

The Labor Market Consequences of a Rapid Climate Transition^a

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^aThe views and opinions expressed are those of the authors alone and do not necessarily reflect those of the Central Bank of Chile.

Overview

- Quantitative paper on the labor market consequences of climate change
 - Quantify how the speed of transition from high to low emissions technologies will affect workers
 - Rich framework: directed search, skill heterogeneity, skill accumulation, endogenous separation
 - Timely and crucial topic with an amazing implementation
- Strategy of the paper: How to quantify such a challenging question?
 - MRPL is sufficient to characterize workers' labor market outcomes
 - Government can implement any arbitrary path of MRPLs using its subsidies
 - $\Rightarrow$ Proceed sequentially: Focus on distributional effect of MRPL paths on workers
 - Ignore: Conditional on labor effects, cost-benefit of implementing a particular MPRL path
 - $\Rightarrow$ Positive analysis that takes MPRL as given $\Rightarrow$ Tractability for measurement
- Will focus my attention on three types of comments
 - I. Which theory ingredients and isomorphisms
 - II. Taking the model to the data
 - III. Main insights

Disclaimers

1. Not labor-macro model expert $\Rightarrow$ Comments from trade and structural transformation perspective
2. Results are still in the making $\Rightarrow$ Focus on strategy and direction of the paper rather than numbers
3. Paper does not bring new theory $\Rightarrow$ Goal: which theory ingredients and quality of measurement
 - Although this is not entirely clear from reading the paper, but it is what I inferred
 - “All models are wrong, some are useful” (George Box)

I.a. First Isomorphism: Structural Change

- Paper would benefit from more justification of which model ingredients are relevant for the goal
 - Will discuss this in the context of isomorphisms with other literatures, a.k.a., the ones I know
- First isomorphism: Strategy of the paper similar to structural change papers
 - Take as given path of sectoral productivities and evaluate labor consequences of productivity changes
- $\Rightarrow$ One way to summarize the paper: Structural transformation with frictional labor market block
 - Useful to understand better the scope of the endeavor (maybe also to simplify the exposition)
 - Can be actually framed as a contribution to the structural change literature
 - Useful also to draw insights and benchmark the analysis/results
 - Some differences, e.g., ignore demand-side mechanisms such as non-homotheticities
- $\Rightarrow$ It is all about which labor market frictions are picked
 - I.e., which margin of adjustment is allowed for

I.b. Second Isomorphism: Trade

- In many ways, goal is similar to understanding labor consequences of China shock
 - Shift in relative sectoral productivity that induce frictional labor reallocation
 - Similarities of the shock:
 1. Fast: Negative impact happened within a decade, recovery within two decades
 2. Potential impacts on many workers: Baseline of 17 million manufacturing workers in 1999
 3. Policymakers decided the pace of the transition: WTO accession, now trade war
 4. Geographic concentration of affected sectors $\Rightarrow$ Geographic concentration of the shock
- The advantage of this isomorphism is that we already know a lot about the economics of this shock
- $\Rightarrow$ Useful in terms of help in guiding which model ingredients might be relevant
- Also, begs the question: Do we need a new model relative to CDP, Dix-Carneiro, Traiberman, etc?
- Maybe the multidimensional heterogeneous skill accumulation is new relative to the China literature, but is this the relevant margin for this paper?

I.b. Second Isomorphism: Trade and Key Empirical Findings

- Some key findings from that literature (ADHJS, 2025)
 - Employment in trade-exposed places recovers after one decade, then overtakes
 - Manufacturing declines continually; Emp/pop remains depressed despite job growth
 - Space: Labor markets rebuild through different workers, different sectors, generally lower earnings
 - Workers: Not taking jobs in other places, not moving to non-manuf, not dropping out of labor force
 - Generational recovery: New workers enter, exposed workers do not rebound
 - Declining manufacturing reflects ↓ inflows of young, native-born, white, non-college-educated men
- ⇒ Trade model challenge: No worker reallocation across space, across sectors, to non-employment
- New margins: Entry of new workers (the young and immigrants)
- ⇒ Challenge for this paper: “workers who participated in the recovery were not those who initially bore its costs” (ADHJS, 2025)
- ⇒ This paper would underestimate the costs because it will probably overestimate the transition to other sectors, but also miss the main margin of adjustment

I.b. Second Isomorphism: Trade and Margins of Adjustment

- If goal is to measure the impact on workers initially in exposed sectors, then why focus so much on transition to clean sectors?
- Maybe the relevant transition is to non-tradable services because they might pick up the slack?
- I did not see whether this is true: How much transition is there in the data to non-clean sectors?
- Why not treat non-clean sector similar to the clean sector, albeit with different parameter values?
- Authors discuss how sorting of workers across status is influenced in a frictionless labor market
- Paper would benefit from discussing this in the context of the labor frictions as well
 - Are non-linearities similar when adding labor market frictions? Which is their key force

II.a. Taking the Model to the Data

- Key question then: Are the China-shock facts relevant for the climate transition?
- If not, can one produce similar facts to guide model ingredients of labor adjustment?
 - Actually same shift-share design and data as ADHJS can be used for the climate transition
- Would be great for the paper to have some of this
 - What have we learned from the first 20 years of the climate transition?
 - Not entirely clear in the paper other than aggregate changes in employment shares between sectors

II.b. Taking the Model to the Data: Current Strategy

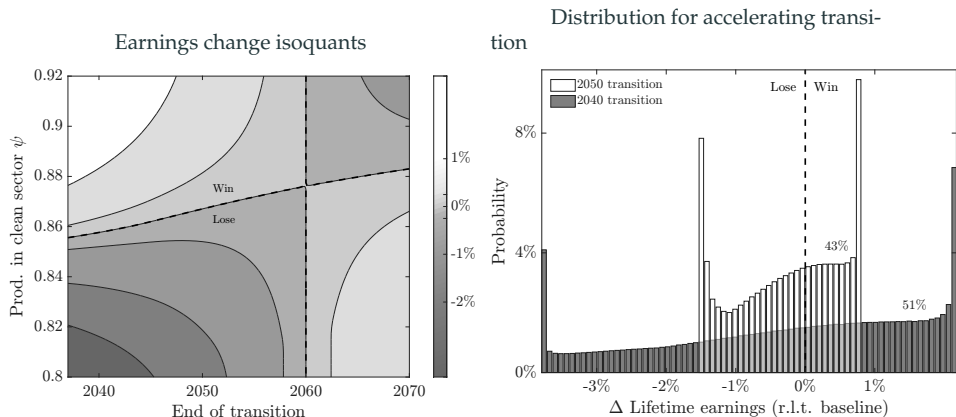
- Natural identification threat: Changes between sectors are not necessarily driven by climate shocks
- Same reason for why the trade literature uses shift-shares to understand the China shock
- Sectors can represent other characteristics, e.g., dirty industries might be declining due to aging
- If one looks at transition within narrowly-defined bins of workers characteristics, it helps, but not definitive
 - The paper could show more characteristics of exposed-workers relative to other sectors
 - In other words, show more which transitions are key in identifying skill distribution
 - Not theory comment, rather which moments are used for estimating (skill distribution)
- One model validation: non-targeted fit of wage changes
 - Strong model predictions: Workers moving earlier to clean, accept lower wages in the transition?
 - Is the data aligned?

III. Main insights

- So far, the authors claim (or aim) the following insights:
 1. Accounting for labor market frictions is important to get the magnitudes right
 2. Speeding the transition $\Rightarrow$ Winners in extensive margin but thick tail of losers in intensive margin
- Would be useful to show which labor friction is more relevant for this trade-off
 - E.g., multidimensional skill accumulation, endogenous separations, directed search
- How about characterizing more the slope of the isoquants of the winners and losers graph
 - Which parameters shape those isoquants in the frictional version of the model?

III. Main insights: Shape of Isoquants of Transition

Figure 4: Average lifetime earnings changes



Less Relevant Comments: Food for Thought and Paper Organization

1. Why not implement the same (but separate) analysis for workers starting in clean industry in terms of measuring the benefits of the transition?
2. Writing: There is a trade-off between not so dense model presentation and transparency of how the model works
 - The presentation in the paper is too stylized and then too fast when frictions are added, which should be focus
 - Many model ingredients are mentioned in the main text without describing what they are (because the details were relegated to the appendix)
 - Define more clearly what a market is in the search environment
 - Would prioritize more explaining labor friction implications
 - Less time on strategy of taking MRPL as given and government policies strategy

Final Remarks

- Super timely and useful paper to better understand the labor market consequences of climate transition
- Looking forward to the new draft of the paper!