

Thinking through the Pilbara

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ABSTRACT

Mainstream, place-based theories of economic development presume that there is a common set of stages of economic development that all territories (should) pass through. This perspective presents 'resource peripheries' like the Pilbara as deviations from this norm. Based on a brief visit to the Pilbara, and drawing on economic geographical concepts of the socio-spatial dialectic and socio-spatial positionality, I contest such a 'northern' reading of development possibilities. Thinking through the Pilbara, I identify two substantial shifts in socio-spatial positionality. As the Pilbara has become more interconnected with the now increasingly northeast Asian core of globalizing capitalism, Western Australia has become increasingly resource oriented and prosperous; a strategy to be assessed on its own terms rather than through Rostowian eyes. The emergence of FIFO labor has been accompanied by novel geographies of connectivity within Australia, shifting positionalities and creating distinctive regional development patterns and challenges. These Western Australian issues pose questions also for resource peripheries elsewhere.

Keywords

Resource peripheries, socio-spatial positionality, connectivity-based theory, regional economic development, fly-in fly-out labor, mining, the Pilbara

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“Studying resource peripheries can provide new insights into the global economy” (Hayter, Barnes and Bradshaw, 2003)

In the summer of 2012, I had the good fortune to spend ten days touring the Pilbara—my first visit to Western Australia. Invited as an external expert, I rapidly realized I was the naïf. This remains a steep learning curve, notwithstanding the helping hands of workshop participants, local experts and the largely Australian scholarship on the region. In contributing to this special issue on the Pilbara, I seek to place developments there within international debates about the nexus of geography, the economy, resources and development. I offer no original contribution to the extensive empirical scholarship on the Pilbara and Western Australia. Instead, I argue that thinking through the particular characteristics of this place raises issues that have been elided in these international debates. The Pilbara is only one such ‘resource periphery’; the insights highlighted here could well have emerged by thinking through similar places (e.g., Queensland’s coal fields, Indonesia’s rainforests, Alberta’s tar sands). Nevertheless, my encounter with the Pilbara is the particular inspiration.

In the spirit of Hayter et al. (2003), I seek to utilize my encounter to ‘theorize back’ the relationship between resources and economic geography. Much of what I have to say may seem obvious within Australian scholarship, yet I argue that it challenges common perceptions, elsewhere, that Euro-American theory suffices to explain the world. Indeed, this special issue was rejected by two well-known European geographical journals, as having little interest for an international audience. Against such metrocentricity (Bunnell and Maringanti, 2010), Phil O’Neill and Pauline McGuirk (2005) call for an Antipodean theory of space (for similar South Asian and Palestinian pleas, see Chaturvedi, 2003; Yiftachel, 2003). Calls for theorizing ‘from the south’, including Australia, have gained

broader traction (Connell, 2007; Comaroff and Comaroff, 2011), and I pursue a similar goal. This ambition is replete with traps, of course. As a fly-in fly-out author, my own positionality will necessarily seem shallow by comparison to the depths of regional knowledge (a tension inevitably reproduced also between, say, white and indigenous perspectives, cf. Rundstrom, 1995; Howitt and Suchet, 2004). Yet there is no definitive way of thinking through any place, each perspective suffused with the positionality and engagement of the observer. I offer this analysis, therefore, in a spirit of trepidation but also provocation, seeking to catalyze other such analyses, here and elsewhere.

Thinking through place is paradoxical. Places are particular: What insights can any place—particularly one as little known (to outsiders) as the Pilbara—bring to global processes? Yet place-based explanations of developmental success and failure are commonplace in mainstream development and geographical economics. Jeffrey Sachs and Paul Collier discuss how ‘geography’ can be a barrier to capitalist development: Places that are tropical, land-locked or ethnically diverse are argued to be disadvantaged (Sachs, Mellinger and Gallup, 2001; Collier, 2006). Dani Rodrik and Daron Acemoglu reject geography, preferring a different place-based explanans: the quality of territorial governance (Rodrik, Subramanian and Trebbi, 2004; Acemoglu and Robinson, 2012). Delving deeper into the history of development thinking and geography unearths place-based explanations (now creditably discredited) emphasizing culture/race (Peet, 1985; Blaut, 2000).

Contesting such place-based thinking, geographers have taken what Doreen Massey dubbed a relational approach. In this view, the Pilbara’s make-up and economic trajectory are shaped by how people and events residing/occurring therein are shaped by

connections with elsewhere, not just by local conditions (cf. Massey, 1999; 2005). Taking the spatialities of globalizing capitalism seriously, then, means attending also to the complex, unequally empowered nature of these connectivities, between places and across scales, and their geographical implications. I call such assemblages of connectivities socio-spatial positionality. Attending to the Pilbara's socio-spatial positionality, intersecting with those of larger and smaller-scale places, bring insights into trajectories of resource-based economic development elsewhere.

How we think through place has profound implications for how we make sense of geographies of development. Place-based explanations, neglecting the positionality of place, are redolent of the notion that every territory is located on a common, teleological trajectory of development, distinguished only in terms of how far they have progressed. This is Rostow's idea, still influential in development economics, of *Stages of Economic Growth* (Rostow, 1960; see also Bill Warren's Marxist theory of global development: Warren, 1980); it positions Europe and North America as being most advanced, with most (peripheral, 'southern') places left behind and in need of help to catch up (Blaut, 1993; Chakrabarty, 2000). In this view, the Pilbara is subject to the same laws of development as everywhere else, trivializing thinking through the Pilbara to simply acknowledging how place-based contextual conditions modulate such 'laws of economics' (cf. Sayer, 1986). Sachs terms this clinical economics; Rodrik refers to one economics but many recipes (Sachs, 2005; Rodrik, 2007). By contrast, attending to positionality creates space for realizing that different development trajectories are relevant, indeed necessary, in different geohistorical contexts (Massey, 1999; Sheppard, 2011b).

The paper is subdivided into three sections. First, I summarize the concept of socio-spatial positionality and its applicability to making sense of globalizing capitalism. Second, I discuss the geography of Western Australia and the Pilbara's dramatic repositioning from the periphery of the world economy toward its core, and how this helps us appreciate why their regional economic trajectories can legitimately differ from the common-sense notion that development means transitioning from a primary to a secondary and then a tertiary sector oriented economy. Third, I trace how the emergence of fly-in fly-out (FIFO) labor in the Pilbara's mining industry further complicates such positional shifts.

1. Socio-spatial positionality and the economy¹

Originating in feminist theory, positionality describes the social situatedness of subjects "in terms of gender, race, class, sexuality and other axes of social difference" (Nagar and Geiger, 2007: 267). Differently positioned subjects have *distinct identities*, experiences and perspectives, shaping their understanding of and engagement with the world, framing their ontological and epistemological stance and thereby their actions. As Mohanty (2003) emphasizes, positionality is *socio-spatial*, depending on a subject's geographical as well as social location. The socio-spatial positionality of a subject is a *relational* attribute, reflecting unequally empowered connections and interactions with other differently positioned subjects. Difference matters, since each positionality is distinct, but so does inequality. Although no particular positionality is presumed to be the norm from which others should be judged, *unequal power relations* mean that those occupying powerful positionalities can assert their norms over others. Everyday practices routinely *reproduce* pre-existing

¹ This section summarizes arguments in Sheppard (2002; 2006) and Leitner et al. (2008).

positionalities, giving them a durability that seemingly naturalizes them. Yet, even powerful subjects' practices, imaginaries, relations of power and situated understandings can be *contested and re-negotiated*, occasionally significantly transforming the landscape of socio-spatial positionalities.

Applying this framework to the Pilbara, and to economic geography more generally, requires not only incorporating the spatial within social, but also extending our conception of 'subjects'. With respect to the former, the capitalist space-economy can be conceptualized in terms of a socio-spatial dialectic. "Economic actors are neither fully rational nor autonomous. Their interests and preferences are shaped by their sociospatial position, their knowledge is imperfect, and they engage in collective action. Their actions shape, but also are shaped by, the social structures and cultural context in which they find themselves. As Marx quipped, they make the world, but not a world of their own choosing" (Plummer and Sheppard, 2006: 622). With respect to the latter, Bruno Latour has influentially argued that subjects need neither be human nor capable of intentional thought, coining 'actant' to capture the more-than-human agency that co-constitutes the world, including the economy (Callon, 1998; Latour, 2005). Agency is thereby associated with entities ranging from microbes and tools, to climate dynamics and geological processes, also congealing through places.²

Applying socio-spatial positionality to territories, core regions tendentially are advantaged relative to peripheral ones, shaping conditions of possibility in the latter. Notwithstanding the persistence of such positional inequalities, however, global history includes moments when long-standing patterns of uneven development and positional

² Latour's actants are heterogeneous entities whose agency is shaped through their relations with other actants.

hierarchies are upset, dramatically altering trajectories of uneven geographical development (Wallerstein, 1979). Our understanding of the exact conditions under which such restructuring occurs is imperfect, but would be vital to an improved understanding of the out-of-equilibrium dynamics of globalizing capitalism.

Socio-spatial positionality is important to my argument in three senses. First, the global positionality of Western Australia and the Pilbara has changed rapidly, increasingly oriented northward rather than eastward (Tonts, personal communication). What insight does this repositioning bring to the region's development trajectory (section 2)? Second, the Pilbara as a regional assemblage emerges at the intersection of the agency of a variety of actants, particularly FIFO labor. What further positional shifts follow (section 3)? Third, is my positionality as a particularly situated interpreter of these processes (Haraway, 1988). In which ways does my analysis resonate (or not) with those of differently positioned knowledge producers?

2. Western Australia: From periphery to core

One feature of the Pilbara, thought-provoking for me as visitor to what I thought of as a remote place, is its changing socio-spatial positionality within globalizing capitalism. When the British began to settle the 'blank spaces' of what they dubbed Australia, it was literally the antipodes—as far from London as one could get. Botany Bay was useful as a staging post along the Roaring Forties of the southern Pacific, away from Dutch and French fleets, where surplus 'criminal' populations could be exiled but also contribute to the settlement (Hughes, 1988; Malouf, 2003). Remoteness became a deep-seated element of the white Australian geographical imaginary (cf. Shute, 1957; Blainey, 1967); Western Australia was

constructed as the periphery of this periphery, at the opposite end of a seemingly largely useless continent, initially too remote even for convicts. “From the beginning, Western Australia’s development has been shaped by its geography, with the ‘tyranny of distance’ having had a large influence on both its economic development and culture” (Wilson, Layman and Christmas, 2004). After Swan River was settled in 1829, colonists had to practice self-sufficiency (leavened by indentured labor). Only wool could bear the high export costs of transportation to Britain, eventually complemented by lightweight sandalwood to China via Singapore, and whaling. In 1845 its white occupants successfully petitioned the British government to send convict labor (bringing capital, perennially in short supply, as convict maintenance payments). The Pilbara remained in turn in Western Australia’s periphery, occupied by indigenous populations and a smattering of white pastoralists arriving in the 1860s. The first resource boom connecting the region to the broader world was the 1885-1914 Kimberley gold rush. Yet the Montebello Islands, 100km from Port Dampier, were considered remote enough in 1957 for Britain’s first atomic bomb test.

By the mid 1960s, the Western Australian regional economy had begun to diversify away from primary commodities, with the state’s population rapidly urbanizing around Perth. By 1963-4 manufacturing (largely serving the state’s mining sector and households) “peaked at around 46% of total State primary, mining and manufacturing production” (Wilson et al., 2004: 21). Two closely related events interrupted this diversification, however: Lang Hancock’s ‘discovery’ of the Pilbara’s vast hematite deposits in 1952, and

the Australian government lifting its 1938 embargo on iron ore exports in December 1960.³ Production at Pilbara's Tom Price mine began in 1968, and exports to Japan and Europe drove rapid expanding iron ore output in the Pilbara, from 10.1Mta (tonnes per annum) in 1967 to 87M by 1974

(http://www.dmp.wa.gov.au/documents/statistics_release/ironore2011.xlsx). When Japan's economic boom collapsed in 1991, it was by far the biggest export destination for production that had reached 114 Mta. Fortunately for the Pilbara, however, this potential crisis was averted by Korean demand but particularly Chinese industrial expansion. Exports to China increased from 50 Mta in 2002 to 298 Mta by 2011, as the world iron ore spot price almost tripled from \$49US/ton to \$140 (Connolly and Orsmond, 2011), creating conditions for a classic resource boom. Growing equally fast, albeit less evident to a casual observer (except at the port facilities we visited) is the growing offshore gas and liquefied natural gas industry, predominantly connecting the Pilbara with Japan and Korea. Western Australia's rate of growth in the 2000s, averaging close to 5% per annum, exceeded the national average in all but two years, and particularly after the 2008 global crisis. Its unemployment rate was below the national average and declining (Department of State Development, 2012), and the balance of net migration between Western Australia's and Australia's other states turned positive, increasing thereafter (Australian Bureau of Statistics, 2008). The regional consumer price index also exploded.

Conceptualizing proximity as the intensity of connectivities rather than physical distance, the socio-spatial positionality of the Pilbara, and Western Australia, have dramatically shifted. Fifty years previously, the Pilbara was represented as the periphery of

³ Ostensibly because "its Geological Advisers...raised serious doubts as to the adequacy of Australian iron ore resources for Australia's own need" (McEwen, 1940).

the periphery of a peripheral Australia—tyranny of distance cubed. With the geographical core of globalizing capitalism shifting toward northeast Asia, it now finds itself close to the core. Yet this is so in profoundly geographically uneven ways. I experienced this directly: Not only in terms of Perth's steep prices, but also in visiting the Pilbara. Driving through the region, desert landscape, seemingly of little use to capitalism and remote as ever, suddenly dramatically changes. Gashes into this landscape—open pit mines, railway lines, settlements—mark where occasional profitable localities within the Pilbara have become closely connected, wormhole-like, with the emergent Northeast Asian core (cf. Sheppard, 2002).⁴

The Pilbara, then, is a case study of the economic dynamics that can accompany the rapid convergence of a 'resource periphery' toward the core. Yet it has developed in ways that contradict stage-theoretic interpretations of globalizing capitalism. Rostow's (1960) 'non-communist manifesto' still overshadows (cf. Sachs, 2005) mainstream conceptions that capitalist development entails a teleological trajectory—a sequence of stages along which all territories must pass: from traditional/pre-takeoff (where the primary sector dominates), to maturity (manufacturing) and eventually post-industrial 'high mass consumption'. In this view, proximity to the global core should accelerate this drive toward 'maturity'. By every conventional measure of regional economic performance the Pilbara and Western Australia benefit from these intensified connectivities. Yet the share of

⁴ Western Australia has a more diversified palette of mineral resources than in the Pilbara, meaning that it is less dependent on one or two global markets; fluctuating demand for these sets in motion a patchwork economy of shifting uneven intra-regional development (Plummer and Tonts, 2013).

manufacturing (mostly-mining related anyway) in Western Australia's gross state product, relative to that of primary commodities, has declined.^{5 6}

2.1 Theorizing resource economies

The two mainstream theorizations of the persistence of resource economies in globalizing capitalism, the Dutch Disease, and the resource curse, conceptualize it as distorted development. The Dutch Disease, coined by *The Economist* in 1977 to describe the effects on the Netherlands of the discovery of large offshore natural gas deposits, seeks to explain the experiences wealthy capitalist countries that turn toward resource extraction. The classic formal model (Corden and Neary, 1982) modifies Heckscher-Ohlin 'modern' trade theory. With the usual artificial assumptions of full employment of production factors, balanced trade and static equilibrium, they identify two consequences of a once-and-for-all improvement in the conditions under which a primary commodity is produced. 'Resource movement' describes how it draws resources from the secondary and tertiary sectors into the primary sector, implying deindustrialization. 'Spending' describes how higher real wages from the resource boom boost consumer spending on services, often reinforcing but on occasion counter-balancing deindustrialization (depending on assumptions about inter-sectoral factor mobility). A heroic imagination is required to justify the plausibility of these

⁵ In 2011-12, mining constituted 33% of Western Australia's Gross State Product, manufacturing was 5%, construction 12%, and producer services approximately 15% (Department of State Development, 2012). The region long has retained close connections also with eastern Australian capitalism through the producer services and construction sectors, but this may be attenuating. Foreign producer service firms now locate their Australian headquarters in Perth (Tonts, personal communication), and we observed engineering and other technical inputs from Germany and Thailand.

⁶ The end of import substituting industrialization in Australia also contributed to a nationwide decline in the share of manufacturing in GDP during early 1980s (Webber, personal communication).

underlying assumptions for a rapidly growing Western Australia whose trade is far from balanced.

The resource curse seeks to explain why low income countries, specializing in the production and export of primary commodities (particularly minerals and fuel), fail to achieve economic prosperity (Auty, 1993).⁷ Subdividing industrialization into three sub-stages, primary-import substitution, labor-intensive manufacturing, and capital- and skill-intensive manufacturing, Auty (1994) seeks to explain why the wealth generated is not invested in the industrialization necessary to move along Rostow's path. His explanation, channeling Rodrik and Acemoglu, emphasizes governance as the key place-based attribute:

[R]esource-rich countries may squander their resource advantage because an overly optimistic estimation of their prospects leads to the pursuit of lax economic policies.... [R]esource-poor countries, mindful of their marginal position, may compensate...by adopting firmer and more farsighted policies. (p. 12)

The primary sector of a richly endowed country may initially be able to carry the burden of an uncompetitive manufacturing sector, but as the relative size of the primary sector declines, the manufacturing sector must increasingly compete.... A weak manufacturing sector will be ill-placed to do so and the longer it has been cosseted, the more resistant to change become the entrenched interest groups which benefit from protection and block reform. In this way a rich natural resource endowment can trigger a set of policy choices which, within little more than a decade...can transform the resource bonus into a curse. (p. 16)

A third theory, predating these but receiving limited attention in the mainstream literature as the 'staples trap' (e.g., Auty, 2007: 629), is Harold Innis' (1930) staples thesis. A Canadian economist, frustrated with theories from elsewhere, Innis sought to develop an approach better suited to making sense of Canada's persistent specialization in primary commodities within North America (Hayter and Barnes, 2001). Staples theory also seeks to

⁷ It also has been applied to Australia (Goodman and Worth, 2008; Langton, 2010).

explain whether a resource-oriented economy can successfully diversify, emphasizing the contextual interesection of geography, institutions and technology.

In this 'Innisian triad,' Canada's geography is distinctive in terms of the peculiar nature of Canadian resource conditions (size, quality, accessibility), and in the particular core-periphery relations that have characterized the evolution of Canada's global role and its internal political economy. Canada's institutions are distinctive because of the unusually powerful role played by governments in economic development, for example, in financing infrastructure, and in reliance on large business organizations, especially foreign-owned business, itself a favoured goal of public policy. Finally, technology is distinctive primarily because it comes from elsewhere, even when its developers are Canadian. (Hayter and Barnes, 2001: 37)

Whereas the Dutch Disease and resource curse explanations focus on place-based attributes (resource endowments, governance), staples theory pays more attention to connectivities: core-periphery relations, foreign investment and imported technology.⁸

Further, the convention in Economics that resource endowments are an exogenous explanatory factor has been challenged, inter alia, by a generation of economic geographers showing how sociocultural, political economic and technological processes profoundly shape how, where and when a particular feature of the non-human world is commodified and accessed, thereby becoming a resource (Rees, 1990; Swyngedouw, 2000; Whatmore, 2001; Castree, 2005; Bridge, 2009).

2.2 The Pilbara perspective

Thinking these critiques through the Pilbara, how does the dramatic repositioning of certain localities from periphery toward the core illuminate our understanding of resources and spatial economic dynamics? I argue that three insights can be drawn,

⁸ For an application to Western Australia, see Tonts et al. (2013). By contrast, mainstream economics' discussions of staples theory only recognize place-based features (Chambers and Gordon, 1966; Altman, 2003).

concerning shifting positionality and resources, developmental trajectories, and dependence and wealth.⁹

The Pilbara's massive deposits of high quality hematite and LNG are not simply a given resource endowment. First, their accumulation here reflects slow-moving broad-scale spatio-temporal geological dynamics, shaping subsequent local human-oriented possibilities. Path-dependent technological developments, emerging during the industrial revolution from the clustering of coal and iron ore deposits in Europe (conditions of possibility also shaped by global colonial relationships), mutating worldwide, also shaped demand for iron and fossil fuels. The presence of a dynamic east-coast oriented Australian political economy, including mining corporations, labor unions and the Federal state, has been crucial. Making the Pilbara accessible to China, Japan and Korea also is a socio-economic process. China could source iron ore domestically, but more distant Australian ores were more attractive (Wang, Webber and Ying, 2002: 52). The Pilbara's assemblage of capital-intensive extraction technologies, skilled labor, mining towns and labor camps, massive ore trains on dedicated rail lines, offshore drilling platforms, harbors, ore and natural gas freighters also play a crucial role. None of this would have been possible, however, without a legal structure that initially enabled land-based resources to be alienated from indigenous inhabitants, reflecting the racialized attitudes accompanying European settlement constructing these as blank spaces awaiting alienation for proper usage under the aegis of market mechanisms, but also more recent shifts recognizing

⁹ My principal focus in this section is on larger-scale and regional aspects of socio-spatial positionality: Western Australia's and the Pilbara's shifting position with respect to the global economy. Intra-regional aspects are taken up in section 3.

indigenous land rights, and compensatory payments and employment schemes in the mining industry.

There are multiple ways in which this construction of the Pilbara as a resource economy reflects shifting positionalities, including: Plate tectonics, European colonialism, China's repositioning within the global economy, emergent transport and communications infrastructures, and the actions and cultural and legal status of Australia's pre-European inhabitants. The Pilbara as a place both reflects these shifts and cements them in place, a process that Massey (1984) dubbed geological layering. Some such features have massive durability, defining place, but nonetheless can dissipate as positionalities shift. The lifetime of the Pilbara's iron ore and oil and gas resources will depend on multifaceted local and non-local processes, which can alter unpredictably. Competition from other localities and geopolitical calculations can result in steel corporations sourcing their inputs elsewhere. New geographies of resource extraction will emerge, reflecting differentially empowered political, cultural and economic processes (cf. Mitchell, 2011). Shifting socio-cultural norms can drive a turn to recycling, and to manufacturing based on novel combinations of material inputs. We experienced a landscape that had been spectacularly altered in recent times, of seemingly unlimited resources forming a secure basis for Western Australian economic prosperity. It is important to remember, however, that miners often run out before the ore does: Chinese customers defaulted on contracts or delayed shipments of 4Mt of iron ore, with prices falling by 26% between early July and mid August of 2012 (Bradsher, 2012; Sarkar and Radford, 2012). BHP shelved expansion plans, and Fortescue Metals laid off 1,000 workers (Cleary, 2012). There is competition from Brazilian iron ore and Russian LNG.

Is industrialization necessary to secure resource-based gains? Mainstream economic thinking, stressing given place-based factors, suggests so. But economic geographical thinking questions the necessity or desirability of any teleological trajectory of capitalist development in a positionally uneven world (Sheppard, 2011b). Hayter et al. (2003: 19) see industrialization as the natural follow-up when the mines and miners run out, although in resource peripheries it takes “a form that often creates instability, crisis and dependence”. Others argue that capitalist industrialization can be all but impossible in a resource-dependent periphery, advocating disarticulation from globalizing capital (Frank, 1978). Others again criticize this position as buying into Rostow’s developmentalist imaginary of how capitalism is supposed to proceed (Escobar, 1995). Empirically, Dubai can be read as a case-study of how a oil economy can produce economic prosperity without industrialization—a combination of spectacular real estate developments and Dubai (re)positioning itself as a global transport, trading and Islamic finance hub. In Australia, Gibson et al. (2012) trace a skepticism that has emerged about whether Australia should be involved in manufacturing at all. They note how manufacturing is equated with China’s low-wage strategy in these discussions, seen as undesirable by comparison to minerals extraction and the knowledge economy. Beyond these are questions, also circulating in the Australian academy, about whether the economy should be, or even is, capitalist (Gibson-Graham, 2006). Obviously, this opening up to a multiplicity of potential economic trajectories, whose desirability and efficacy depend in part on socio-spatial positionality, raises more questions than I can possibly answer. Thinking through the Pilbara, within a state where industrialization in part preceded resource orientation, and where manufacturing has declined in relative significance even as it has become increasingly

connected into the core of globalizing capitalism, suggests that the Rostowian teleology is questionable.

Third, are questions of repositioning, dependence and wealth. The shifting trade relations driving changes in Western Australia's positionality cannot be read simply as win-win, as free trade proponents are wont to do. Sheng and Song (2008) have documented the increasingly asymmetric nature of the Australia-China trade relationship. Australia's dependence on China as an import partner tripled between 1994 and 2006, from 4% to 12% of Australian exports, whereas China's dependence on Australia fluctuates at around 1.7% of China's imports. China has a broad array of potential trading partners from which to draw minerals and fossil fuels and a broadening export palette, whereas Australia's resource-oriented export mix is narrower. Historically, trading primary commodity exports for manufactures has resulted in declining net barter terms of trade. All this potentially undermining the bargaining power of Australians relative to their Chinese partners (cf. Sheppard et al., 2009: 397, 405-410). Western Australia has a broad array of mineral resources, Australia even more so, and the Pilbara also has both fossil fuels and iron ore. Such diversity can hedge against losses for any particular resource, and Australia's terms of trade have improved on average since 2000 (Australian Bureau of Statistics, 2013). Nevertheless, there is a certain fragility, particularly for those dependent on the Pilbara's resource economy.

3. Fly-in fly-out labor

A second thought-provoking feature of visiting the Pilbara, for me, as we joined them on an early morning commuter flight from Perth to Paraburdoo and shared the Mermaid Hotel in

Port Headland for several nights, is the role and impact of FIFO mining and construction labor. FIFO labor originated in manning offshore oil rigs in the Mexican Gulf, spreading to offshore oil production worldwide. The Pilbara exemplifies the more recent trend, particularly in Australia, of FIFO labor for *onshore* production, where other labor market options exist. Initially deployed in gold mines with an estimated 3-5 years life cycle, land-based FIFO developed rapidly from the 1990s. By 2005, 45% of Western Australian mining employees were FIFO (38% of directly employed workers and 78% of contractors), projected to rise to as much as 80% of Australia's mining workforce by 2015 (Sibbel, 2010; House of Representatives, 2013). This emergent geography of labor is reshaping the socio-spatial positionalities of the communities it connects—with one another, the Pilbara's resources and thereby northeast Asia—and has triggered national debate (House of Representatives, 2013).

Previously, the Pilbara's remoteness from the labor markets surrounding Perth was mitigated the old fashioned way: Mining and construction labor was predominantly housed near the mines in camps or purpose-built company towns. In the 1980s, company towns were 'normalized', transforming "a community governed by a non-elected body...into a free enterprise based permanent community governed by a democratic structure...whereby publicly accessible (i.e. non-exclusive) services are transferred from private ownership...to public ownership by State or local governments" (Thomas et al., 2006: 1). This language is redolent of the 1980s neoliberalization that reshaped Australian regional planning (Tonts and Haslam-McKenzie, 2005) and labor relations. 'Workplace agreements' were introduced as an alternative to collective bargaining in 1993 in Western Australia, subsequently codified nationally in the 1996 Workplace Relations Act, as Australian Workplace

Agreements (AWAs). AWAs enabled mining companies to hire FIFO workers on individualized contracts, underwriting FIFO labor geographies despite union opposition.

FIFO labor has undermined labor activism (Cooper and Ellem, 2008; 2011). Whereas mining towns are classic spaces enabling unionization (Hudson and Sadler, 1986; Herod, 2001; Mitchell, 2011), FIFO construction and mining workers are hired as non-unionized independent contractors on AWAs, enabling management “to more easily control the shift start-times, and further maximize productivity through the use of individualised and decentralised bargaining” (Haslam McKenzie, 2010: 368). Notwithstanding some success pursuing multi-scalar strategies, unions struggle to regain their influence (Ellem, 2005; 2013). FIFO labor also reduces mining firms’ fixed and sunk costs of operating remote residential communities, including circumventing the fringe benefits tax on corporate expenditures for residential workers. With declining state support for these communities, families also are less inclined to migrate to new places of work (Haslam McKenzie, 2010; House of Representatives, 2013). FIFO also has been facilitated by the deregulation of Australian air transportation, enabling low-cost charter airlines to compete with Qantas’ Jetstar. Yet FIFO also offers highly-remunerated employment to those willing to put up with the ‘commute’, an attractive option particularly for young, single male workers.

As we experienced in Port Headland, FIFO labor is a highly masculinized, white, single workforce. 15% of resource sector workers are female (much fewer at the mine sites) and 2% are Indigenous Australians (House of Representatives, 2013). Sibbel (2010) provides sample statistics indicating that 45% of FIFO workers have a partner and children. The geographical separation between work and home created by FIFO has

triggered much debate about its implications for workers and their families. Sibbel's interview and survey evidence in Western Australia documents loneliness during separation, for both workers and their partners; difficulties in not being home for important family-related activities (births, deaths, medical emergencies, raising children); struggles in adjusting between work and home life, in socializing while home with co-workers on a different schedule, and in maintaining professional relations outside the mine; and challenges of maintaining face-to-face communication and bodily contact with partners. The implications of FIFO labor for working conditions, gender and family relations and communities remain unclear and under-researched (McIntosh, 2012); thinking through the Pilbara highlights this as an issue for resource peripheries with FIFO labor.

3.1 The Pilbara perspective

Thinking through the Pilbara, what does FIFO labor imply for the socio-spatial positionality of the corporations and communities bound up in the Pilbara's resource economy?

The *mining corporations'* resource exploitation and labor strategies connect the communities bound up in this economy in novel ways. The two Anglo/east coast Australian global minerals giants, Rio Tinto and BHP Billiton, dominate. Rio Tinto's revenues grew by 185% between 2006 and 2010 with operating margins of 33%; BHP Billiton experienced revenue growth of 125%, at 46% operating margins

(http://www.wikinvest.com/stock/Rio_Tinto_%28RIO%29;

http://www.wikinvest.com/stock/BHP_Billiton_%28BHP%29). Globalized positionalities

are shifting, however. The Hong Kong owned CITIC group is connecting its central and eastern Chinese steel factories with the Pilbara ore by developing a mine in the Maitland

River district, Hancock Prospecting is developing the new Roy Hill project with Korea's Pohang Iron and Steel Company, and the American oil giant Chevron is investing massively in offshore petroleum at Wheatstone (Tonts, personal communication). Turning to more domestically oriented corporations, dependent on national-scale developments, Gina Rinehart (Hancock's granddaughter) has led Australia's mining tycoons' ongoing trenchant opposition to the Federal mining tax on profits (Rourke, 2012), reduced from 40% to 30% after the demise of Kevin Rudd's premiership.¹⁰

The *cities and towns* entangled with the Pilbara's resource economy through the new geography of FIFO commuting, as well as other off-site labor (the Pilbara's ore trains are now remotely operated from Perth, <http://www.pilbararailways.com.au/FMG/fmg.html>), are now directly connected, via the Pilbara, to Northeast Asia. FIFO and drive-in drive out workers travel to the Pilbara for lengths of time that vary with the 'commuting' distance, ranging from nine days work and five off, to 28 on and seven off, earning an average of \$A2,269 weekly in 2012 (House of Representatives, 2013). Perth is the principal origin for the Pilbara's FIFO workers, supplemented by other communities in the southern and western parts of Western Australia as well as eastern states.

The reshaping of positionalities enabled by FIFO labor has connected selected communities, albeit unevenly, closely to the mine sites and northeast Asia, leaving others outside the network but nevertheless adjusting to the consequences. This novel geography has generated its own distinctive discourses to capture the phenomenon, a language of fly-

¹⁰ Her collaborators in this politics of influence are Andrew 'Twiggy' Forrest (whose Fortescue Metals Group holds the most mining tenements in the Pilbara), and Queensland coal mining billionaire Clive Palmer.

in, fly-out, fly-over, two-speed and hollow economies (Storey, 2001; Mitchell and Bill, 2006; Haslam McKenzie, 2010). Miners' home communities benefit economically from mining-at-a-distance, given the high FIFO salaries, workers' potential to spend generously on their families to compensate for their absence, and the extra local expenditures necessary to maintain a split family. Perth has drawn the lion's share of these gains: "Over the decade 1996–2006, direct employment in the mining industry grew 105% in Perth, but only 29% in regional Western Australia" (Haslam McKenzie, 2010: 357). However, benefits for some are accompanied by costs for others, shaped by households' and communities' different positionalities with respect to the mining industry. Rural communities connected to FIFO labor may lose critical person-power needed to keep local business and social institutions viable, and farming profitable (Haslam McKenzie, 2010; Tonts, 2010). Everywhere, households not connected with the mining industry face rapid price inflation that lowers their real income and spending power. The cycling of FIFO workers through communities can also undermine social cohesion.

The communities where FIFO workers reside during their work shifts face high living costs (for workers and residents), housing shortages, rapidly increasing but fluctuating populations of single workers cycling through, reduced social cohesion, social services costs for which FIFO workers cannot be assessed taxes, and higher rates of alcoholism, sex work, criminality and violence, particularly male-on-male assaults (Pick, Dayaram and Butler, 2008; Petkova et al., 2009; Haslam McKenzie, 2010; Carrington, Hogg and McIntosh, 2011). Local multiplier effects from the mining industry are highly attenuated, hollowing out these Pilbara economies: Corporations purchase the majority of inputs and services elsewhere, and workers' expenditures are directed largely to their

communities of origin. In a comparative study of three such communities, Lawrie et al. (2011) find that income inequality is increasing, although welfare dependency and unemployment are decreasing. They conclude that these dynamics vary with a community's positionality—its commodity base, location and socio-demographic structure.

Visiting the largely *Indigenous Australian* community of Roebourne brought home to me how a place in close proximity to the mines can remain seemingly disconnected. Roebourne reminded me of North American Indian reservations excluded from the connectivities created by the casinos boom (cf. Belanger, Williams and Arthur, 2013). The sole source of income in Roebourne, other than state services, seemed to be small businesses selling locally made art to white tourists (not only those passing by, like us, but also through quite sophisticated connections with global markets). Indigenous Australians, engaged in artisanal mining in the Pilbara after 1945 (Langton, 2010), were displaced by the large mining operations. Once the Mabo decision finally rejected *terra nullius* doctrine in favor of common law-based Aboriginal title, a statutory framework governing Aboriginal interests emerged (Langton and Mazel, 2008). Mining corporations began to sign land use agreements with Aboriginal populations, beginning with the Yandicoogina Regional Land Use Agreement between Rio Tinto subsidiary Hammersley Iron and the Gumala Aboriginal Corporation. In return for ceding permission to mine 26,000 km², the community received A\$60M over the twenty five year life of the mine, paid annually into a trust fund, as well as help with employment and business development. More than ten such agreements now exist (Langton, 2010).¹¹ About 15% of the Pilbara's residential population is indigenous, and mining companies also have invested considerable effort in creating mining

¹¹ To date, the details of such agreements have remained confidential.

employment opportunities for them. We observed little tangible impact when visiting the Pilbara, however.

The limited take-up of indigenous Pilbara residents in the mining and related industries remains a widely debated quandary. Studies have been commissioned to investigate this (e.g., Taylor and Scambary, 2005; Altman and Martin, 2009), and views range widely. Marcia Langton (2010; 2012) stresses the capabilities and willingness of indigenous workers to join the industry, pinpointing the failure as a ‘resource curse’, as state disengagement with Aboriginal communities undermines mining corporations’ indigenous initiatives (also in Canada, Storey, 2010). At the other end of the spectrum, Jon Altman (2005), following Gibson-Graham (2006), stresses how indigenous economies have an important, overlooked ‘customary’ component. In this view, Aboriginals may choose to persist with alternative economic livelihood strategies, hybridized with state and market processes, whose role and significance has been under-appreciated.¹²

4. Conclusion

Thinking through a place like the Pilbara raises significant questions about the ubiquity of theories of regional economic development. Restricting theoretical attention to place-based characteristics implies a teleological narrative of economic development, Rostow’s stages, distorted in resource peripheries by their abundant natural resources. By contrast, geographical political economy also emphasizes how socio-spatial positionality—the uneven connectivities connecting places—shapes economic outcomes, finding that capitalist space-economies are beset by shifting internal conflicts of interest and

¹² Langton (2012) criticizes such interpretations for representing indigenous Australians as unable to participate in the modern economy.

contradictions (Sheppard, 2011a). Visiting the Pilbara, I was struck by dramatic shifts in positionality—connecting parts of the Pilbara with Northeast Asia, and with communities across Australia delivering FIFO labor. In this paper I have sought to trace out the implications of these shifts.

As the Pilbara has found itself increasingly connected with northeast Asia, its peripherality with respect to European capitalism has become irrelevant. Yet its integration into the relocating core of globalizing capital has not meant advancement along the Rostowian sequence from primary to a manufacturing and post-industrial economy. Quite the contrary: Increasing connectivity has been accompanied by a reinforced resource orientation. Whereas place-based theorizations present this as a distortion, trap or curse, thinking through the Pilbara challenges such presumptions. Endowments are made, not inherited, through a combination of economic, political, cultural and legal processes operating across multiple scales. Consideration of differentiated and shifting positionalities implies that there is no one ‘natural’ trajectory to development for the Pilbara to follow: rather, its distinctive experiences are worthy of consideration in their own right. They entail certain vulnerabilities, shared over the centuries by other primary commodity exporting economies, but it does not follow that industrialization is the answer.

The emergence of FIFO labor has produced positional shifts at the sub-national scale: A space-spanning labor geography through which Perth and other seemingly distant communities are intimately connected with the mines and resource settlements of the Pilbara (and thence with northeast Asia). Transnational and Australian mining corporations have prospered, with the former less vulnerable to Commonwealth policies and working with Aboriginal populations. The various communities of Western Australia

and beyond experience novel costs and benefits: a 'punctuated' regional economy in which connected places and people may prosper, even as disconnected neighbors do not. These highly heterogeneous experiences reflect the differentiated positionalities of communities and residents. Indigenous communities, notwithstanding recognition of land rights and having negotiated substantial support from mining corporations, too often remain seemingly disconnected from the Pilbara's resource economy.

Thinking through the Pilbara raises many more questions than it answers, but the significance of these questions, here and elsewhere is suggestive of the insights to be gained from geographically situated analysis.

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