The Competitiveness Crisis in Australian Steel Fabrication

Why the Productivity Commission Needs to Look Through a Different Lens

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April 2026

Executive Summary

Every conversation about the decline of Australian steel fabrication starts in the same place: labour costs, energy prices, and cheap imports. Those factors are real. But if the Productivity Commission limits its analysis to input costs and trade competition, it'll miss the structural issues that are actually strangling this industry's ability to compete.

Australian fabrication isn't failing primarily because wages are too high or electricity is too expensive. It's failing because a combination of declining workforce competence, an extractive certification regime, the absence of any genuine productivity support, and a broken relationship between engineering design and manufacturing reality have created an industry running at 20–30% below its potential, using the equipment and people it already has.

The certification regime around AS/NZS 5131, controlled by the Australian Steel Institute's Steelwork Compliance Australia (SCA) and Weld Australia, has become a compliance industry that serves itself. These two bodies don't just run the audits and sell the training; they hold significant influence over the standards themselves, shaping the very requirements that generate demand for their certification and training services. The ASI is substantially funded by Australia's dominant steel producers, BlueScope and InfraBuild, creating a power imbalance where the 94% of fabricators who are small businesses pay fees to an organisation whose primary sponsors are their suppliers. The audits are overwhelmingly paperwork exercises that check whether systems exist on paper, not whether they produce safe, quality outcomes on the shop floor.

The competence decline across the workforce has destroyed productive welding. Arc-on time in many workshops sits at 10–15% when it should be 25–35%. The gap isn't filled by productive activity; it's consumed by rework, poor fit-up, waiting for materials, and the absence of basic production planning. Nobody in the industry's institutional framework is teaching fabricators how to be productive, because the business model is built on selling compliance, not competitiveness.

Engineering design compounds the problem upstream. Declining practical competence among structural engineers produces over-engineered, difficult-to-fabricate structures. Industry estimates suggest 60–70% of fabrication cost is locked in at the design stage, yet fabricators have virtually no input into design decisions. The knowledge that could save the industry millions in unnecessary weld volume, complex detailing, and avoidable rework sits on the shop floor, ignored.

Tariffs and protectionist trade policy, while politically appealing, don't fix any of these underlying problems. They subsidise inefficiency, inflate construction costs across the broader economy, and invite retaliatory measures that damage Australia's export industries. Protection without productivity reform is a dead end.

This document asks the Productivity Commission to examine the competitiveness of Australian steel fabrication through a fundamentally different lens: not just input costs, but the institutional structures, certification monopolies, competence failures, and design-manufacture disconnects that are driving the real productivity losses in this industry.

The Usual Suspects: Input Costs and Trade Competition

The well-rehearsed arguments about Australian fabrication's decline are valid as far as they go. A fully loaded boilermaker in Australia costs $80–120 per hour compared to $8–15 in Vietnam, Thailand, or India. Electricity prices are among the highest in the developed world, and fabrication is energy-intensive. Despite being a major iron ore exporter, Australian fabricators often pay more for processed steel than competitors in countries with subsidised domestic steel industries.

Major projects and resource companies have increasingly adopted lowest-cost procurement models that favour offshore fabrication. When structural steel can be fabricated in China or the Philippines and shipped to site for 40–60% of local cost, the economic argument is hard to fight on price alone. Government policy has largely moved away from industry protection, leaving local fabricators to compete on an uneven playing field against nations that actively subsidise their steel and fabrication sectors through cheap finance, export incentives, and currency management.

These are real constraints. But they're not the whole picture, and treating them as the primary explanation for the industry's decline leads to policy responses that miss the structural problems entirely.

The Tariff Trap: Why Protection Won't Fix This

Subsidising Inefficiency

When an industry is struggling to compete, tariffs are the reflexive political response. Shield local producers from cheaper imports, the argument goes, and you save jobs and give the industry breathing room to recover. The problem is that tariffs don't create breathing room for recovery. They create breathing room for complacency.

If an Australian fabricator is running at 20–30% below optimal efficiency because of poor production planning, inadequate workforce competence, and reactive management practices, a tariff on imported steel or fabricated products doesn't fix any of those things. It just means the fabricator can continue operating inefficiently and still win work, because the competition has been artificially made more expensive. The incentive to improve, to invest in training, to adopt better production methods, to close the productivity gap, evaporates the moment a tariff wall removes the competitive pressure that was driving the need for change.

Australia has seen this play out before. The automotive industry received decades of tariff protection and direct subsidies. When that protection was finally removed, the industry wasn't leaner, more competitive, and ready to fight. It was dependent, uncompetitive, and unable to survive without continued support. The steel fabrication industry is smaller and more fragmented, but the dynamic would be identical. Protection without reform doesn't create a stronger industry. It creates a weaker one that's addicted to protection.

The Cost Flows Downstream

Steel fabrication doesn't exist in isolation. It feeds directly into construction, infrastructure, mining, energy, and manufacturing. Every dollar added to the cost of fabricated steel through tariffs flows straight through to the cost of buildings, bridges, rail, ports, renewable energy structures, water treatment plants, and resource sector infrastructure. In an environment where Australia is already facing massive infrastructure investment requirements and construction cost pressures, artificially inflating the cost of a fundamental input material is economically reckless.

Housing affordability is already a national crisis. Commercial construction costs have escalated significantly. Major infrastructure projects routinely blow their budgets. Adding tariff-inflated steel prices to this mix doesn't protect the fabrication industry; it makes the entire construction sector less productive and pushes costs onto taxpayers, developers, and ultimately the public. The fabricators might benefit in the short term through reduced import competition, but the economy pays for it many times over through more expensive buildings, slower infrastructure delivery, and reduced overall construction activity.

There's a compounding effect that's often overlooked. When construction costs rise, fewer projects proceed. When fewer projects proceed, there's less work for fabricators anyway. Tariffs that push up construction costs can end up reducing the total volume of fabrication work available, partly defeating the purpose of the protection in the first place.

Retaliatory Tariffs and the Wider Economy

Australia's economy depends heavily on exports, particularly iron ore, coal, LNG, agricultural products, and increasingly critical minerals and education services. Imposing tariffs on imported steel and fabricated products invites retaliatory measures from trading partners, particularly China, which is both Australia's largest source of steel imports and its largest export market. The steel fabrication sector employs roughly 110,000 workers. The export industries that would be exposed to retaliation employ millions.

The geopolitical environment makes this particularly dangerous. Trade tensions between major economies are already elevated. Australia's recent experience with Chinese trade restrictions on barley, wine, coal, and other exports demonstrated how quickly retaliatory action can be deployed and how damaging it can be to specific sectors. Introducing or increasing steel tariffs in this environment would be inviting a disproportionate response that harms the broader economy far more than it helps the fabrication sector.

Tariffs Don't Build Competence

The most fundamental problem with tariff-based industry policy is that it addresses none of the capability issues outlined in this document. A tariff wall doesn't train a welder to produce first-time-right work. It doesn't teach a workshop manager how to plan production. It doesn't break the certification monopoly. It doesn't fix the disconnect between engineering design and manufacturing reality. It doesn't improve arc-on time or reduce rework rates. It doesn't give fabricators a voice in the design process.

What it does is allow all of those problems to persist, unchallenged, behind a wall of artificial price protection. The industry's underlying competitiveness deteriorates further because there's no market pressure forcing improvement. When the tariffs are eventually removed, as they always are when the political cycle turns or trade agreements require it, the industry is in a worse position than before the protection was introduced.

If governments genuinely want to support Australian steel fabrication, the money and policy effort would be far better spent on the things that actually drive competitiveness: workforce competence, management capability, design-for-manufacture practices, and breaking down the institutional barriers that prevent the industry from improving itself. A dollar spent on genuine productivity improvement delivers lasting benefit. A dollar spent on tariff protection delivers temporary relief and long-term dependency.

A Certification Industry That Serves Itself

The AS/NZS 5131 Regime

AS/NZS 5131, the standard governing structural steelwork fabrication and erection, was introduced to improve safety and quality in the industry. The intent was sound. The implementation has created something quite different: a compliance ecosystem that extracts significant cost from fabricators while delivering questionable benefit to public safety.

Certification under AS/NZS 5131 is effectively controlled by two bodies: Steelwork Compliance Australia (SCA), which operates under the Australian Steel Institute (ASI), and Weld Australia. Between them, they write the guidance, deliver the training, sell the certification, and conduct the audits. Critically, these same two bodies also hold significant influence over the development and interpretation of the standards themselves. They sit on the committees, they shape the technical requirements, and they then build commercial services around the compliance obligations those standards create. There's no genuine separation between the organisations setting the rules and the organisations profiting from compliance with those rules.

A fabricator wanting to work on anything above the most basic structural steel has one path: pay the fees, attend the courses, and submit to audits run by the same organisations that sold them the training. There's no competitive market for these services. The training that underpins certification, welding supervisor courses, quality management training, and inspector qualifications, is largely delivered or controlled by the same two bodies. It's a vertically integrated compliance industry.

The Big Steel Funding Relationship

The ASI is substantially funded by Australia's dominant steel producers, BlueScope and InfraBuild. These companies exist to sell steel. ASI exists to promote steel as a construction material, which directly serves their commercial interests. The problem isn't the promotion; it's that ASI has positioned itself not just as an industry promoter but as a gatekeeper for fabricator certification through its SCA subsidiary.

The result is a structure where the companies selling the raw material fund the organisation that controls market access for the companies buying and fabricating that material. The fabricators, 94% of whom are small businesses with fewer than 20 employees, are paying certification fees to an organisation whose primary sponsors are their suppliers. The power imbalance is significant and, as far as I can tell, unexamined by any regulator or competition authority.

Superficial Audits, Questionable Value

The audits under AS/NZS 5131 are overwhelmingly paperwork exercises. An auditor comes in, checks that procedures are documented, that welder qualification records are filed, that inspection and test plans exist on paper. What they largely don't do is spend meaningful time on the shop floor verifying that the documented systems are actually being implemented. They don't watch welders work. They don't verify that supervisors are supervising. They don't check whether inspection is actually catching defects before they leave the workshop.

The standard itself acknowledges that welding is a "special process"; you can't verify the quality of a completed weld without destructive testing in many cases. This makes the quality system and the competence of the people even more critical. Yet the audit process focuses on whether the system exists on paper rather than whether it's producing good outcomes in practice.

ASI's own technical notes have acknowledged that SCA certification is "not referenced by or a requirement in Australian Standards." It's a voluntary assurance scheme that has become a de facto market barrier. Specifiers and principal contractors increasingly require SCA certification as a tender condition, not because the standard mandates it, but because it's become a convenient compliance checkbox. The fabricator pays; the certifier profits; the actual safety of the structure is barely more assured than it was before the audit.

Documented concerns exist about real safety risks that the audit process doesn't adequately address: substitution of fillet welds for required butt welds, inadequate quality control of imported steelwork, and failure to verify that welding procedures are actually being followed during production. These are the things that matter for public safety. The paperwork isn't catching them.

The Productivity Gap Nobody's Addressing

Running at 20–30% Below Potential

The conversation about productivity in Australian fabrication almost always jumps straight to automation and robotics, as if the only way to become more productive is to spend millions on equipment. That completely misses the point. Most fabrication workshops in Australia are running at 20–30% below their optimal efficiency right now, using the equipment and people they already have. The problem isn't a lack of robots. It's a lack of know-how at every level, from the shop floor to the front office.

Arc-on time, the percentage of paid hours a welder actually spends depositing weld metal, tells the real story. In a well-run workshop, it should sit around 25–35% depending on the type of work. In many Australian shops, it's closer to 10–15%. The rest is consumed by waiting for materials, looking for drawings, fixing fit-up problems, hunting for consumables, dealing with equipment issues, rework, and standing around because nobody planned the workflow. That gap between 15% and 30% arc-on time represents an enormous productivity opportunity that costs nothing in capital equipment. It requires better planning, better supervision, and better-trained people.

The Competence Decline Is the Productivity Killer

Over the past two decades, the general skill level across the welding and fabrication workforce has dropped significantly. This isn't just about whether a welder can pass a qualification test. It's about whether they understand what they're doing and why. A competent welder doesn't just lay a bead that looks acceptable. They understand fit-up, they know how joint preparation affects the outcome, they can read a welding procedure and understand the relationship between parameters, and they recognise when something isn't right before it becomes a defect.

That level of understanding has been progressively lost as the training system has been hollowed out and experienced tradespeople have left the industry without passing their knowledge on. When you lose that depth of competence, you lose productive welding time in ways that don't show up on a simple timesheet. You get welders spending excessive time grinding and reworking because their technique is poor. Fit-up that's out of tolerance because nobody understood the importance of preparation. Distortion because nobody planned the welding sequence. Rejected welds that have to be gouged out and re-done. Every one of those things eats productive hours and adds cost, but most workshops don't measure it, don't track it, and don't even recognise it as a problem.

A competent welder producing first-time-right work at $45 per hour is dramatically more productive and cost-effective than an under-skilled welder producing rework-heavy output at

$35 per hour. But most workshops don't have the data or the management visibility to see this. They see the hourly rate, not the cost per metre of compliant weld.

The Management Knowledge Gap

Most fabrication workshop owners and managers came up through the trade. They're good welders or boilermakers who started their own business or worked their way into management. What they often lack is formal training in production planning, workflow management, lean manufacturing principles, or even basic scheduling. They run their workshops reactively: jobs come in, they get allocated to whoever's available, materials get ordered when someone realises they're needed, and problems get solved as they arise rather than prevented through planning.

This isn't a criticism of their capability or work ethic. It's a reflection of the fact that nobody taught them these skills, and the industry bodies that should be providing that support are focused on selling certification instead.

Simple changes would transform productivity without capital investment: planning cutting lists before jobs hit the shop floor so materials are ready; setting up welding bays so consumables, gas, and equipment are within arm's reach; sequencing work so bottleneck machines aren't sitting idle; doing proper fit-up checks before welding starts rather than discovering problems after weld metal has been deposited; briefing the crew at the start of the shift on priorities and quality requirements; tracking rework rates and understanding root causes. These are zero-cost or low-cost improvements that could recover a significant portion of that 20–30% efficiency gap.

An Industry Support Infrastructure Oriented Toward Compliance, Not Competitiveness

ASI, Weld Australia, and the various industry bodies run courses on welding supervision, quality management, and compliance. All focused on meeting standards and passing audits. Where are the courses on production planning for fabrication workshops? Where's the training on lean manufacturing adapted for structural steel? Where are the programs helping workshop managers understand throughput, bottleneck theory, or workflow optimisation?

They don't exist in any meaningful form. The industry's support infrastructure is entirely oriented toward compliance, not competitiveness. The certification bodies have no incentive to make fabricators more productive. Their business model is built on selling audits and training courses related to those audits. If fabricators were more productive, more competitive, and winning more work, it would be good for the industry. But it wouldn't sell more certifications.

Design for Manufacture: The Upstream Cost Driver

Over-Engineering as the Default

Industry estimates suggest 60–70% of a fabricated steel structure's cost is determined at the design stage. The choice of sections, connections, weld types, plate thicknesses, and tolerances drives the cutting time, the fit-up time, the welding time, the inspection requirements, and the rework risk. Yet fabricators typically have zero input into these decisions. By the time drawings hit the workshop, the expensive decisions have already been made.

Engineering competence has declined in parallel with trade skills. Graduate engineers go from university to a desk without meaningful exposure to fabrication workshops or construction sites. They don't know what's easy to weld and what's a nightmare. They

specify full penetration butt welds where fillet welds would be perfectly adequate. They design connections that require welders to work in impossible positions. They call for tolerances tighter than the structure requires and tighter than the fabrication process can reliably achieve without heroic effort.

When an engineer lacks confidence in their own understanding of loads, materials behaviour, and connection design, they default to over-engineering: thicker plates, bigger sections, more stiffeners, more weld. The result is structures that cost significantly more to fabricate than they need to, not because someone made a deliberate conservative engineering decision, but because the engineer didn't have the competence to optimise. A genuinely skilled structural engineer understands that a lighter, well-detailed design is often stronger and always cheaper to build. That level of understanding is increasingly rare.

The Fabricator's Voice Is Ignored

Fabricators, who build these structures every day, routinely know exactly how a design could be made more efficient to manufacture. They can look at a connection detail and say 'if you moved that stiffener 50mm, I could use a different welding process and save two hours per joint.' They can identify where a change in section size would eliminate a transition detail that costs more in labour than the extra material. They can suggest alternative connection types that are faster to fabricate without compromising structural performance.

But in the current industry culture, those suggestions are routinely dismissed or never sought. Engineers are reluctant to accept input from tradespeople because it challenges their professional authority. Design firms don't want to revisit completed designs because it costs them fee revenue. Principal contractors don't facilitate the conversation because their procurement model treats design and fabrication as separate, sequential activities with no feedback loop. The fabricators themselves have often given up suggesting improvements because they've been knocked back too many times.

The professional liability fear factor drives much of this. Engineers are terrified that accepting a fabricator's suggestion and changing the design will expose them to liability if something goes wrong years later. So they default to over-design and refuse to consider alternatives, even when those alternatives are demonstrably adequate. The irony is that over-engineering creates its own risks: heavier structures mean bigger foundations, larger cranes, more complex erection sequences, and more welding that could contain defects.

Design for manufacture and assembly principles are well established in automotive, aerospace, and electronics. The structural steel equivalent, early contractor involvement bringing the fabricator into the design process during engineering, consistently produces lighter structures, lower fabrication costs, faster erection, and fewer site issues. But it requires engineers confident enough to collaborate rather than dictate, and a procurement model that values whole-of-life cost rather than lowest design fee.

What the Productivity Commission Should Examine

The standard analysis of this industry's decline focuses on input costs and trade competition. That's necessary but insufficient. I'm asking the Productivity Commission to examine these structural issues through a different lens.

Whether the AS/NZS 5131 certification regime, as currently operated by ASI/SCA and Weld Australia, constitutes a monopoly that raises barriers to entry for small fabricators without delivering proportionate safety outcomes. The fact that these two bodies influence the standards themselves, then build commercial certification and training services around the obligations those standards create, deserves serious scrutiny. The relationship between big

steel producers, their funding of ASI, and the downstream effect on fabricators who are their customers should be examined as a competition issue.

Whether the industry's training and certification infrastructure is oriented toward compliance revenue rather than genuine workforce competence and productivity improvement. The question isn't whether we need standards. It's whether the current system is delivering value or extracting rent.

The productivity gap in Australian fabrication workshops that doesn't require capital investment to close. This is the low-hanging fruit that nobody's picking because the industry's institutional framework has no incentive to address it. Better management practices, workforce competence, and industry support focused on production efficiency rather than audit readiness could recover 20–30% of lost productivity across the sector.

The cost impact of poor design-for-manufacture practices, and whether procurement models that separate design from fabrication are systematically driving up the cost of structural steelwork in Australia. When 60–70% of fabrication cost is locked in at the design stage, and fabricators have no voice in that process, the productivity losses are baked in before a single piece of steel is cut.

Whether tariff-based protection is a credible policy response, or whether it would subsidise existing inefficiency, inflate construction and infrastructure costs, and expose Australia's export industries to retaliatory trade action for marginal benefit to a sector that needs structural reform, not a price shield.

The Australian steel fabrication industry isn't dying because our tradespeople can't weld or because our workshops can't fabricate. It's dying because the ecosystem around it, the certification bodies, the training system, the engineering profession, and the procurement models, has failed to focus on the thing that actually matters: helping this industry produce better work, faster, at lower cost. That's a productivity question, not just a cost question, and it deserves a fundamentally different kind of examination.