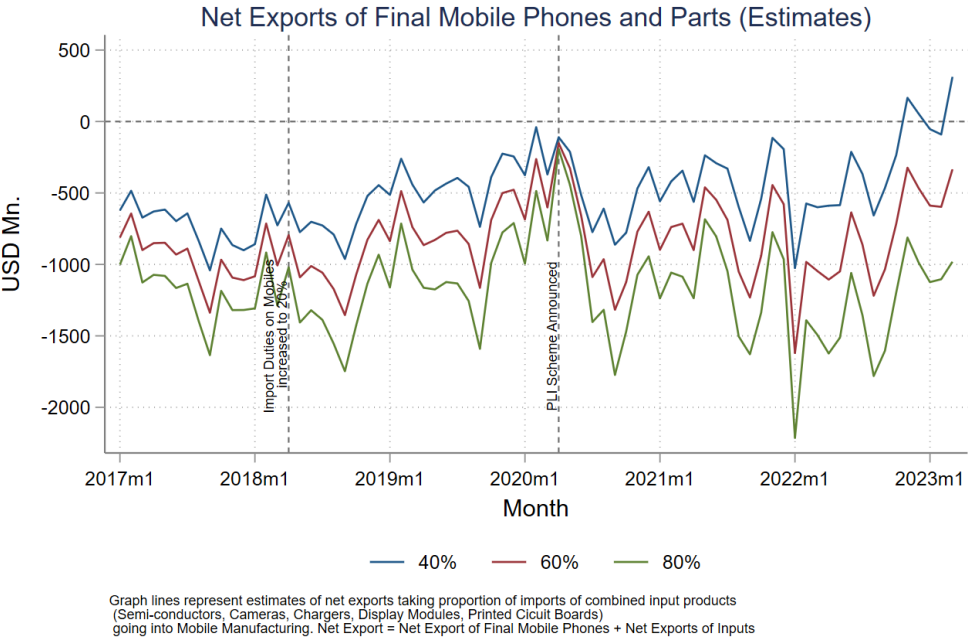


Figure 5: Net Exports of Final Mobile Phones and Parts (estimates)

In sum, we certainly cannot claim the rise in exports of finished cell phones is evidence of India’s prowess in manufacturing. Manufacturers are likely engaging only in assembly, which they seem to have been doing even before tariffs were introduced. This is a minuscule portion of the final value of the mobile phone. For instance, for the Apple iPhone 12 Max, industry estimates are that Foxconn’s value added from final

<sup>3</sup> <https://www.cnbc.com/2023/03/09/why-manufacturing-chips-in-us-may-make-smartphones-more-expensive.html>

assembly and testing is about 4 percent of the manufacturing costs, which in turn are about 1/3<sup>rd</sup> of the value of the mobile phone.

As India goes further into sub-assemblies, the value added in India will increase. But so long as India does not make the component parts themselves (such as the memory, the processor, the lens, the display, and the battery), the manufacturing value added in India will be small. Indeed, a key question is whether the 6 percent subsidy India pays on the finished mobile phone, coupled with state subsidies, actually outweighs the value added in India. This is something the government should look into before extending the scheme widely.

Is the solution then that India should make chips? Mobile phone processors (or chips) are among the more sophisticated of processors, and the processor is among the most sophisticated of mobile phone parts. If after 5 years of tariffs plus PLI in mobile phones, India makes few of even the simplest parts, should we not first try to understand why? Almost surely, the answer lies in the fact that WTO rules do not allow India to tie the PLI subsidy to the value added in India. If so, is the scheme a failure in the making?

The government, which should have better data on value added, should undertake a detailed assessment on how many PLI jobs have been created, the cost to the country per job, and why the PLI scheme does not appear to have worked so far before extending to new sectors.