INFERRING CAUSES
IDENTIFYING THE LIKELY *CAUSE* OF A KEY JOBS PROBLEM

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THE JOBS DIAGNOSTICS APPROACH

Identify the right Jobs-related question from standardized data symptoms and global benchmarks

- Standard Data Tools
- Guided Enquiry
- Country Context and Benchmarking to check outcomes are within normal ranges

Identify the key Jobs problem as a constraint or syndrome

- Interpret the symptoms using other evidence
- Is it a demand or supply problem?
- What’s the likely cause?

Identify the right solutions to treat the constraint or syndrome (taking account the labor market model that best fits)

- What is the market or policy failure?
- Can the constraint be directly removed?
- Review research for solutions (solutions notes)
- Consider political economy
**DIAGNOSTIC TERMINOLOGY**

**Symptom** means and observation of an *abnormal* value in data – that is, a value that exceeds thresholds for normality.

**Constraint** means a single identifiable and attributable cause of a key jobs problem. In medical terms a constraint would be a disease or a virus that gives rise to the symptoms observed. If the treatment is known, prescriptions of solutions can be offered for a constraint.

**Syndrome** means a set of frequently observed and correlated or associated symptoms for which the constraint or cause is not directly identifiable or attributable. In medicine, physicians would directly treat the symptoms of a syndrome.

**Symptoms** can have multiple causes: This means that the analyst will need to group symptoms as a physician would do to arrive at a diagnosis of the binding constraint.

**Constraint** and “**Condition**” are used here to refer to jobs-development obstacles associated with market or policy failures, in contrast to *natural* obstacles not involving market or policy failures.
**GATHERING SYMPTOMS AND CONSIDERING CAUSES**

*Remember:* Abnormal Symptoms can be consistent with more than one cause

<table>
<thead>
<tr>
<th>Symptoms</th>
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<tbody>
<tr>
<td>Chills &amp; sweating</td>
<td>Chills and sweating</td>
<td>Chills and sweating</td>
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<tr>
<td>High fever</td>
<td>High fever</td>
<td>High fever</td>
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<tr>
<td>Aching muscles</td>
<td>Chest pain</td>
<td>Aching muscles.</td>
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<tr>
<td>Headache</td>
<td>Rapid breathing</td>
<td>Headache.</td>
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<tr>
<td>Nausea</td>
<td>Cough</td>
<td>Dry, persistent cough.</td>
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<tr>
<td>Vomiting</td>
<td>Fatigue and weakness</td>
<td>Persistent cough.</td>
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<tr>
<td>Abdominal pain</td>
<td>Nausea</td>
<td>Fatigue and weakness.</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Vomiting</td>
<td>Nasal congestion.</td>
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<tr>
<td>Anemia</td>
<td>Loss of appetite</td>
<td>Sore throat.</td>
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<tr>
<td>Convulsions</td>
<td>Confusion</td>
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</table>

**Cause:**

- **Malaria**
- **Pneumonia**
- **Flu**
GATHERING SYMPTOMS AND CONSIDERING CAUSES
WHAT ADDITIONAL INFORMATION AND TESTS COULD HELP?

• Travelled to a Malarial Zone recently?
• Past diagnosis for Malaria? Any recent travel
• Your occupation – exposure to dust?
• Contact with animals?
• Exposure to other sick people at home, work or school
• Whether you have recently had another illness
• Complications likely? Other conditions?
  • Have certain chronic medical conditions, including lung diseases such as asthma, an airway abnormality, heart disease, diabetes, neurological or neurodevelopmental disease, and kidney, liver or blood disease
## GATHERING SYMPTOMS AND CONSIDERING CAUSES

*Remember:*

*Symptoms can be consistent with more than one cause*

*Consider them all together and look for abnormality against benchmarks*

<table>
<thead>
<tr>
<th>Symptoms</th>
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<tbody>
<tr>
<td>Youth Unemployment</td>
<td>Youth Unemployment</td>
<td>Youth Unemployment</td>
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<tr>
<td>High informality</td>
<td>Low Informality</td>
<td>Low Informality</td>
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<td>Low growth in waged</td>
<td>Low growth in waged</td>
<td>Low growth in waged</td>
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<tr>
<td>Low Productivity growth</td>
<td>Low productivity growth</td>
<td>Low productivity growth</td>
</tr>
<tr>
<td>Movement into agriculture</td>
<td>Movement out of agriculture</td>
<td>Movement out of agriculture</td>
</tr>
<tr>
<td>Stable earnings in agric.</td>
<td>Rising earnings in agric</td>
<td>Rising earnings in agric</td>
</tr>
<tr>
<td>High firm entry</td>
<td>Low firm entry</td>
<td>Low firm entry</td>
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<tr>
<td>High female LFP</td>
<td>High female LFP</td>
<td>High female LFP</td>
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<tr>
<td>Youthful country</td>
<td>Demographic Transition</td>
<td>Aging country</td>
</tr>
<tr>
<td>High, rising skills premium</td>
<td>High stable skills premium</td>
<td>Low, Falling skills premium</td>
</tr>
<tr>
<td>Fall in premium SecEd</td>
<td>Fall in premium SecEd</td>
<td>Rise in premium SecEd</td>
</tr>
<tr>
<td>Positive static reallocation</td>
<td>Negative reallocation</td>
<td>Slight positive reallocation</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Country</th>
<th>Country:</th>
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<tbody>
<tr>
<td>Uganda</td>
<td>Belize</td>
<td>Moldova</td>
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</table>
AN ABNORMAL SYMPTOM IS NOT A CAUSE BUT MIGHT SIGNAL ONE

Having identified a jobs problem from abnormal symptoms, to get to prescriptive solutions, a diagnostic must identify the cause of the problem.

The diagnostic must help the policy maker decide which jobs-constraint or condition is responsible for the sub-optimal jobs outcomes revealed through the guided enquiry and benchmarking.

If we presume that a “healthy” and liberal market economy will always converge to Pareto-optimal jobs outcomes in the absence of market or policy failures, then the existence of abnormality or deviation from the norm should indicate a constraint.

A sub-optimal jobs outcome must be the result of:

- some to-be-identified constraint or condition that is preventing market forces from operating freely to achieve a Pareto-efficient equilibrium outcome, or
- some unusual circumstances that are yielding jobs-outcomes considered undesirable, even though they may be Pareto-efficient.
To be a priority, the constraints/conditions of interest must be *binding*.

The removal of *non-binding constraints* would not improve the abnormally low jobs outcomes observed.

How then, do you find a binding constraint???
HOW DO WE DETERMINE WHETHER A JOBS-CONSTRAINT IS BINDING?
HAUSMANN ET AL (2008)

1. **The (shadow) price of the constraint should be high.** For example, if the lack of human capital is constraining hiring, we should expect the returns to investment in human capital to be very high, as workers with more human capital command a higher wage premium.

2. **Removing a constraint should lead to improvements** Movements in the constraint should produce significant movements in the use of the constrained factor. Removal of a hiring constraint should lead to significant improvement in firms’ hiring.

3. **The camel and the hippo:** Agents that are less (more) exposed to a particular constraint should be more (less) likely to survive and thrive under that constraint. Surviving agents in the economy should have adapted to get around or bypass the constraint. Eg: if human capital is a binding constraint, we should expect the firms that have survived to rely mostly on production technologies with low human capital inputs.

4. **Observing survival strategies:** Agents in the economy should be attempting to overcome or bypass the constraint. If skills are the main constraint, we should expect to observe firms and industries working collaboratively with labor organizations to train staff to address the constraint. Or else we would see an increase in applications for work permits for foreign workers.

Be wary of false positives. Responses derived from Investment Climate Assessments about the severity of various constraints must be approached with some caution. Responding firms have obviously **survived** so they were either not highly exposed to the key constraint to start with, or they have found ways to get around it.
When **hypothesizing a constraint**, Prepare a list of symptoms we would *expect to be associated* with each constraint

Collect all the observed symptoms

Look for anomalies / abnormalities (through benchmarking)

Posit a constraint that appears consistent with observed symptoms

Make sure that all relevant symptoms are present before deciding which are the key constraints that need removing, or what is the condition that needs treating
ESTABLISH - IS IT DEMAND OR SUPPLY?

The key jobs problem will point toward sub-optimal values of either *the amount* or the price of a particular set of jobs related variables.

For example, high informality and slow growth of formal employment could be due to deficiencies in the supply of workers in the formal sector or to deficiencies in the demand for workers.

- Formal sector employment could be low because the supply curve of workers has shifted to the left, or
- Because the demand curve for workers has shifted to the left.

Both shifts result in a decline in the equilibrium employment level, *however*:

- a *negative shift in the supply curve* would be associated with an *increase in the equilibrium real wage* of formal sector workers,
- a *negative shift in demand* would be associated with a *decrease in real wages*.

So, depending on the observed behavior of real wages amongst activities and locations, we can narrow down the list of potential constraints that may be responsible for the decline in employment.
IS IT DEMAND OR SUPPLY?
SUPPOSE FORMAL SECTOR EMPLOYMENT IS FALLING.

Market Clearing Equilibrium Response to a Shift in Supply vs. a Shifts in Demand

<table>
<thead>
<tr>
<th>Decline in Supply</th>
<th>Decline in Demand</th>
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<tbody>
<tr>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>W'</td>
<td>W'</td>
</tr>
<tr>
<td>W*</td>
<td>W''</td>
</tr>
<tr>
<td>Q'</td>
<td>Q'</td>
</tr>
<tr>
<td>Q*</td>
<td>Q*</td>
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</tbody>
</table>

Decline in Supply:
- Initial equilibrium at W, W', Q', Q*
- Shift in supply to S'
- New equilibrium at W, W*, Q', Q*

Decline in Demand:
- Initial equilibrium at W, W', Q', Q*
- Shift in demand to D'
- New equilibrium at W, W', Q', Q*
EXAMPLE

ABNORMALLY LOW FORMAL EMPLOYMENT GROWTH
Then we should expect to find:

i. relatively *low real wages*

ii. stagnant growth in real wages

iii. slow growth in employment in the labor intensive sectors,

iv. high degree of market concentration as determined by the Herfindahl-Hirschman index

v. high average age of a firm in key sectors with low churning, and

If lack of competition is generating economic rent for the monopolists, we may observe:

- high labor productivity,
- high wages, and
- high capital intensity for a few large firms coexisting in the same activities as a large number of smaller much less productive firms that pay much lower real wages.

Whether monopolistic competition represents a credible explanation for the low level of formal sector employment hinges on whether these associated symptoms are observed or not.
From **labor supply side data**, we would expect to see

1. relatively low changes in the formal waged share of workers, coupled with most likely;
2. higher shares of self- and unpaid family workers, or low participation as family workers (especially women), are less inclined to enter the formal labor market in the absence of high probabilities of waged work;
3. low returns to education and low wages for young people, who must queue for the few good jobs.

**Aggregate / macro employment data** may reveal:

4. a slower pace of structural change into the monopolistic sub-sectors, and low average labor productivity growth over time (due to low innovation).

In **investment climate surveys** the large dominant firms might not complain about competition, but smaller firms in the same activities may complain.
CONVERSELY, IF *UNEVEN LABOR MARKET POWER* IS THE LIKELY CAUSE OF LOW FORMAL EMPLOYMENT

Then we should expect to find:
(i) significant wage inflexibility,
(ii) substantial unemployment including for workers with the requisite education, and possibly 
(iii) a high share of wages in value added for formal sector firms,
(iv) wage gaps between formal and informal sector firms and between unionized and non-unionized workers in the same sectors and with the same education, and 
(v) a comparatively high capital-intensiveness in production technology, as firms seek to reduce their dependence on labor 

Indirectly one might observe:
1) a strong presence of trade unions in policy debate,
2) strong collective bargaining and the presence of various trade and artisanal guilds
HYPOTHESIS 2: SKILLS SHORTAGES ARE TO BLAME

Then we should expect to find:

1. comparatively low education outcomes in standardized literacy and numeracy tests;
2. low public and/or private spending on education,
3. high rates of return to education,
4. a high skills profile amongst immigrants relative to the local population, and
5. a high flow of work permit applications from growing firms in skills intensive activities.
THE SYNDROME OF ECONOMIC DUALISM IS POPULAR AGAIN...

**Symptoms Include:**

1. Economic transformation is slow
2. High wage gaps persist,
3. High and persistent skill premia between rural and urban labor markets (is commonplace.
4. Large populations of workers subsist or take unpaid family work underemployed in capital-scarce `traditional sector' occupations with low hours of work
5. Low labor productivity and low hourly earnings.
6. A more limited number of `modern-sector' workers is typically employed in capital-rich, high labor productivity jobs in factories or office,
7. They enjoy much higher wages

Market forces should operate so that modern sector wages are bid down by the inflow of excess workers from the traditional sector in search of higher waged work, and firms should expand employment until wages are equalized across the economy. But clearly, in many countries the process isn’t working, and/or it takes a very long time.
It is not easy to discern a single cause;

• high moving costs with low probabilities of employment could be a factor;

• faced with excess labor, low skills and risky business environments, formal businesses may train their staff and pay efficiency wages;

• there may be a more general constraint on the demand for goods and services in the modern sector that stems from the country’s low income and limited access to export markets.

To use a medical analogy, we refer to these indeterminate clusters of symptoms as forming conditions or “syndromes,” and reserve the terms “constraints” for those clusters where we feel that the primary causes are fairly well established.


In this context, Hausmann et al (2008) have usefully defined “syndromes” as “a set of symptoms linked by a logically consistent causal story that accounts, as much as possible, for the facts we observe.”
GROUP EXERCISES: LIST THE SYMPTOMS THAT WOULD BE ASSOCIATED WITH THESE CAUSES – LABEL AS CONSTRAINT OR SYNDROME

1. LOW HUMAN CAPITAL
2. POOR INFRASTRUCTURE
3. “DUTCH DISEASE”
4. BARRIERS TO LABOR MOBILITY
5. MONOPOLY POWER IN FACTOR MARKETS
6. HIGH RESERVATION WAGE