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India's MSME and Agnipath Schemes: A Model for Revitalizing the U.S. Manufacturing Sector through Cost-Effective, Non-Immigrant Labor Strategies

Abstract:

The U.S. manufacturing sector currently faces two major challenges: persistently high labor costs and rising political resistance to immigration-based labor solutions. These structural issues have hindered domestic growth, despite available land and technology. Meanwhile, India has utilized innovative policy models such as the Micro, Small and Medium Enterprises (MSME) initiative and the Agnipath scheme for short-term defense recruitment to create jobs, promote entrepreneurship, and deliver cost-effective products and manufacturing options. This paper examines how these Indian approaches can be adapted for the U.S. manufacturing industry to develop a cost-efficient, locally driven, and semi-automated production system that does not rely on permanent immigration.

We suggest a hybrid policy approach that involves deploying rotational, contract-based Indian skilled labor via India's National Skill Development Corporation (NSDC) to U.S.-based MSME style, manufacturing units. A case study on Nike sports shoe production illustrates this feasibility: a decentralized production system staffed by Indian workers for 4 to 5 years tenure could significantly lower costs. This strategy not only aims to reduce the unit production cost to $25–$30 per pair, compared to $100 ex-import, but also helps strengthen bilateral strategic relations. The model seeks to empower local entrepreneurs, decrease U.S. reliance on Chinese imports, and establish a new framework for cross-border workforce collaboration.

Key Words: MSME; agnipath scheme; nsdc; us manufacturing sector; entrepreneurship; cost effectiveness; immigration

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Introduction:

The American manufacturing industry faces a critical point, dealing with two major challenges that threaten its future competitiveness: increasing labor costs and a severe shortage of skilled workers. Although globalization historically helped by allowing offshore production at low costs, recent geopolitical changes and pandemic-related disruptions have highlighted the importance of strengthening domestic manufacturing. Efforts to reshore—returning manufacturing activities to the U.S.—are growing in support. Additionally, vulnerabilities in global supply chains have emphasized the need for developing resilient and diversified production networks within the country.

Building a robust domestic manufacturing industry is more challenging than it appears. High wages and labor union rules make large-scale production costly in many parts of the U.S. Additionally, strict immigration policies have greatly reduced the flow of skilled and semi-skilled foreign workers, tightening the labor market further. The old strategy of depending on large industrial corporations is becoming less effective amid rapid global economic changes. Alternatively, a more adaptable and decentralized approach—centered on small manufacturing units with a flexible workforce—could serve as a practical solution.

India, a nation facing similar developmental challenges but known for its innovative policies, provides valuable insights through two key initiatives: the Micro, Small and Medium Enterprises (MSME) ecosystem and the Agnipath scheme. The MSME sector contributes nearly 30% to India's GDP and employs over 110 million people. It functions effectively with low capital investment, a decentralized manufacturing model, and strong ties with both local and international supply chains. These enterprises, often managed by entrepreneurs with limited resources, have proven their capacity to produce high-quality goods at low costs by utilizing automation, shared infrastructure, and government support.

Alongside this is the Agnipath scheme, a defense recruitment initiative by the Indian government aimed at enrolling young individuals into the armed forces for a short-term period. The concept of recruitment is good, which is handled at the national level and is based purely on merit. The candidate is recruited for a four-year tenure and, upon completion, is released from service, receiving a fair amount of monetary compensation. The savings during the service and the compensation amount are sufficient to start a second career or be self-employed. A similar model can be followed for hiring skilled manpower for the USA with a four-year commitment without getting into the immigration issue. The hired personnel should be returned to India after completing four years, and a new recruitment process can be initiated for the next batch of manpower. To generate competition, 25% of the manpower should be given an extension of one additional tenure of four years. It represents an innovative approach to workforce development, blending skill acquisition with the maintenance of a steady supply of trained manpower for various industries.

This paper suggests a hybrid approach that incorporates core aspects of Indian models to tackle the U.S. manufacturing crisis. It proposes establishing a network of small, decentralized manufacturing units nationwide capable of producing essential consumer and industrial goods at competitive costs. These units would operate with minimal staffing and leverage smart manufacturing technologies. To mitigate the labor shortage without fueling immigration debates, the U.S. might consider temporarily engaging skilled Indian workers within a government-regulated, fixed-term framework—similar to the concept of Agnipath. These workers could be trained in specific manufacturing skills beforehand, ensuring quick productivity improvements and minimal long-term demographic effects.

By combining India’s grassroots industrialization with short-term skill mobilization strategies, the U.S. can create a new manufacturing model that is scalable, cost-effective, and politically sustainable.

U.S. Manufacturing: Crisis of Scale and Cost:

The U.S. manufacturing industry is mainly dominated by large firms that rely on economies of scale, centralized production, and vast global supply networks. For many years, this approach enabled American companies to optimize efficiency, cut expenses, and stay competitive globally. However, with shifting geopolitical landscapes and a rise in economic nationalism, this model faces increasing challenges. The core strengths of American manufacturing are now being reevaluated amid rising production costs, labor shortages, and growing pressure to localize supply chains. As a result, a fundamental reorganization of manufacturing strategies in the U.S. has become essential.

A major challenge is the high cost of labor. Manufacturing wages in the U.S. are considerably higher than in emerging hubs like China, Vietnam, or India. Although American workers enjoy better conditions and living standards, these benefits can reduce competitiveness. Higher domestic labor costs raise production prices, making U.S.-made goods less competitive compared to imports. As a result, American products struggle to succeed in both local and global markets, leading to increased dependence on imports and a decline in domestic manufacturing. Some large manufacturers have found a simple solution to this issue by establishing manufacturing units in countries where labor is cheaper. While this may be a short-term fix, it ultimately leads to unemployment and lower revenue for the USA. The solution is to “Make in USA," which the Trump administration has recognized and is attempting to address through tariffs.

This problem is worsened by the increasingly strict immigration policies. For many years, foreign workers—both skilled and semi-skilled—have played a vital role in filling gaps in U.S. manufacturing, especially in areas demanding precision or manual skill. Yet, stricter visa regulations and political opposition to immigration have significantly reduced the flow of labor.

Consequently, manufacturing firms face fewer options to satisfy their workforce requirements. While automation provides some relief, many manufacturing tasks still need human oversight, especially in small-batch or customized production. Lacking access to a versatile and cost-effective labor pool, many manufacturing projects are either delayed or moved overseas.

Another weakness in the U.S. manufacturing sector is the insufficient institutional and financial backing for small entrepreneurs. Unlike large firms that benefit from economies of scale, tax breaks, and lobbying influence, small manufacturers often face challenges in securing capital, adopting advanced technology, or navigating favorable regulations. There is a lack of a cohesive policy framework aimed at developing small and medium-sized manufacturing businesses as vital contributors to the economy. This situation contrasts with countries like India, where the government has established specific programs to support micro, small, and medium enterprises (MSMEs), allowing them to thrive with relatively limited resources.

Due to these overlapping challenges, the U.S. has become overly reliant on imports for basic consumer goods such as footwear, clothing, and electronics. Although the country has the technological and infrastructural capacity to manufacture these products domestically, economic pressures make such efforts impractical under the current system. This reveals a core disconnect between America's industrial capabilities and its policy framework. To restore manufacturing self-sufficiency and resilience, the U.S. must move away from scale-dependent strategies and embrace a more decentralised, adaptable, and inclusive model—perhaps inspired by India's MSME sector and labour initiatives like the Agnipath model for hiring the workforce.

Case Study: Nike Shoe Manufacturing- A Model for Localized, Decentralized Production in the U.S.

Nike exemplifies the cost structure behind global manufacturing. A typical Nike shoe sells for over $100 in the U.S., but its production costs are estimated at less than $20. This large gap results from low-cost offshore manufacturing, high retail margins, and global supply chains. Most Nike shoes are made in Vietnam, China, and Indonesia—countries where labor is much cheaper than in the U.S. This case study examines how a decentralized, small-scale manufacturing approach—similar to India's MSME system and driven by a rotational workforce based on the Agnipath scheme—could enable the U.S. to produce locally without losing competitiveness.

Analyzing the Nike Cost Model: A typical Nike shoe costing around $20 to produce includes raw materials, labor, energy, shipping, and overhead. Labor represents only about 2–4%, mainly because of low wages in Asian countries. After adding branding, marketing, logistics, retail markup, and profit margins, the final retail price in the U.S. surpasses $100.

Producing the same product domestically in the U.S. has historically been considered economically unfeasible due to high labor and compliance costs. However, recent progress in automation, the availability of affordable real estate in semi-urban and rural areas, and the potential of micro-manufacturing units challenge this view. With suitable policy support and workforce strategies, operating small-scale shoe manufacturing facilities in the U.S. that compete with offshore costs in terms of value—if not always in absolute terms—has become both technically and economically possible.

India's MSME sector showcases a decentralized structure, often family-operated or led by small entrepreneurs, in hubs like Agra (leather goods), Ludhiana (textiles and bicycles), and Bhavnagar (electrical goods). Numerous small businesses produce competitively for local and export markets. Despite limited capital, their success comes from frugal innovation, collaborative ecosystems, low fixed costs, and government-supported loans and subsidies.

Translating this model to the U.S. context requires rethinking the traditional idea of "scale" in manufacturing. A U.S.-based micro-unit for footwear production can be established in low-cost industrial spaces, especially in deindustrialized towns or rural areas where real estate and utilities are more affordable. Instead of hundreds of workers on a factory floor, the unit could operate with a 10-person team supported by robotic cutters, 3D printers, and automated stitching and packaging tools—technologies that are now commercially viable.

With batch production tailored for local markets, these units could reduce logistics costs, shorten time-to-market, and align better with consumer trends toward "Made in America" goods.

Workforce Challenge: Overcoming Barriers with an Agnipath-Inspired Labor Model.

A significant obstacle to implementing a decentralized model in the U.S. is the scarcity of affordable, skilled labor. In contrast to India, where rural-to-urban migration supports MSMEs, the U.S. encounters demographic and regulatory hurdles. The majority of young people favor white-collar jobs, while blue-collar work often lacks appeal or proper incentives.

India's Agnipath model is a nationwide, centralized recruitment scheme. It aims to select the best available talent through a comprehensive national-level competition. Eligible candidates are hired based on age, education, and skill requirements for the defense forces. Training of these selected candidates is conducted by the defense forces; therefore, the scheme does not hire already trained personnel but potential recruits who can be properly trained and employed in India's defense forces for a short period.

The terms of engagement include four years of service in the defense forces with a fixed salary. The fixed salary is much higher than what a typical semi-skilled person would earn in a rural area of India. The candidate is insured for the duration of his service, provided with accommodation and food at no cost or at very minimal rates, and his salary is credited to his account

monthly. Once he finishes his term of engagement, he will be paid a compensation amount equal to the salary he received as a lump sum. He returns to civilian life with a lifetime of experience, skills, and savings of approximately Rs. 40 Lakhs (about $47000 USD), which is sufficient to start a new business or take on a new job.

The recruitment system that the Agnipath scheme uses could be replicated for hiring and training skilled workers for US manufacturing industries. The US Government can communicate with the Indian Government regarding the exact number of skilled workers needed. Age, educational qualifications, and skill sets can be predetermined. The hiring process can be managed by India's National Skill Development Corporation (NSDC), which is responsible for recruiting and training the required workforce. After the final selection, there will be a need for visas and other formalities, which may take between 3 to 6 months. During this period, candidates can join specialized skill development centres established jointly by India and the US to refine their skills for their job roles in the USA.

To improve this, a bilateral labour mobility programme with India could be implemented, with fixed terms of engagement, possibly lasting four years. On average, a US semi-skilled worker earns USD 1000 per week, equivalent to USD 4000 per month. Payments and compensatory allowances for Indian workers upon return can be mutually agreed upon, considering the interests of workers from India and US manufacturing.

Economics of the Localized Unit

Let's assume a U.S.-based micro-factory in Ohio or Tennessee is set up to produce 10,000 pairs of shoes per month. With semi-automated machinery and a 10-person team working in shifts, the cost breakdown could be: raw materials costing $7 per pair (imported or domestic), labor (blended local and skilled rotational) at about $3 per pair, energy, rent, and overhead charges totaling $5 per pair, resulting in a total production cost of approximately $15–16 per pair.

This expense is similar to Nike's offshore manufacturing costs. Lower import duties, elimination of international shipping, and quicker inventory turnover can boost profit margins to compete with traditional models while also providing local jobs and generating tax income.

The shoes might be sold directly to consumers or through partnerships with major retailers under a new American-origin brand. Even Nyke can be considered for funding and purchasing complete products with Nyke quality control and logo. If expanded nationwide, this approach could create tens of thousands of jobs and establish local manufacturing centers, revitalizing the American industrial spirit with a modern touch.

Role of Government and Policy Support

For this model to succeed, federal and state governments must play an enabling role. This includes subsidized loans and grants for micro-unit infrastructure, skill development programs modeled on Agnipath that offer industrial training for U.S. youth, streamlined regulatory clearances for MSME-scale manufacturing, special visa categories for rotational labor partnerships with friendly nations like India, and tax incentives for "Made in the USA" manufacturing across footwear, apparel, electronics, and other sectors.

These types of interventions are not unprecedented. The U.S. government has historically backed war-time production, clean energy startups, and agricultural subsidies. Currently, what is needed is a clear policy focus on micro-manufacturing aimed at mass markets.

A Reproducible and Expandable Approach The Nike shoe exemplifies more than just a consumer item; it represents the larger challenge and potential in bringing manufacturing back to the U.S. By combining India's decentralized MSME approach with an Agnipath-inspired workforce plan, the U.S. can develop a sustainable, decentralized, and competitive manufacturing system. This scalable model can be applied not only to footwear but also to various light engineering and consumer products.

Ultimately, the case for localized Nike-style manufacturing units goes beyond economics to include strategic factors. It aligns with U.S. goals like boosting economic resilience, creating jobs, and reducing dependence on foreign supply chains. As global supply chains break down and domestic needs grow more urgent, this case study shows how policy and structural innovation—beyond just product or technology—can reshape the future of American manufacturing.

India's MSME Model: Decentralised, Scalable, and Efficient

India's Micro, Small, and Medium Enterprises (MSMEs) form the core of its industrial and employment sectors, showcasing a decentralized and resilient approach to economic growth. Constituting a significant portion of registered businesses in India, the MSME sector plays a vital role in the nation's economy, providing significant contributions to output, employment, and exports. With over 110 million workers across diverse industries, Indian MSMEs are key to promoting inclusive growth and grassroots industrialization. They account for nearly 30% of the GDP and approximately 45% of the country's total exports. Despite operating with limited resources, these enterprises exhibit impressive efficiency, adaptability, and cost-effectiveness—qualities that serve as a model for the U.S. manufacturing revival.

India's MSME approach is characterized by its emphasis on cluster-based development. Instead of centralizing production in large industrial zones, India has cultivated thousands of sector-specific clusters nationwide. Each one focuses on a particular

industry — like leather in Agra, textiles in Tirupur, auto parts in Pune, or handicrafts in Moradabad. This spatial concentration facilitates shared infrastructure, knowledge, raw materials, and labor, fostering informal networks that boost productivity and cut transaction costs. These localized clusters also strengthen regional economies, distribute income more evenly, and lessen migration to urban areas. Often emerging organically from community expertise and traditional skills, they are socially embedded and culturally sustainable.

The Indian government has actively supported the MSME ecosystem through targeted financial aid, regulatory relaxation, and improved market and technology access. Key initiatives like the Pradhan Mantri MUDRA Yojana (PMMY) offer collateral-free loans to micro-enterprises, tackling longstanding credit access issues. Recently, the Production Linked Incentive (PLI) schemes have also been expanded to specific MSME sectors, especially those linked to India's aims of becoming a manufacturing hub for electronics, pharmaceuticals, and textiles. Additionally, policies such as the Udyam registration portal, one-day company registration, and GST compliance simplification have drastically cut bureaucratic barriers, enabling entrepreneurs to concentrate on expanding their businesses rather than dealing with procedural complexities. Government procurement mandates requiring departments to source a set percentage of supplies from MSMEs have further increased demand and market access for these small enterprises.

India's MSME sector is notable for its efficient use of lean staffing and affordable automation. Most units are run by 5 to 20 people, often family-operated or led by first-generation entrepreneurs. These businesses employ semi-automated production methods that achieve reasonable output without significant capital expenditure. They increasingly adopt technologies like CNC machines, power looms, stitching automation, and digital inventory management, which help improve quality and consistency while reducing workforce size. This lean approach keeps costs low and enables these enterprises to adapt quickly to market shifts and consumer needs.

Equally significant is the informal yet strongly established support system within the MSME sector. Unlike large firms that depend on vertically integrated supply chains, MSMEs operate through a highly collaborative network, where subcontracting, job work, and shared services are common. This interconnected system encourages specialization and innovation, with each small unit concentrating on a specific part of the value chain—such as cutting, assembling, finishing, or packaging. The distribution of production across multiple units reduces the likelihood of supply interruptions, providing a vital advantage amid today's unpredictable global trade conditions.

In the United States, high labor costs, strict immigration rules, and capital-heavy manufacturing create systemic inefficiencies. India's MSME approach offers a strong alternative by localizing production into small, adaptable units that utilize minimal yet skilled labor. The U.S. could adopt a similar model by establishing these units in semi-urban or rural areas, where affordable land and community-based manufacturing ecosystems are feasible. Automation and digital platforms would enhance this system, enabling small manufacturers to attain high precision and output. With policies providing micro-funding, tax breaks, and technical training, the U.S. can emulate the Indian MSME sector's cost-effectiveness and resilience.

Furthermore, the cluster-based method can be adapted to the American context by pinpointing regions with historical or emerging industrial strengths—like textiles in North Carolina, automotive in the Midwest, or footwear in Oregon—and establishing networks of interconnected small manufacturers. Just as India's clusters grew around community skills and local resources, the U.S. can create comparable hubs centered on its existing industrial strengths. This approach would boost domestic manufacturing and help lessen reliance on imports for essential consumer goods.

To summarize, the Indian MSME model shows how a decentralized, small-scale, resource-efficient industry can succeed with community involvement, government backing, and entrepreneurial drive. These qualities—scalability, efficiency, and resilience—could be adapted to revitalize American manufacturing if tailored carefully to local needs. As the U.S. aims to rebuild its industrial foundation without overdependence on big corporations or foreign supply chains, the Indian MSME experience provides important lessons in how "small" can be remarkably impactful.

Agnipath Scheme: A Model for Short-Term Skilled Labour Deployment

India's Agnipath scheme, introduced in 2022 by the Ministry of Defence, is a revolutionary step toward short-term employment and skill enhancement in the armed forces. It substantially diverges from conventional military recruitment by implementing a four-year service period for young recruits, known as Agniveers, aged 17.5 to 21. This program aims to inject youthful energy and modern training into the military, while also addressing financial, strategic, and human resource challenges. By separating long-term employment from national service and providing a clear exit pathway, it creates a novel model for temporary, skill-based workforce deployment—applicable not only in defense but also in industrial sectors like manufacturing in the U.S. struggling with workforce shortages and economic issues.

Under the Agnipath scheme, selected candidates undergo intense military training followed by four years of active service, where they gain exposure to disciplined routines, teamwork, and various technical skills tailored to their roles and units. After this period, 25% of Agniveers are retained for long-term positions in the armed forces based on their performance and merit, while 75% exit the system. These leaving personnel are not abandoned; they receive a comprehensive exit package, including a Seva Nidhi corpus—comprising their contributions, the government's matching contributions, and interest—along with skill

certifications, placement support, and recognition of their service for future employment prospects. The key innovation is that this approach enables the government to avoid long-term pension or social security commitments while still fostering a skilled, employable young workforce each year.

This model has significant potential for use outside defense, especially in countries like the United States dealing with severe labor shortages in manufacturing and infrastructure. Traditional employment approaches in developed nations often involve long-term contracts, expensive benefits, and immigration hurdles. Many employers hesitate to hire many full-time workers due to demand uncertainties and high compliance costs. Additionally, political opposition to long-term foreign immigration restricts sourcing skilled labor internationally. A model similar to Agnipath could offer a time-limited, skill-focused, and politically acceptable alternative to standard employment methods.

Complementing the domestic model, the U.S. could create bilateral labor exchange programs with trusted partners like India. These programs would involve pre-certified and trained , centrally hired persons with work discipline, technical skills, and basic English communication—being deployed to U.S. micro-manufacturing units or infrastructure projects. The assignments, which could last four years, would be non-immigrant, time-limited, and carefully regulated to ensure their return. This strategy could help address labor shortages without raising domestic fears of permanent immigration or job loss. Simultaneously, it would enhance strategic ties between the U.S. and India and support shared goals around workforce development and economic resilience.

This labor model is particularly ideal for the decentralized, automation-driven manufacturing ecosystem outlined in this paper. Small units with 10–20 employees can efficiently onboard temporary, pre-trained workers on a continuous basis. The emphasis would be on lean operations and quick production cycles, with each group of workers receiving on-the-job upskilling and working in a productivity-focused environment. When their contracts conclude, these workers would move back to India. This system will help USA in forming a flexible and responsive labor force that meets market demands without overloading national employment systems.

Importantly, this model also tackles social issues. In India, Agnipath offers young people from various socio-economic backgrounds—particularly in rural regions—a chance to gain structured employment, serve overseas, and develop personally. Similarly, the U.S. could reach similar objectives by focusing on underserved communities, high school graduates who do not plan to attend college, and veterans in need of retraining. The program could act as a link between education and sustained employment, encouraging economic inclusion, social mobility, and regional renewal.

Policy Proposal for the U.S.: A Hybrid MSME–Agnipath Model

As the U.S. faces ongoing challenges in its manufacturing sector—such as rising labor costs, skill shortages, and increased dependence on imports—there is an urgent need for innovative and flexible solutions. This paper suggests a hybrid policy approach that combines two successful Indian models: the Micro, Small, and Medium Enterprises (MSME) ecosystem and the Agnipath scheme, which provides short-term, skill-based military service. It envisions establishing small, automated manufacturing clusters in rural and peri-urban areas across America, staffed by a mix of local workers and a rotating, short-term, skilled foreign workforce from India, recruited through a non-immigrant program. This combination aims to revitalize U.S. manufacturing while avoiding the complications of long-term immigration.

MSME-style manufacturing units in the U.S. reflect India's MSME sector, illustrating how decentralization, affordable automation, and targeted government initiatives can drive widespread employment and local production. MSMEs make up 30% of India's GDP, employ over 110 million people, and represent 45% of exports. They typically operate on tight budgets and small teams—usually 5 to 20 workers—but remain highly productive through shared infrastructure, cost-effective innovation, and sector-specific clusters. Indian cities like Agra (footwear), Tirupur (textiles), and Morbi (ceramics) demonstrate how numerous small units collaborating can develop globally competitive manufacturing hubs.

The U.S. can adopt this approach by promoting cluster-based manufacturing hubs in underused areas. Many rural and peri-urban towns have affordable land, declining real estate values, and large pools of underemployed youth. By offering incentives for MSME-style production facilities, the U.S. can address regional economic disparities and lessen reliance on coastal mega-factories. These clusters could concentrate on light manufacturing sectors like sportswear, kitchen equipment, consumer electronics, leather goods, and household products—areas where the U.S. has traditional capacity but has lost ground to Asia mainly due to cost advantages.

Policy measures to support this shift could include tax incentives for small manufacturers, access to seed capital via Small Business Administration (SBA) loans or a new MSME innovation fund, grants for purchasing machinery, and production-linked subsidies that incentivize output efficiency. These facilities would leverage automation and digital tools like 3D printers, laser cutters, and affordable robotic arms to boost productivity without the need for large labor forces. The aim is to develop flexible, modular factories that serve niche local markets and help reduce the country's reliance on imported everyday goods.

Inspired by India's Agnipath, this labor deployment model focuses on producing a steady stream of disciplined, semi-skilled youth ready for employment in various sectors. Participants serve four years in US manufacturing units and return back to India. Some 25% retention option for another four years may be explored. This approach lessens the government's immigration

issues and encourages workforce mobility.

Inspired by this concept, the U.S. could partner with India's National Skill Development Corporation (NSDC) and allied training institutions to recruit up to 70,000 Indian youth annually under a U.S. Industry Fellowship Program. These individuals, many of whom will be ex-Agniveers or certified under India's vocational skilling programs, would be deployed in U.S. MSME units for a fixed four-year period. They would be placed in roles such as machine operators, quality control technicians, industrial welders, electronics assemblers, and warehouse managers—positions that require technical proficiency but not long-term residency.

This rotational workforce would operate under a non-immigrant, fixed-term visa system designed specifically to boost industrial production without encouraging long-term immigration. After completing their tenure, workers would be required to return to India, motivated by exit compensation, U.S.-accredited skill certification, and industry connections in India. Their U.S. experience would enhance their earnings, skills, and international job prospects, while the U.S. would gain access to affordable, disciplined, and skilled labor without increasing its immigrant workforce.

Moreover, the rotating Indian workforce would not strain U.S. public services, education, or housing. Training would happen in India, their stay in the U.S. would be limited by contract, and their reintegration after service would be coordinated with Indian authorities. This approach sidesteps the issues of traditional guest worker programs and provides a politically feasible way to address the manufacturing labor shortage.

Strategic and Social Benefits Beyond economic gains, the policy offers several strategic advantages. For India, it establishes a return-focused labor export framework that boosts its skilling ecosystem and expands its global workforce presence. For the U.S., it reinforces bilateral relations with India—a vital Indo-Pacific partner—and revitalizes its domestic manufacturing sector in a manner that is socially inclusive, geographically widespread, and economically sustainable.

The program also supports climate and security goals. Decentralized MSME-style manufacturing lowers transportation emissions, strengthens supply chain resilience, and builds national redundancy in case of geopolitical disruptions. In an era of growing de-globalization and technological nationalism, this policy provides a new model for industrial sovereignty that maintains efficiency and cost competitiveness.

The suggested Hybrid MSME–Agnipath Model for the U.S. combines India's successful approaches of decentralized manufacturing and short-term skilled labor deployment to establish a sustainable, politically acceptable, and economically competitive system. It involves creating small, automated clusters across America staffed by rotating, certified workers from India, helping the U.S. tackle labor shortages without relying heavily on large-scale immigration. This model responsibly utilizes global talent, encourages bilateral cooperation, and offers a new perspective for industrial renewal in the 21st century. The Agnipath model of recruitment can be offered to other friendly countries by the US, which will ensure diversity.

Implementation Strategy: Building a Scalable, Secure, and Sustainable Hybrid Manufacturing Model

Implementing the proposed hybrid model—which combines India's MSME-focused decentralized manufacturing with Agnipath-inspired short-term labor deployment—requires a phased, region-specific, and bilaterally coordinated approach. The process should start with pilot projects in U.S. states like Ohio, Michigan, and Alabama, where industrial infrastructure is underutilized, land is affordable, and there is a strong demand for economic renewal. These states, known for their historical manufacturing strengths in automotive, steel, and textiles, have experienced considerable industrial decline due to offshoring and automation. Consequently, they provide ideal environments to test a revival driven by small, automated, and flexible MSME-like production units.

Each pilot region would host several certified manufacturing clusters, each comprising small-scale facilities dedicated to consumer products like sportswear, kitchen tools, and electronics. These clusters would implement MSME principles—requiring low capital investment, maintaining lean teams of 5–20 staff per unit, utilizing semi-automation, and establishing local supply chains. The business model aims to balance cost-effectiveness with responsiveness to both local and national market needs. Initial funding would be provided through public-private partnerships, tax benefits, and soft loans managed by entities such as the Small Business Administration (SBA) or new state Manufacturing Revival Boards.

To address the labor shortage in these units, the U.S. would establish a strategic labor deployment partnership with India, working closely with the National Skill Development Corporation (NSDC) and recognized skilling institutions. India would supply a pre-certified pool of 70,000 trained workers annually, equipped with technical training in machine operations, electronics assembly, fabrication, quality control, and packaging. These individuals would be deployed on a four-year fixed-term industrial engagement, with no pathway to immigration or naturalization, to avoid political controversy and maintain a rotational labor model. After completing their term, these workers would return to India, benefiting from severance compensation, U.S.-accredited skill certifications, and job placement assistance facilitated by NSDC and Indian industry.

A core part of the implementation plan involves establishing joint U.S.-India Industrial Training and Certification Centers, positioned in key pilot states. These centers will synchronize Indian vocational training with U.S. industrial standards, covering production methods, safety regulations, and quality benchmarks. They will also act as onboarding hubs where Indian workers

receive orientation on U.S. labor laws, technical procedures, and cultural practices before being assigned to work sites.

This decentralized labor system would be underpinned by a comprehensive oversight and safeguard framework to promote transparency, legal adherence, and societal approval. Initially, clear contractual agreements would define employment conditions, covering wages, safety standards, benefits, and exit procedures. These agreements would be collectively signed by U.S. employers, Indian government agencies, and the workers involved. Additionally, an autonomous labor rights monitoring body—possibly linked to the U.S.-India Bilateral Labor Council—would perform regular inspections of working environments, address grievances, and ensure adherence to both national and international labor standards. Furthermore, to mitigate visa overstays and address security issues, biometric tracking and digital identity verification would be implemented, with penalties such as losing bonuses or certification access for non-compliance.

Although social resistance to foreign labor is an expected challenge, effective public communication and economic data from pilot initiatives can help reduce such opposition. The model does not replace American workers; instead, it creates local jobs in supervision, logistics, training, and maintenance. Additionally, it encourages regional economic development. It also offers opportunities for American youth through programs similar to the Agnipath model, like Manufacturing Service Fellowships. In these programs, high school graduates or community college students serve three-year terms in U.S. MSME units, gaining valuable skills, experience, and preparing for careers.

A clear example of this model's practicality is the Nike micro-manufacturing case study. A small U.S.-based production unit, following MSME principles, could have a 10-person team and semi-automated processes to create high-quality sports footwear. Indian workers would rotate every four years under fixed contracts. Production costs might range from $25 to $30 per pair, enabling a retail price of $60 to $70, which is lower than current import prices and offers a locally produced option. This method not only decreases reliance on imports—especially from China—but also promotes job creation and local economic activity without the demographic issues typical of traditional immigration.

Expanding this model beyond sportswear to include areas such as consumer electronics, personal care appliances, and home furnishings could help the U.S. build a decentralized network of manufacturing resilience. Different states or regions could specialize in specific product categories, similar to India's cluster strategy. For example, Alabama might concentrate on home kitchen appliances, while Ohio could manufacture electric tools or battery-powered items. The integration of intelligent automation, small-scale production facilities, and adaptable labor forces would render the entire network more agile, scalable, and competitive on the global stage.

Conclusion and Way Forward

The suggested hybrid approach—combining India's MSME framework with the Agnipath-inspired workforce initiative—serves as a forward-looking plan for American manufacturing. It acknowledges shifts in the global labor market, the constraints of conventional immigration policies, and the importance of decentralized, technology-driven production networks. This model transcends the traditional offshoring versus reshoring debate by proposing a third, practical solution: "micro-shoring." This involves establishing small, local production centers supported by limited-duration, certified foreign workers, and strengthened through policy incentives.

This model addresses several challenges at once. For the U.S., it decreases reliance on Chinese imports, brings back cost-competitive domestic manufacturing, and avoids contentious debates over immigration reform. It also supports political goals like revitalizing rural areas and strengthening industrial independence. For India, it creates opportunities for large-scale employment for its young and expanding population, boosts foreign remittances, and improves strategic cooperation with the United States.

Of course, this model is not without its challenges. Wage parity, labor rights, cultural integration, and political resistance to foreign workers must all be addressed through transparent governance, effective monitoring, and bilateral agreements. But these are surmountable obstacles when weighed against the opportunity to redefine global labor and manufacturing systems in a manner that is ethical, equitable, and efficient.

In a time characterized by supply chain disruption, technological change, and increasing labor polarization, countries that innovate in workforce planning and production strategies will become more resilient. The U.S. and India, as democratic and demographically diverse economic partners, are well-placed to develop this model together. This approach could serve as a blueprint for other developed countries facing similar industrial challenges. Whether in Germany, Japan, or Canada, the core ideas of decentralization, short-term labor shifts, bilateral skill development, and local industrial focus can be tailored and implemented across different nations.

The path forward involves formalizing this vision through a bilateral framework agreement between India and the U.S., with task forces from both governments and industry. Once pilot programs are implemented within a year—supported by data collection, impact assessments, and public outreach—the model can be refined, expanded, and institutionalized. This process will enable the U.S. not only to rebuild its factories but also to reshape the future of work and international collaborations, emphasizing mutual benefits, national resilience, and shared prosperity.

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