India enters the GLP-1 race | The Daily Brief #449

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SUMMARY

The episode discusses the impact of the GLP-1 market's patent expirations and the effects of stronger patent protections on Indian exporters. The expiration of the semaglutide patent has led to a significant price drop in India, allowing local firms to enter the market, but challenges remain in establishing a foothold in more lucrative markets like the US. Additionally, a study highlights that while stronger patent protections have benefited high-tech Indian firms, low-tech firms have seen minimal gains.

- *The expiration of the semaglutide patent has led to a drastic price reduction in India, with Novo Nordisk cutting prices by up to 48%.*
- *Indian pharmaceutical companies flooded the market with generics after the patent expiration, but manufacturing semaglutide remains complex and costly.*
- *Regulatory hurdles in markets like Canada are delaying the launch of Indian generics, highlighting the challenges of entering developed markets.*
- *The US market remains closed to generics until 2032, limiting immediate revenue opportunities for Indian firms.*
- *A study shows that stronger patent protections have primarily benefited high-tech firms that had previously invested in R&D, while low-tech firms have not seen significant export gains.*
- *The 2002 Patents Amendment Act improved the export performance of high-tech firms, increasing their technology adoption and integration into global supply chains.*
- *The reform's benefits were uneven, with larger firms disproportionately gaining from stronger IP protections due to their ability to absorb higher costs.*
- *Overall, the episode underscores the need for targeted support for low-tech firms to enhance their capabilities in a competitive global market.*

In today's episode, we'll break down two important stories. First, we'll talk about the rough tides of the GLP-1 market, and then we'll talk about how stronger patents impact Indian exporters. Welcome back to the daily brief by Zerodha, where we cut through the noise to help you understand what's actually happening in the most important stories from business and markets. I'm your host, Akshara, and today is Tuesday, 21st April.

Coming to the first story. So, at Markets, we've spoken about the ticking time bomb of the semaglutide patent expiring plenty of times in the past year. Now that the bomb has gone off, so has the potentiality of a war, a price war. A few weeks ago, Novo Nordisk cut the price of its blockbuster drugs in India by up to 48%. Ozempic, which had been selling for between rupees 8,800 and rupees 11,175 a month, suddenly costs a fraction of that. Some versions of the same molecule are now available in India for rupees 1,290 a month. A

90% price collapse in a matter of weeks. But Novo Nordisk didn't decide to be generous. They were forced to. Its key Indian patent on semaglutide, the molecule behind Ozempic and Wegovy, expired on March 20th. And Indian pharma firms, who had been counting down to this date for years, flooded the market. Dr. Reddy's launched on day one, followed by Mankind, Zydus, Natco, and Glenmark. India has followed this playbook for varieties of medicines from cancer drugs to antibiotics. Wait for a patent to expire, make the molecule cheaper, sell it to the world.

It's how we became the pharmacy of the world. And today, India supplies approximately 40% of US generic drug volume. So, does this mean India has disrupted the GLP-1 market? Have we successfully made the world's hottest drug, which single-handedly minted billions for its makers, a cheap generic? That story is a little more complicated than just saying, "Yes, we did." So, let's start with why semaglutide has always been hard to copy. The GLP-1 hormone that semaglutide mimics is something your body already makes naturally. Every time you finish a meal, your gut releases a burst of GLP-1, a tiny molecular signal that tells your brain you're full and your pancreas to release insulin. Scientists identified it in the 1980s and immediately saw the therapeutic potential. The problem was brutal and simple. Natural GLP-1 breaks down in your bloodstream in about 2 minutes. A drug that vanishes in 2 minutes is not a drug. So, Novo Nordisk chemists solved this with two modifications to the natural molecule.

First, they swapped one amino acid in the chain for a synthetic variant that the body's enzymes struggle to break apart, reinforcing the molecule's most vulnerable point. Second, they attached a long fatty acid tail to a specific location, and this causes the molecule to latch onto a protein called albumin that floats abundantly in human blood. So, albumin is large, stable, and the body's filtering systems leave it alone. So, semaglutide hitching a ride on albumin survives for roughly a week.

Now, those two modifications turned a hormone that lasts 2 minutes into a drug worth $40 billion a year. They also turned what might have been a straightforward generic target into something with nearly 600 atoms that all have to be in exactly the right place. After all, if you change one amino acid, the molecule might not bind to its receptor at all. If you alter the fatty acid tail, the albumin camouflage breaks and the drug disappears in hours. Even the slightest of errors in three-dimensional geometry, something that might look fine in a basic chemical analysis, and you end up with something that looks like semaglutide on paper, but behaves completely differently in a human body. In contrast, aspirin just has 21 atoms, which makes it far easier to copy. Now, making a generic version of semaglutide is something else entirely. Even if you theoretically copied the design, how would you ensure that every unit of that design is manufactured perfectly? The process for making semaglutide is called solid phase peptide synthesis. You build the molecule's amino acid chain one unit at a time, coupling each new unit to the growing chain through a sequence of chemical reactions. Each reaction requires specific toxic solvents at every step, and these solvents have no easy substitutes. The waste generated in making 1 kg of semaglutide API weighs up to 14,000 kg. A standard small molecule generic, in contrast, generates about 300 kg per kilogram of drug. Now, each coupling step has a small failure rate.

Even at 99% efficacy per step across 31 steps, and that's a tall ask, only about 73% of the chains you're building come out correctly in theory. That's an incredulously high accuracy benchmark to meet. Additionally, in

practice, state-of-the-art synthesis achieves around 57% purity. And that implies that nearly half of what you make is impure somewhere and has to be separated out through rounds of expensive purification. Plus, the infrastructure for all of this, the synthesis reactors, the high-pressure purification systems, the sterile fill-finish lines, is not what India's generics industry was built on.

Now, despite all that complexity, Indian companies did build the capability. So, Dr. Reddy's spent years developing peptide synthesis capacity from scratch, API manufacturing, sterile formulation, and a proprietary injectable pen device, all in-house at its Vizag facility. It launched its own offering, Obida, on day one. Zydus became a manufacturing partner for Lupin and Torrent. Mankind launched with its reach into smaller cities and towns. No one wanted to miss the first day of the impending gold rush.

But then came Canada. Canada is one of the first major Western markets where semaglutide patents had already lapsed. So, when Dr. Reddy's filed to sell its generic there, Health Canada asked both Dr. Reddy's and Sandoz to provide additional data before their applications could proceed. They couldn't, and now their launch is pushed down the line. Now, this isn't business as usual. It doesn't happen with standard generics. For a small molecule drug, proving bioequivalence, that your version delivers same drug at the same rate into the bloodstream, is a well-worn regulatory path. But peptide drugs like semaglutide are different.

Health Canada describes these as complex synthetic products with possible differences that could impact safety and efficacy. Meaning regulators need to scrutinize not just whether the molecule is present, but whether subtle differences in how it was made, its impurity profile, or its three-dimensional structure could make it behave differently in patients. Indian and Canadian approvals clearly have different regulatory bars. So, India, Canada, Brazil, China, Turkey, these are the markets where semaglutide is going generic in 2026.

Together, they represent a huge share of the world's population and an enormous burden of diabetes and obesity. And these markets are indeed already subject to deflation in the price of the drug. In February, Novo Nordisk warned analysts its revenues could fall by 5 to 13% this year because of these expirations. But here's what Novo Nordisk's revenue actually looks like. India's GLP-1 market was worth approximately rupees 110 million in 2024. Novo Nordisk's global GLP-1 revenues last year were over $40 billion, almost entirely from the US and Europe, where patients or their insurers pay $700 to $1,000 a month and have no cheaper option. The Indian market is roughly 0.3% of global GLP-1 revenues.

Now, the US patent doesn't expire until 2032, lending Novo Nordisk six more years of exclusivity in the market that drives the vast majority of their semaglutide revenues. What's more, while Indian companies were spending years building the capability to manufacture semaglutide, something was already happening in the market they were building toward. See, American pharma firm Eli Lilly makes Mounjaro, which is based on a molecule called tirzepatide. It does what semaglutide does, but while semaglutide targets one hormone receptor, tirzepatide targets two simultaneously. In a head-to-head trial in late 2024, tirzepatide beat semaglutide on weight loss outcomes. And by October 2025, 5 months before the Indian semaglutide patent even expired, Mounjaro had already overtaken Wegovy as India's top-selling GLP-1 by value.

Lilly has approximately a decade of patent protection on tirzepatide remaining. In essence, while generics approach the bottom, the innovators seem to have moved to the next floor. And the pipeline keeps moving. Novo Nordisk is advancing a next-generation molecule that combines semaglutide with a second hormone and produces substantially greater weight loss in early trials. Both Novo and Lilly have oral GLP-1 pills, daily tablets instead of weekly injections, in late-stage development. If oral versions achieve comparable efficiency to injectables, the competitive picture changes again.

Each new drug carries its own decade of patent protection. So, on March 20th, 135 million Indians with diabetes were now able to access a drug that, perhaps, most couldn't afford at branded prices. One study published last month estimated that semaglutide could theoretically be manufactured for as little as $28 per patient per year as competition scales up. In comparison, in the US, patients still pay an annual cost of over $10,000, which is approximately rupees 9.3 lakh. But the framing of India breaking the GLP-1 monopoly is a little more complicated.

There are still question marks over how big the addressable market for generics really is. Indian pharma firms are struggling to get over Canada's rules. The US and European markets don't open until 2032, and the drug at the center of all this had already lost its crown in India's own market before the patent war was even over. How this race to the bottom unfolds is really anyone's guess. We go through tons of investor presentations and reports while researching our stories. So, we thought, why not compile the best infographics, charts, tables, and slides into one newsletter? That's exactly what we do in Points and Figures. Link is in the description.

Coming to the second story. In 2002, India overhauled its patent system. The Patents Amendment Act extended protection from 14 to 20 years, introduced product patents across most technological fields, and brought India's framework broadly in line with its commitments to the World Trade Organization. For firms that had spent years navigating an uncertain intellectual property or IP landscape, the reform made the rules legible. It provided safeguards for industrial R&D efforts undertaken by companies, while also attracting foreign firms to set up shop here. But, not every firm experienced that resolution the same way. A 2025 paper by researchers at IIFT Centre for WTO Studies, Kayum Khachu, Ridwan Ashiq, and Pritam Banerjee uses the 2002 Act to ask a specific question.

Did stronger patent protection actually help Indian manufacturers export more? It looks at the impact of intellectual property rights as an underrated factor in Indian manufacturing. So, often a reform in intellectual property isn't really a uniform shock. It doesn't land the same way on every firm. So, for a company that had been investing in R&D through the 1990s, paying royalties to access foreign technology, and building internal technical capacity, a stronger patent regime changes a lot. It makes the returns on that investment more secure, and it makes the firm a more credible partner for multinationals thinking about who to share technology with. Now, for a company that had made none of those investments and competed primarily on cost, sourced domestically, and had no particular stake in the IP landscape, the same reform changes relatively little. The environment improved, but they had no accumulated capability to leverage the improvement. The asymmetry is the core of the paper's hypothesis.

So, the authors argue that the firms most likely to benefit from the 2002 Act were those that had already demonstrated a commitment to technology before it passed. Prior investment was the largest determinant of subsequent gain. So, to test this, they use CMIE's Prowess database spanning roughly 2,500 unique Indian manufacturing firms from 1996 to 2007. So, they split these firms into two groups based on spending on R&D and technology licensing in the years before the reform, which happened in 2002. Firms spending above the industry median during 1996 to 2001 are classified as high-tech. Everyone below is low-tech. So, the 2002 Act then acts as a natural experiment. It applied to all firms simultaneously on a fixed date with no gradual phase-in. Both groups were on similar export trajectories before 2002, and much of the divergence that opens up afterward can plausibly be attributed to the Act itself.

So, to answer the original question, yes, stronger patents did help Indian exports. High-tech firms exported approximately 17% more than low-tech firms in the years following the reform when standard firm-level controls are included. Additionally, the reform also increased the gap between how much each type of firm spent on technology adoption. After 2002, high-tech firms saw a more than threefold increase in technology adoption expenditure, but low-tech firms didn't enjoy similar growth. Now, two mechanisms are at play.

One of them is obvious. Stronger patents protect a firm's innovations from being copied abroad, making it safer to sell in foreign markets, but that only partly explains the findings. The more important channel the paper is identifying is how foreign partners behave toward Indian firms. When IP enforcement is weak, international supply chain partners like MNCs or specialized input suppliers are cautious about how much proprietary knowledge they share. Licensing a process, co-producing a component, or entering a joint venture all involve transferring knowledge the foreign partner doesn't want to lose. If they can't trust the legal environment to protect that transfer, they'll do it on terms that limit how much the Indian firm actually learns. Now, when enforcement becomes more credible, foreign firms become more willing to bring Indian manufacturers into their supply chains as genuine partners. They'll share sophisticated inputs and license technology on reasonable terms. This is why the paper frames the export gain as much more than just an uptick in the export shipments.

This is integration into the global value chain for a product. They got pulled into more complex production relationships that otherwise they probably wouldn't have benefited from. In fact, high-tech firms did only export more after the reform. Their raw material and total imports rose by approximately 18% as well. Now, what this implies is that domestic high-tech firms are now pulling in specialized inputs that foreign suppliers had previously been reluctant to share. Now, there are a few caveats that complicate the story. The first involves what happened to imports across the full sample. While high-tech firms imported significantly more, total imports and capital goods imports actually fell across all firms after the reform.

So, why did that happen? When patent protection strengthened, foreign technology suppliers also gained bargaining power. They can charge higher licensing fees and restrict who they deal with. And for a firm without existing technical credibility, importing advanced machinery became more expensive and harder to arrange. Many shifted toward domestic alternatives or waited for technology to come through FDI and joint ventures. These arrangements became more common precisely because stronger IP made multinationals more comfortable investing in India directly. The reform made technology flow more selectively, but not more freely.

The second complication is about the low-tech firms. Of the 2,500 firms in the data set, 62% are classified as low-tech. This is the majority of India's organized manufacturing sector, the firms that employ the most people. For them, the 2002 reform only modestly helped exports. Their sourcing behavior was also largely unchanged, and the significant export gains that the paper documents are almost entirely a story about what happened to the high-tech minority. Now, the reform didn't create technological capacity where none existed. It amplified capacity that was already there. So, a firm that had spent the 1990s investing in R&D and learning how global supply chains work was ready in 2002 to run with a stronger IP environment. A firm that had done none of that had no equivalent foothold.

Stronger patents gave it more secure ownership of very little. Now, what this also means is that bigger companies disproportionately benefited from the 2002 reform. After all, they have the advantage of economies of scale, which positions them to absorb high costs better. The third caveat is tariffs. Higher import tariffs appear consistently across every specification associated with worse trade performance on both the export and import side. A firm needs access to imported inputs to actually use what a stronger patent regime enables. For the majority of firms operating in protected sectors with limited global connectivity, that access was constrained. So, in that sense, the paper says IP reform and trade openness go hand in hand.

India is running an extremely ambitious innovation policy push. Production-linked incentive schemes are channeling capital into electronics, pharmaceuticals, and semiconductors. The Anusandhan National Research Foundation has been allocated rupees 50,000 crore over 2023 to 2028. And the argument underlying all of it is that building a stronger environment for innovation will help Indian manufacturers climb the value chain. The 2002 Act is the clearest historical evidence we have on whether that holds. And it does hold, but with a catch. What determined whether a firm actually benefited wasn't the reform alone. It was whether the firm had already done the slower work of building technical capacity before the reform arrived. If most of our organized manufacturing sits outside the technology-intensive tier when the next wave of reform lands, the same pattern will repeat. Real gains concentrated only where capability already existed. These firms, which are often really small, will need more targeted R&D incentives.

Now, coming to the tidbits. Fintech unicorn Razorpay prepares confidential IPO filing within weeks, targeting $600 to $700 million raise at $5 to $6 billion valuation, down from $7.5 billion peak as FY25 revenue jumped 65% to rupees 3,783 crore, but net loss hit rupees 1,209 crore. Coming to the next tidbit. Multiple states, including Andhra Pradesh, rupees 4,600 crore, Maharashtra, rupees 4,000 crore, Rajasthan, rupees 4,000 crore, Telangana, rupees 3,000 crore, and Punjab, rupees 1,300 crore, will borrow through state government securities auction on April 21st via RBI's e-Kuber platform.

Coming to the final tidbit. Gold demand during this year's Akshaya Tritiya stayed muted as prices, up 63% from last year's festival to rupees 1,54,609 per 10 grams, kept jewelry buyers on the sidelines with volume down even as total spend rose. Demand was lower than normal across most of the country with the exception of a few southern states. That's all the news I have for you. Thank you so much for watching, and see you in the next one.

are recommendations or endorsements.