

MAKING THINGS IN A HIGH-DOLLAR AUSTRALIA: THE CASE OF THE SURFBOARD INDUSTRY

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In August 2011 the announcement by Bluescope Steel of mass layoffs at its Port Kembla steelworks, in the Illawarra region, sparked renewed public debate and media commentary on the future of manufacturing in Australia. The debate has since spread to cars, aluminium smelting and even Mortein fly spray and has quickly coalesced around the unprecedented high Australian dollar, its impacts on exports, and the prospects of the production of goods shifting overseas. As Australian mining magnates such as Clive Palmer, Gina Rinehart and Twiggy Forrest attempt to remould Australia around their 'quarry vision' (Pearse, 2009) of extractive minerals exports, a high value Australian dollar puts at risk any industries where import substitution is possible: tourism, education, retail (doubly threatened by the rise of e-commerce), and the manufacturing sector.

In this article we seek to provide a fresh perspective to the debate on Australian manufacturing by focusing instead on the *internal* dynamics of industries and regions where a political economic analysis reveals important insights.

Our case study is the Australian surfboard-making industry. By focusing on internal as well as external dynamics, we illuminate the problems with orthodox approaches to comparative advantage, and suggest critical factors beyond the high dollar that need to be addressed if this iconic form of manufacturing is to remain viable in Australia.

The Future of Australian Manufacturing: a Question of Agency and Scale?

The high Australian dollar has significantly impacted on the fortunes of specific sectors of the economy – and indeed, in the industry we spotlight below, surfboard manufacturing, the high dollar certainly has hurt export markets. Surfboard-makers on the Gold Coast – deeply connected to export markets in Japan and international tourist fluctuations – have suffered especially.

Situated alongside questions and concerns over the future of Australian manufacturing has been a mineral resources boom. In Australia, powerful mining interests appear to be steering public debate over what the national economic landscape should look like. The effect is to entrench mining interests and render ‘common sense’ the idea that a mining boom is a natural and good thing for Australia, even while the rest of the economy suffers (Gibson, Carr and Warren, 2012). Among the many critiques needed is a focus on the consolidation of power by mining capitalists, as well as the magnitude of deleterious impacts of the mining boom on other regional industries and communities.

Our aim here is to offer another perspective on the debate: one concerned with the ascendancy of a simplistic, seemingly universal economic rationalist logic in the debate about making things. This has come at the expense of economic knowledges attuned to the complexities and realities of geographical scale – crucially including discussions of the internal dynamics of specific industries and regions. Smuggled into the current debate about making things has been a set of assumptions about the scale at which economic knowledge is produced: the naturalisation of the mining boom – as if it were an organic, natural, positive thing for Australia – rests on neoclassical assumptions about *national* comparative advantage within purportedly universal *global* market forces.

Locked into this chain of reasoning, the debate has descended into a familiar one about support for or against national protectionism: for the government to buttress specific industries (such as cars and steel) in the national interest, to continue to be a ‘country that makes things’ – or not (Spoehr, 2012:1). Arguments put forward by anti-protectionists are predictable variants on classical theories of comparative advantage: in the new global knowledge economy, manufacturing represents a low-value added form of production which, combined with a punishing

exchange rate, is no longer viable. Instead, the future is, according to orthodox comparative advantage theory, about gearing the Australian economy towards maximum extractive minerals exports, jettisoning manufacturing (and presumably other currency-sensitive industries such as tourism and education) and focusing instead on mining services, engineering and dematerialised innovation and finance industries.

Such thinking spotlights the problems with comparative advantage as a basis of economic policy. To begin with, comparative advantage has been embraced within a form of policy-making – on the run – reflecting the –neoliberal tendency to override the evidence of empirical complexity in favour of a more simple narrative – (Pritchard, 2005:103). Neoliberal policy prescriptions vis-à-vis mining and manufacturing are –predicated on a vision of *naturalised* market relations – (Peck, 2001:445). We would argue that the nation as geographic unit – the national economy – deserves no pre-ordained ontological privilege (Moore, 2008). Rather what we are witnessing in the debate over making things in Australia is how the nation is being reconfigured as a site and scale of politics. The very scope of what is deemed politically possible is scaled, dependent on figurative and material spaces of political action, and generated through interactions of knowledge and practice (Cumbers et al, 2008; Davidson, in press). It is worth reminding ourselves that the nation is an especially persuasive spatial and institutional fix, with enduring historical legacies (Brenner, 1998). From its earliest days, the Australian economy has never so much been a logical unit of accounting – a container for GDP – than an outcome of practices, a persistent attempt, at a grand continental scale, to secure land and resources, to conjure into being an entity for extraction and profit.

Following Timothy Mitchell – (2008) ideas, the Australian economy can be understood as defined and managed through competing –projects – that particular actors and institutions work towards, literally built through the actions, ideas and behaviours of –experts – corporations, workers, legislators and public relations firms. As Mitchell reminds us, –Economic knowledge does not represent the economy from some place outside. It participates in making sites where its facts can survive – (2008: 1116). Paying closer attention to –how scale operates as a category of practice – (Moore, 2008:213), the national economy is –brought into being – it does not grow –naturally – (Noble, 2011:232). The current debate imagines the national economy and fate of manufacturing quite particularly, as on the one hand beholden to liquid global capitalist forces, while on the other

hand, positioning Australia as a strategic, canny player in global minerals export markets. This is not a presentation of facts about 'the market' (Mikler, 2011), but the production of a partial site of economic knowledge-making where a selection of facts are meant to endure.

The result is that the debate has missed much of the complexity amplifying the vulnerability of making things in Australia, because it has focused especially on simplistic explanations of what constitutes the national economy (especially mining), and doctrinaire policy prescriptions about globalisation and 'the market' that buttress already vested interests. As Bill Pritchard (2005:103) argues, neoliberalism's 'simplified conception of regional economic and social life' pays little regard to their richness, complexity and grounded realities. We instead focus on one novel manufacturing industry in which Australia has been a major global player for half a century: surfboard-making.

In the surfboard industry, the current vulnerability of making things cannot be so simplistically explained¹. Instead a combination of industrial, cultural and regional factors requires sensitive analysis. We do not want to suggest that 'industry' or 'region' are preferable scales of analysis *a priori* – that would fall into the same ontological trap that pertains to the national scale. Rather, following Moore's (2008:220), 'insistence on the primacy of processes and relations over substances, entities or things' we are concerned with how vulnerability in manufacturing is experienced, practiced and negotiated by people in specific places and times.

1 Hard data on the Australian surfboard manufacturing industry does not currently exist. However, since surfboard manufacturing is a sector included in broad labour force analysis carried out by the Australian Bureau of Statistics (ABS), some insights can be taken from recent findings concerning Australian manufacturing. At the national scale, between May 2008 and May 2011 overall manufacturing employment declined 8.4 percent, (90,000 jobs) to a total workforce of 982,300 (ABS, 2012). At the regional level an assessment by the Gold Coast City Council revealed the direct contribution of the surf industry (tourism, retail, surfboard manufacturing, whole sale trade, surf schools etc) to the local economy in 2009 to be \$1.4 billion (Gold Coast City Council, 2009). The surf industry supported an estimated 21,000 jobs or 12 percent of total employment within the Local Government Area. Surfboard manufacturing on the Gold Coast comprised a \$36 million industry but direct employment was not measured (Gold Coast City Council, 2009).

The Australian Surfboard-making Industry

Australian surfboard-makers have driven innovation in surfboard-design and production since the mid-1960s. Australia has launched corporate giants such as Billabong and Quiksilver and is home to small but globally iconic workshops such as Bob McTavish in Byron Bay and Bennett Surfboards in Brookvale, Sydney. Australian surfboard manufacturers have been among the world's most visible, creative and successful. Yet the surfboard industry, like many other Australian manufacturing sectors, finds itself in a state of precariousness. In late 2011 several prominent surfboard workshops on the Gold Coast closed operations or massively reduced production. Those workshops that have survived on the Gold Coast and in other hubs of production along the east coast do so with reduced staff, lower output and slimmer margins.

How this state of affairs has come to be is partially explained by a high Australian dollar, and by cheaply-produced surfboards imported from Asia. Surfboards manufactured in Asia have flooded retail stores over the past five years, undercutting demand for Australian-made boards. Yet such factors only explain part of the story about the precariousness faced by Australian surfboard-makers. Based on longitudinal field work undertaken on the east coast from the Sunshine and Gold Coasts in Queensland through coastal New South Wales and to Torquay in Victoria, we document four deeper factors that jeopardise surfboard-making:

- The transition from hand-making boards individually to computer-aided design (a form of capital-intensification displacing a craft-based form of labour);
- The concentration of power in discount retailers and surf super-stores;
- Poor succession planning within workshops; and
- A culture of informality emanating from surfing's subcultural roots that amplifies risk and exploitation.

We draw insights from this example about the complexity of the dynamics occurring within industries and regions ó insights necessary for a more robust debate about the future of making things in Australia.

The field work undertaken in Australia consisted of visiting sixteen surfboard workshops, over a three year period, located between the Sunshine Coast (Queensland) in the north and Torquay (Victoria) in the south. Visits were for extended periods of time and included recorded

interviews with workshop owners and workers, obtaining amongst other things information on surfboard prices, input costs, margins, markets and wages. We undertook workshop tours at sites of production with workers (also recorded). This field work was supplemented by archival research on the history of surfing and commercial surfboard-making at museums on the Gold Coast and in Torquay, and related investigation of the history and corporate economics of major Australian surfing brands Billabong, Quiksilver and Rip Curl. Before we discuss the internal dynamics of the surfboard industry in Australia, we first briefly provide some necessary historical context.

Crafting Surfboards: an Australian Success Story?

The surfboard industry is one of Australia's lesser known manufacturing specialisms. Since the 1960s Australian surfboards have been exported globally and Australian innovations in surfboard design have influenced the international surfboard scene. Surfboard-making itself began in Hawaii (and to a lesser extent Tahiti) at least five-hundred years ago, as part of traditional *kapu* law and a component of Polynesian culture, crafting and everyday life (Warshaw, 2010; Walker, 2011). Surfboard-making spread internationally with the increased popularity of the sport of surfing in the early decades of the twentieth century. Renowned Hawaiian waterman Duke Kahanamoku played a central role by demonstrating surfing in high-profile public displays while visiting Australia and California following his swimming successes at the 1912 Stockholm Olympics. In the four decades following Kahanamoku's visit to Australia, surfing grew slowly as an Australian pastime, largely focused in Sydney. Surfboard-making necessarily accompanied surfing. Surfboards were made from wood by hand, first in backyards as do-it-yourself carpentry projects, and later in small fledging commercial workshops, initially in Sydney's eastern suburbs and northern beaches, as well as the Gold Coast (Warren and Gibson, forthcoming).

When surfing boomed in the early 1960s, a craze that took in everything from the music of Dick Dale and the Beach Boys to Gidget movies and new styles of fashion and language, the Australian surfboard industry developed in locations where the pastime was itself concentrated: coastal regions with suitable waves and amenable climates for surfing, often (but not solely) tourism regions. These included the

Gold Coast, Byron Bay, Sydney's northern beaches, Newcastle, the Illawarra region and Torquay, near iconic Bells Beach in Victoria. Rather than concentrate in one or two regions, surfboard-making to this day reflects a decentralised and linear coastal geography (Warren, 2012). Regional demand persists for locally-made surfboards irrespective of global competition, due to high rates of replacement for boards (a regular surfer can break several surfboards per year) and the need to customise board style and size to both individual surfers and prevailing local waves. Physical geography and individual surfing locations, body size and style necessitate a largely localised surfboard-making industry in Australia (and elsewhere – see Warren and Gibson, forthcoming).

For five decades Australian workshops from across coastal regions have met localised demand, competed internationally and been responsible for many of the most significant advances in surfboard design. This included the high performance 'shortboard' design, developed by Bob McTavish in 1966 (which set in train a 'shortboard revolution' in surfing style) and Simon Anderson's three-fin 'Thruster' introduced in 1980, a design that continues to dominate the industry. A trio of companies, Rip Curl, Quiksilver and Billabong (two from Torquay and one from the Gold Coast) diversified from their early origins making surfboards, wetsuits and board-shorts in the late 1960s and early 1970s, into t-shirts, shoes, jeans, jewellery and other surf fashions. In time they would become global brands, with Billabong and Quiksilver listed on stock exchanges and branded through networks of thousands of retail stores around the world (Jarratt, 2010; Lawler, 2011). Australian workshops have high visibility and reputation globally. Only Hawai'i and southern California share similar reputations and concentrations, and in both cases with a much smaller geographic spread than in Australia (Warren, 2012). Notwithstanding such prominence, in Australia, as in Hawai'i and California, most surfboard-making has until recently been undertaken prosaically, by hand. Work is performed by expert craftspeople; *shapers*, who plane foam 'blanks' into sleek, rideable shapes; and *glassers*, who decorate and laminate each shaped board. Surfboard-making by hand is necessary to finely customise a board to an individual surfer, for local conditions, and remains the production method of choice for most regular surfers (Warren, 2012). As we explore below, only in the 1990s did a computer-method of manufacturing surfboards become possible. Unlike many other forms of manufacturing, the tendency of capital to deskill

human labour inputs and convert to computerised and cheaper offshore production has come late to surfboard-making.

Making Boards by Hand or by Computer-design?

Ancient Hawaiian surfboard-making practices shared certain features with the contemporary system of hand-making surfboards: both involved separate tasks for carving/shaping and sealing/laminating boards (the essential division of labour between what are now called shapers and glassers), and rested on accumulated expert knowledge held by craftspeople. Surfboard-making is a tactile process, drawing on unique embodied skills held by experts in their hands and eyes. Hand-based production is necessary to produce boards tailored to the surfer's individual body size, shape, preference and local wave type. In interviews, shapers and glassers (who were universally men of whom women were employed, they were primarily in office and administrative positions²) emphasised this system as craft, as artform, as well as production of a specialised sporting good. John Skipp from the Illawarra region explained:

The custom order is filled out one-on-one with our customers, talking through their needs and wants. The shaper creates a design, which is drawn on the blank and cut out. The foam is crafted down by hand, with an electric planer and surface form tool. Then it is sanded over and over, down to its exact dimensions. Then the glasser begins. They layer fibreglass cloth over the shaped foam, cutting it to size with a few inches of overlap. This resin [holds the bottle up], with a catalyst is added, and spread really carefully over the board and begins to set hard in a few minutes. Once it's dried you sand it over. A lot of boards will also have personal artwork finished on the deck, which the customer requests. A second coat of resin is applied before the board is given a polish to show off that beautiful shiny look.

The emphasis on bodily skills and *feel* was explained by Bob McTavish in Byron Bay:

2 Surfboard-making is a remarkably gendered form of work. See Warren and Gibson (forthcoming) for more extensive discussion.

If you want to become a good designer and shaper you have to learn how to feel the surfboard. You need to see how the board will turn out before you've even started making it. I imagine the design in my mind and picture how I am going to shape it together. You have your drawings and order form [for custom boards] but that just gives you something to start with. I have found that I rely most on my senses and how a board feels underneath my hands.

Surfboard shapers learned their work informally, as low-paid helpers in workshops initially, then slowly graduating to more complex production tasks. Phil Byrne in the Illawarra explains:

We learnt from scratch, there's no formal training in shaping. I was able to go up and watch a shaper in Sydney who was making some boards for me and he showed me what to do for a few hours and then it was trial and error. We started shaping in our grandparents garage before I started working for John Skippí after a while certain elements led us to starting our own business [with brother Dave], around 1976. Everyone learns from scratch, no TAFE or formal training...It really is like that in most places, watch, listen and learn, all on the run.

In the surfboard-making scene, craftsmanship, customisation and relationships between shapers and their customers are all sources of credibility and cultural capital. As Maurice Cole (Torquay) described: "The surfboard is part of the shapers soul. But it's such a personal thing for surfers too and they have to trust that their shaper will use all their knowledge and skill and produce a functional piece of art that blows their mind in the water." The result is a tightly constrained form of bespoke manufacturing: custom surfboard workshops run on small volumes (often between 300 and 600 surfboards per year), employ few people (or are sole traders/partnerships) and invest time and energy into maintaining strong relationships with loyal local surfers. Individual reputation is a premium. Overheads are kept low and cheap rents are sourced in light industrial estates proximate to surfing areas: Currumbin and West Burleigh Heads on the Gold Coast; North Wollongong; Sunrise Industrial Estate outside Byron Bay; Brookvale in Sydney's northern beaches. The boards produced are unique and diverse, with regional variations in style reflecting predominant wave types and vernacular surfing culture: some workshops (and regions like the Gold Coast) focus predominantly on high performance competitive shortboards, others in places like Byron

Bay on retro boards, longboards and 'alternative' designs (e.g. fishtails). Some custom surfboard-makers seek export markets, or export themselves as travelling 'guest star' shapers visiting Hawaiian, Californian or Japanese factories to temporarily shape boards there. Otherwise, most retain local markets and boards are specialised to suit local circumstances.

This system of local custom surfboard production remained relatively stable between 1960 and the late 1990s, prior to and during which time surfing enjoyed continual expansion as a pastime without the implementation of automated surfboard production. As early as the 1970s attempts were made to develop crude metal shaping platforms; these were not computerised systems, but a welded physical structure on which blanks were secured while a shaper used a router to cut consistent bottom and deck lines. Fully-automated systems would take another two decades to emerge. Nonetheless, in the late 1990s and 2000s, local surfboard-making workshops in Australia adapted to this technology and shifted the organisation of their production, primarily in response to competition from corporate labels for valuable retail space (see below). To survive smaller workshops sought to sell more surfboards, which required them to be more visible. The way to achieve this was by supplying surfboards to retailers located in shopping malls and in close proximity to popular surfing beaches.

One by one local workshops shifted towards an automated, computerised system of surfboard-making, encouraged by retailers and seduced by the potential for growth. Following a mechanised, automated approach, each surfboard is shaped using computer-generated design templates with the goal of meeting higher levels of demand across a more general mass market. This system involves key structural differences in market scale and occupational specialisations within a workshop. Most significantly it also helped institute changes in the relationship between surfers and individual board-makers, altering how much (if at all) the industry is embedded in personalised, dependent relationships and connections with a surrounding local surfing community.

Under this approach, computer assisted design (CAD) programs are combined with computer numerical control (CNC) machines to shape each surfboard from a mould of blank foam. The use of this technology in surfboard-making was first trialled by Frenchman Michel Barland in the 1980s, when he worked as a blank foam distributor for European

surfboard factories (Marcus, 2007). Barland used his knowledge of surfing, shaping and mechanical engineering to successfully create a machine which automated the shaping of each surfboard blank. A job that took a hand-shaper three hours could now be done in less than twenty minutes. Relying on fifty precise measurements, the technology revolutionised global surfboard manufacturing over the next fifteen years.

While hand-shaping was appropriate for supplying localised, custom markets where surfers in a town visited a nearby workshop (rather than a retail store) and ordered a specialised surfboard from a hand-shaper, this system did not cater well to the entry level surfing market: those beginners wanting to get in touch with the surfing lifestyle and learn how to ride waves. Hand-based production was labour-intensive and slow. Increasingly prevalent discount retailers and surf superstores required rapid production and supply regimes for the novice mass market. At busy local workshops with a backlog of orders over the busiest periods, new custom made boards could take four to eight weeks to deliver. Many beginners and tourists (especially on the Gold Coast, in Byron Bay and Torquay) sought a generic design from a retail surf shop, a user-friendly surfboard that could be tried out at the beach immediately. Hand-shaping thus became limiting for smaller independent workshops, and mechanically-produced boards soaked up more and more of the available retail space:

In the retail market, the way I look at it you've got a set of rings, there's an inner ring, there's a middle ring and then there's an outer ring. I've always wanted to reach the outer ring. People that just want to get in touch with the culture, how are they going to get a board for little Johnny? They don't necessarily need to take my time asking for measurements and designs. It's all very time consuming. That's when I struck up a relationship with Beach Street who sell my boards in their surf shops off the shelf (Chris, Illawarra).

Novice surfers were the market segment being increasingly monopolised by discount retailers, and by Rip Curl, Quiksilver and Billabong, with their extensive retail networks and sophisticated, well-funded advertising campaigns (see below). Using CAD/CNC technologies became a strategy for local independent workshops to get in touch with entry level surfers.

McTavish, JS Industries, DHD and Byrne in Australia each now sell several thousand computer-shaped boards annually.

Some shapers report that CAD/CNC technologies have deskilled surfboard-making. This is not to say that other skills are not required. Shapers retain skill and knowledge to suggest ideas and improvements, while final hand-finishing remains critical. Nevertheless, for surfboard workshops using CNC production, divisions of labour have shifted. Workers in the industry now require backgrounds and expertise in CAD/CNC operating, industrial design, computer engineering and information technology. Meanwhile hand-shaping sections of many businesses have been downsized, and in some cases have begun supplying designs and board templates for computerised-shaping ó acting as something like a research and development division. Unlike other patentable forms of innovation, however, surfboard shapers are not recognised as authors of successful designs: mass reproduction of their hand-made shapes through computerised methods takes place without royalty payments or authorship credits. The shaper is only paid a rate per original surfboard shaped.

Previously, hand-shaping workshops were sites for ordering, shaping and collecting a board. The mechanised system of production now means that surfboards are shaped and glassed offsite using design measurements faxed or emailed to the larger factory. An experienced hand-shaper crafting surfboards using his hands and manual tools can produce only four or so finished shapes per day (about twenty per week). The CAD/CNC system meanwhile can churn out 50 boards per day or 250 over a normal five day, eight hour working week. Additionally, most of the workshops using CAD/CNC technology ó Byrne, McTavish, Diverse, Mt Woodgee, DøArcy ó now enable surfers to order a board from a central website or link to authorised retail dealers. Consumers no longer need to visit the workshop directly and can complete an online enquiry, where they select a design from an available list.

The result has been a shift in the scope and scale of the industry, as well as an amplification of risk and exposure to debt. Independent workshops operating from industrial warehouse space have struggled especially. Their spaces of production are not connected to retail surf shops in prominent beachside areas, constraining the trade of large volumes of boards to beginners. Being small, it is also difficult to provide consultation to customers while at the same time continuing to operate

CAD and CNC machinery. In implementing a computerised production system to up-scale production, and in turn improve profitability, workshops now need to reach a certain critical mass, attain strong brand recognition through advertising and sponsoring pro-tour riders, along with signing product distribution agreements with surf retail outlets. Debt increasingly finances the purchase of expensive equipment and bankrolls increasing production volumes in attempts to secure increased visibility in retail outlets and meet demand online from internet orders. Higher sales volumes need to be maintained. Slow periods correspond with a rapid accumulation of incoming bills; high freight costs, employee wages and bills from their large number of suppliers. However, perhaps at least as important, relying on markets outside the tight circle of loyal experienced local surfers has meant increasing attention to and investment in branding and marketing ó each generating further costs and thus amplifying risk.

Accompanying the strategy of high-volume production has been the increasingly common practice of ghost-shaping for other companies:

How it works is they [large surf label] contact you and start a conversation about entering into an agreement to supply their surfboards for a local store í it is called ghost shaping. The problem for the local workshop though is that they have no identity in the process, you literally are a ghost as far as the surfer who ends up buying that board is concerned (Jerry, Gold Coast).

Ghost-shaping severs the strong social ties between shaper and surfer. The advent of the anonymous shaper has opened the door to competition from computer-machining factories in Thailand and China (companies including Global Surf Industries, Shenzhen Technology and BenPat International). According to Mick Carabine (Illawarra):

You know, it's a dying trade that one. Shaping machines have taken over and no matter who you are they're all getting shape machine jobs done now, and all they [shapers] finish off is the rails. There are lots more pop-out boards here now í same designs copied over and over, popped out one after the other. The price has made it into a disposable item: buy a surfboard for \$300, in six or twelve months it's wrecked, so throw it away and buy a new one.

For another experienced shaper, cheap imports threatened the viability of local workshops:

Do you want a slave-laboured dude getting US\$3 a week making your surfboards, or do you want a guy who knows how to stand-up in a barrel? And, you know, do you want a piece of art made with human love and heart and soul, or one churned out on a computer? This is one of the last industries that you can buy custom. But if I don't get enough business to stay in business, because of China, popping out boards for \$280, that hurts everybody all the way down the line, and that's my official position.

Related to the advent of computer-shaping, as a means to meet mass consumer demand at the entry level, is the consolidation of power in the hands of surf retailers.

Retail Wars

Between the 1970s and 1990s the Australian market for surfboards focused on small workshops in surfing regions and coastal tourist towns. Some producers diversified into board-shorts, bikinis, t-shirts and accessories and also became surf retail shops. Others, fearful of growing inventories and the distractions of selling surf clothing and apparel, remained production-only facilities, making surfboards and related watercraft. Such businesses were not even interested in printing a few t-shirts with the company logo on them.

This scene has shifted markedly since the 1990s with the emergence of both surf 'super-stores' in larger coastal regions (especially the Gold Coast and Torquay) and discount surfboard shops, found in many coastal towns down the east coast. Most retailers are ostensibly clothing stores but stock surfboards, often at heavily reduced prices, to maintain appearances as legitimate surf shops (Warren, 2012). This shifting retail landscape was cited consistently by the sixteen workshop owners and their workers as a threat to on-going viability. On Australia's Gold Coast, in Sydney's northern beaches and in Torquay, retail deals, their dubious details and episodic breakdowns in trust between producers and shops were the source of much discussion and complaint, among both managers and workers alike. According to one workshop owner with

extensive history in the industry, the rot began in the late 1970s and 1980s when the 'big three' grew rapidly:

See, Quiksilver had such a control of surfboard-makers then, and if you got offside with them [not meeting a request] you were ruined, they would say to retailers 'you sell that label's boards and we'll pull our gear from the shop' It happened, it did.

Another workshop owner described how Rip Curl's retail arm would not sign a contract stipulating a minimum order of surfboards per month:

That doesn't happen [signing a contract] in the surfboard industry. If I demanded they sign something like that they would have laughed at me and just said 'well, we will go and get another label.'

In an industry where handshake agreements are the norm, smaller, independent businesses often enter into ghost-shaping agreements 'in good faith' only to be 'screwed around' when large surf retailers do not meet the conditions of verbal agreements. Workshops described such 'handshake deals' as 'the culture of the industry' (Stuart, Gold Coast), which typifies their experiences and dealings with large surf retailers, along with the extent to which they are poorly treated in comparison with the mega-brands. Particularly venomous is the attitude towards retailers who carried shelf stock of their computer-automated boards yet who are not required to pay for boards for up to 180 days (and sometimes simply never do). In the words of one workshop owner:

I have been let down so many times by them [large retailers]. They want your boards on a consignment of four months, even longer now. [laughs] We have to pay our suppliers fortnightly. I could actually live with the consignment if they paid for all the boards they take. Some of the retailers, I haven't had payment from them within the consignment period, so I turn up and I can see the boards have sold, so I'm like 'where is my money?' I had one manager try and tell me they had paid' another told me flat out he had to pay the Quiksilver bill before I would see anything. That really pissed me off.

In times of economic downturn (exacerbated on the Gold Coast by the contraction of the tourism industry) struggling retailers repay their largest creditors first - the mega-brands, upon whom retail shops rely to guarantee a certain amount of foot traffic (and without whom they can

hardly warrant operating as a surf retail outlet in the first place, because of the oligopolistic brand power of the big three). Independent surfboard-making workshops supplying a comparatively modest number of computer-produced boards are paid last, if at all. Workshops including DøArcyø and Mt Woodgee on the Gold Coast and Byrne in the Illawarra, have thus up-scaled production through use of computer-automated technology and opened their own retail stores. In part this is a strategy to avoid being pushed into obscurity within an increasingly cut-throat surf retail scene where discount stores, branded mega-retailers and shopping mall outlets soak up the bulk of demand. In so doing, however, they have also up-scaled the levels of risk involved, through the sheer amount of borrowing necessary to finance the retail visibility and advertising considered necessary to secure greater market share.

Further complexities surround the oligopolisation of surf branding by the big three companies, and their expanding use of subcontracting and ghost shaping arrangements. DøArcy Surfboards, for instance, are the Australian licensee of Tokoro Surfboards, a Hawai`i-based business. They make and label Tokoro boards locally to set specifications using CAD/CNC equipment ó yet when the Hawaiian brand, in turn, signed a production and distribution deal with Rip Curl, DøArcy found themselves ostensibly manufacturing boards as an outsourced third party for Rip Curl. This had little benefit for the workshop, because Rip Curl demanded they provide exclusively to certain retail shops, yet subsequently those shops only ordered a small number of boards:

Because they took him on as one of the Rip Curl shapersí then we had a relationship with Rip Curl as far as supplying them [in Australia]. But one of the things they discussed in forming our relationship in the beginning was that if they were prepared to maintain good numbers [of surfboards] and keep stock up then we should give them exclusivity and only supply to Rip Curl stores and no other surf retailers. Then we said to a whole bunch of shops, sorry we canø supply you because we have a deal with Rip Curlí but Rip Curl never ordered many boards. We had just flogged off these other shops that would have stocked our boards.

An important consideration in the debate about making things in Australia is therefore the shifting role of retailers in specific sectors upstream of production ó and how consolidation of power at this point in

the system of provision (Fine and Leopold 1993) for individual manufactured goods jeopardises local suppliers.

An Ageing Workforce

Much nostalgia surrounds the surfboard-making scene. High-profile surfboard shapers in the 1960s and 1970s were themselves keen surfers, often competing internationally. They began shaping a few boards during the off-season as a means to more reliable incomes. Such work could support what was otherwise a highly informal, subcultural lifestyle where drugs, sex and loud music accompanied many hours in the ocean. Board-makers developed skills as part of a quasi-trade set up: they hung around existing workshops and skilled shapers, and after initially doing the shit jobs (cleaning, sanding, fixing dings etc) they observed how to make boards and eventually accessed opportunities to shape boards themselves. Skills developed through repetition, accumulated knowledge and experience, both in the workshop and by surfing daily, until becoming a master shaper (generally after having made 30,000+ boards by hand).

Reflecting the way in which access to board-making careers were tightly governed by social/subcultural relationships back in the 1960s, shapers have been reluctant to embrace newcomers, have heavily guarded skills and have rarely trained younger shapers to augment or replace them within their own factories. This is exacerbated by experiences where some workshop owners have been stabbed in the back by former employees, by awkward break-ups of business partnerships and breakaway businesses that stole customers.

As a consequence most master-shapers are now approaching retirement age, or in the case of a few individuals, continue to shape well into their 70s and 80s, without much sense of succession planning. On reflection many expressed concerns about the prospects of there being simply no young shapers with requisite skills to take over the industry with their eventual retirement (or death):

Guys are ageing and it's hard to find young guys, they don't want to know about it. A lot of the shaping jobs are being filled by imported labour, people on working visas, from Japan especially. I don't think kids view it as a cool thing anymore, wages aren't as good as other professions and the work is quite dirty and physical. There are definitely guys in the industry now that

wouldn't be able to get a blank out and shape by hand. That is a shame really, that is going out of the industry. We need some younger guys to take an interest in it (Phil, Illawarra).

It is not that workshop owners do not wish to see the continuation of hand-made, custom surfboards. While an automated system of surfboard production is now readily available for workshops to (increasingly) use, several ageing owners expressed desires to maintain hand-shaping practices. This is not only because hand-shaped designs are needed for research and development purposes, informing the replication of more generic mass marketed board models, but because there are also more personal, cultural and artistic motivations. Workshop owners regularly advocate for continuing creativity and design innovation, and agree this can only be done by continuing to hand-shape boards. Where younger people are working in the industry tends to be in the programming and operation of automated systems of production. Younger workers have not taken (or were not given) opportunities to learn the slow craft of hand-shaping and instead are becoming expert CAD/CNC operators ó wedding themselves, in other words, to a form of high-volume production exposed to international competition of cheap boards, divorced from social bonds with local surfers and dependent on debt-financed marketing and retail exposure. Skill in hand-shaping will still be required even if CAD/CNC technologies entirely dominate ó quality products rely on judgement, finishing and customisation ó but without intergenerational transfer, successive generations of surfboard-makers may miss out on gaining the necessary embodied training.

Informality and its Constraints

Surfboard production is based around an informal arrangement with no prescribed or recognised qualifications for proficiency or professional attainment. Despite a recent initiative proposed by some Gold Coast firms, there is not yet an industry association to organise training schemes, professional qualifications, workplace safety standards or even measure the quantitative size of the industry. Career pathways in the Australian surfboard industry are ambiguous and endemically disorganised. Back in the 1960s some had their fortunate break by simply hanging around the workshop for extended periods; something hard to imagine being possible nowadays. Some older figures in the industry

lamented the loss of innocence and mateship of the industry's informal origins. Hence for Mick Carabine (Illawarra):

When we used to compete in competitions there was a lot of friendships and it was great and at the end of the day you got a trophy. You got a trophy so you could go 'yeah look what I've done' And then in came money and the mateship was forgotten. Someone would slit your frigging throat cause they could get a \$100 bucks for a prize or something, instead of getting a trophy. That changed the industry; that changed surfing in general. It was a shame to see that happen.

Although money in some respects 'corrupted' the easy-going informality of surfing subculture, that same informality continues to govern crucial aspects of the contemporary surfboard industry: from employment contracts and workers' wages to deals forged between workshops and retailers. Rates of pay are especially variable. No standard pay rate exists anywhere: wages vary depending on the strength of social relationships and how 'good' a worker is perceived to be. Added to this is that workshops provide no guarantee to keep workers employed on an ongoing basis. The physical, dirty and exhausting nature of the work means that other employment opportunities prove more appealing, as one experienced surfboard industry worker pointed out:

It's one of the real problems we see with the industry here on the Gold Coast. The work is just so informal and the people already in the industry are protective of their knowledge and set in their ways. There needs to be a way to teach younger people that are interested, about the industry. You know how it works: the types of skills they need. Without being able to do a proper qualification or apprenticeship, which we could use to market the industry as well, then I think in 10 years time we won't have any younger hand-shapers coming through because they will have found jobs somewhere else.

In shifting to a mechanised system of production to meet elevated demand for standard boards supplied more quickly, hand-shapers have drifted to a more peripheral role in many workshops. Skilled hand-shapers survive precariously in financial and logistical terms. They negotiate insecure working conditions (seasonality and long periods of no work are common), fluctuating wages and uncertain futures 'making boards by hand only to return marginal monetary benefits. Below the

surface are deeper concerns revealed by hand-shapers towards general working conditions, especially dwindling hours and insecurity. As Tony, an expert hand-shaper put it:

I get half the hours I got ten years ago. I worked forty-five hours every week ten years ago. Now it might only be twenty hours, stretched over the week. It's almost unheard of to find a permanent hand-shaping job anymore because it's all casual and seasonal gigs. I work for a café in [name of town removed] that caters for the tourist business to make up for it [loss of income]... I get more hours in the busier times of the year maybe close to forty a week and I'm busy hand-shaping for locals and a few returning tourists, but it's expected that you drop everything else because that's the job and you've got to put up with it, or they'll find someone else.

Wayne, an experienced hand-shaper working for more than twenty years, described a similar culture of informality, resulting in labour precarity (cf. Brophy and de Peuter 2007; Gill and Pratt 2008):

In the industry we now call it nervous November because you're waiting around to see how busy it will be for the summer. You start to get nervous by late November that the phone won't ring, and last summer it didn't. We were sitting here twiddling our thumbs, the six of us in the factory and just didn't have any work. We got sent home basically and that was tough.

Dean, in his late 40s, working in the Illawarra, admitted:

Well I wouldn't suggest this job to anyone. It's like a dying art. I'm casual and have to contract to other workshops. That is something I see now a lot across the industry. You don't have any stability and you don't even know what your pay will be this week, because it depends on whether they [workshop] say 'come in'. I worked a full week last week, forty hours and then this week, well it's Thursday afternoon and I've worked probably fifteen hours in four days. I don't buy the excuses about orders varying. Computers have taken over, and the labels only use us [hand-shapers] to sort of keep up appearances.

According to another factory worker in Australia, the supposed 'lifestyle time' offered by intermittent and casual work is a myth perpetuated by

business owners in the surfboard industry to persuade workers to accept fewer hours:

[In the workshop] we call it fluffy talk because you hear these promises from workshops all the time: 'ah, there's no work the next few days, so you can go surfing'. Or: 'yeah you can take the missus for a trip'. Well, it's all a joke because you can't. That costs money! [laughs] Instead you end up contracting yourself to other workshops, running all over the place to pick up some other work on the side.

The seasonality and precarity of hand-shaping employment is not viewed as 'freedom', 'lifestyle time' or 'flexible', especially for older hand-shapers. While surfing was indeed a lifestyle and passionate leisure pursuit, less time working was potentially more time surfing, and hand-shapers do not buy into ideas of creative work as freedom, ideas typically spread by boosterish proponents of 'flexibility' in work (Sennett, 1998). While legendary stories pervade surf culture about times when Rip Curl or Quiksilver factories were empty because the surf was good and employees had taken to the local line ups, this is simply no longer the way things work. Famous shaper Geoff McCoy lamented during a tour of his workshop:

Look, the surfboard industry, I can guarantee you this, Andrew: it's a very unique industry. It shouldn't be called an industry. If you bring business ethics into the surf industry you're going to eat shit. It doesn't work like that.

Why then, did hand-shapers persist with manual, lowly paid, increasingly insecure and time intensive jobs? This was in large part due to emotional dimensions and pride in making things:

It's why we do it: because we see physical products come out from our work. All of us, glassers, sanders, polishers, artists, shapers, we all get to see a *physical* product come out from our work. Guys sitting in offices designing ships, it takes them years before it manifests, whereas we see a product within a couple of days, there it is, a beautifully finished board. That's what keeps you going, it's the creativity and the beauty of the product that keeps inspiring you (Bob McTavish, Byron Bay).

In the face of corporatisation and mechanisation, hand-makers remain true to the mythology and art of surfboard-making, commitments that provide mediocre financial rewards but gratifying emotional pay-offs.

Conclusions

In the early 21st century the high Australian dollar has undoubtedly made Australian manufacturing less competitive: wages and costs are comparatively higher than overseas and, combined with weak economic conditions in the United States, Europe and Japan (incidentally the three largest export markets for Australian surfboard-makers), products made by Australians necessarily struggle to sell. Our aim has been to dig deeper than one-line explanations by economic rationalists of the future of Australian manufacturing, to observe in the case of the surfboard industry, more complex dynamics within industries and regions that explain current vulnerabilities. Ours is only one of a raft of possible critiques ó but by focusing on the practices and experiences of making things *within* Australian industries and regions, we have sought to provide evidence to counter gross generalisations and the sense of inevitability and powerlessness in the debate.

An important element of the dynamics of the surfboard-making industry is to emphasise its cultural roots: in the case of surfboard manufacturing, its informal, subcultural origins in the 1960s lead many to describe it as open for exploitation, a ‘cowboy culture’ where it is uncool to talk of contracts and marketing plans. A particular culture of industrial relations prevails too ó akin to other creative and design-based industries ó where ‘doing it for the love of it’ is cited frequently as an excuse for poor pay, conditions and future prospects (Gibson, 2003). If surfboard-makers were rational economic actors they would have packed up, *en masse*, decades ago.

Instead, what keeps workshops going despite slim margins is this very connection to surfing, to local surfing culture, loyal customers and the social interactions and pleasures that come with the job. Making things by hand instils pride and respect. Computerised-shaping technologies by contrast have altered the relationships and interactions amongst workers, and between makers and customers. Although motivated by the desire for increased efficiencies, such technologies are not alone likely to secure the on-going viability of workshops. Power has consolidated in surf

retailers who service beginner markets, and they in turn depend on maintaining relationships with the corporate brands more than small local workshops. Hand-shake agreements, broken promises, backstabbing and deteriorating conditions of work have become commonplace. It is, therefore, little wonder that few young people can be found to replace ageing shapers in local workshops. Reflecting Fine and Leopoldø (1993) point about the politics of production-consumption relations under capitalism, such issues within the life and journey of commodities such as surfboards are critical, arguably more so than horizontalø macro-conditions (for a similar argument made recently regarding the automotive industry, see Spoehr, 2012).

If surfboard-making is to survive in Australia, it will do so based on a combination of local subcultural loyalty and personal passions of key individuals ø not just because of the machinations of the national currency. Hand-made surfboards are always likely to retain a subcultural *cachet* ø and this in turn is likely to rely on reputations associated with particular workshops and iconic surfing places. Surfboard-making is both linked to, and defined by, coastal specificity. The worldø most talented and well-regarded surfboard businesses have been independent and informal workshops located in places where the waves are of high quality and surfing has become a culturally-ingrained leisure pursuit. The question is whether this is enough to ward off the industryø proclivity towards short-term survival at any cost (including replacing immensely skillful craftsmen with computers) and reluctance to embrace newcomers.

Whatever the outcome, politicians, commentators and think-tank øexpertsø currently debating the future of manufacturing in Australia would do well to consider some of this texture of the everyday constraints, pleasures and challenges of making things. The Australian surfboard industry is more than an idiosyncratic case: other sectors troubled by a high dollar, from steel to cars, also have their own challenges and opportunities, internally and regionally. Closer mapping of such challenges and opportunities is critical, before decision-makers jump to conclusions and forsake the making of things for which Australian regions and workers have distinct talents.

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