Inequality of Opportunity in the Labor Market for Higher Education Graduates in Egypt and Jordan

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Outline

- Motivation
- Conceptual framework
- Evidence on inequality
- Measuring, decomposing, and estimating inequality
- Data, variables, and specifications
- Results
- Implications

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Why Study Labor Market Inequality in Egypt and Jordan?

- Labor markets are performing poorly
  - Substantial investments in education are not paying off in the labor market (Chaaban 2009)
  - High youth unemployment, particularly among educated youth
  - Informal and insecure employment

- Inequality is a particularly relevant issue in the Middle East and North Africa
  - Calls for social justice were an important element of the "Arab Spring"
  - There is a perception that inequality is very high (Verme et al. 2014)

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Conceptual Framework: Inequality of Opportunity

- Roemer's (1998) conceptualization of inequality of opportunity

- Inequality in outcomes can be divided between
  - Circumstances (outside of an individual's control), morally objectionable
  - Effort (within an individual's control), morally acceptable

- Inequality due to circumstances is called inequality of opportunity

Education & Labor Markets:
The Equality of Opportunity Case

- Individuals' education (human capital and skills) reflect differences in their efforts in school

- Labor market outcomes differ due to quantity and quality of human capital and skills and efforts

- Individuals' circumstances do not determine their human capital or outcomes in the labor market

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Education & Labor Markets:
The Inequality of Opportunity Case

- The education system could fail to equitably allocate human capital and skills
- The labor market could fail to equitably reward human capital and skills

- Failures in the education system create inequality in human capital prior to entry into the labor market
  - Pre-market inequality of opportunity
  - Affects labor market outcomes indirectly

- Failures in the labor market create inequality even after accounting for differences in human capital and skills
  - In-market inequality of opportunity
  - Affects labor market outcomes directly

Education & Labor Markets: Egypt and Jordan

- Egypt and Jordan have substantial inequality of opportunity
  - In terms of human capital and skills (Assaad 2013; Assaad, Salehi-Isfahani and Hendy 2014; Krafft 2012; Salehi-Isfahani, Hassine, and Assaad 2013)

  - In the labor market (Belhaj Hassine 2011; World Bank 2012, 2013)

- Our research question:
  - After correcting for human capital, how much do individuals' circumstances impact labor market outcomes?

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Measuring Inequality

- We use the general entropy index to measure inequality
  - Decomposable into the contributions of circumstances and effort
  - Can assess separately contributions of different circumstances (i.e. gender)

- $GE(0) = \int_{0}^{1} ln\left(\frac{Q(p)}{\mu}\right) dp$

- $GE(2) = \frac{1}{2}\left(\int_{0}^{1}\left(\frac{Q(p) - \mu}{\mu}\right)^{2} dp\right)$

- Quantile function, Q(p), outcome at ordered proportion p, and mean μ

Decomposing Inequality

- For *k* groups (unique combinations of circumstances), divide inequality as:

$$GE(\theta) = \underbrace{\sum_{k=1}^{K} \phi(k) \left(\frac{\mu_k}{\mu}\right)^{\theta} GE(k;\theta)}_{Within} + \underbrace{\overline{GE}(\theta)}_{Between}$$

- *ϕ(k)* is the proportion of the population in group *k*, μ_k as the mean labor market outcome of group *k*

- Between group inequality (inequality of opportunity) is the GE index of the population if each group member of group *k* experienced μ_k

Estimating Inequality

- We estimate between group inequality parametrically, regressing labor market outcomes on circumstances

- Mean circumstances are then used to estimate inequality of opportunity residually by removing all between-group inequality

- For a specific circumstance, the contribution of that circumstance to inequality is also estimated residually

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Data: Sample

- Economic Research Forum surveys
  - fielded in 2012 in Egypt and Jordan

- Higher education graduates
  - Commerce and IT
  - 25-40
  - Ever worked
  - Urban

- Final sample:
  - 1,616 individuals in Egypt
  - 1,418 individuals in Jordan

Labor Market Outcomes

- Time to first job

- Wage in first job

- Annual percentage change in wages

- Wage five years after graduation

- Current Wage

- Current Job Quality
  - Based on a factor analysis of job characteristics, benefits, satisfaction

- Current Wage and Job Quality Combined
  - Standardized wages and quality weighted 50/50

- All wages in real (2012) local currency units, as a log in regressions

Circumstances and Effort Covariates

| Category	Variables	Circum. or Effort
Family Background	Father's Education, Mother's Education, Computer, Internet, or Magazines and Books in Home at Age 15, Father's Age at Birth (and square) or DK, Mother's Age at Birth (and square) or DK, Father's Employment Status	Circum.
Gender	Female	Circum.
Geography	Governorates (Country-specific)	Circum.
Experience	Years of work experience (and square)	Control
Basic Schooling	Kindergarten Attendance, Primary Private and Preparatory Private (Egypt), Basic Private (Jordan)	Circum. & Effort
Secondary Schooling and Performance	Secondary Private, Secondary Specialization, Frequency of Computer Use in Secondary, Age Graduated Secondary, Secondary Grade and Square, Secondary Grade DK (Egypt), and interactions between grade and specialization.	Circum. & Effort
Higher Education (HE) and Performance	Private, Selective, and IT and interactions; HE Grade and Square; Interactions between HE Grade, Square, IT and Private; Language of Instruction	Circum. & Effort
HE Process Factors	Factors for Pedagogy, Accountability, and Perception of Quality	Circum. & Effort

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Direct and Indirect Effects

- We first estimate inequality of opportunity in labor market outcomes for a reduced form specification
  - Family background, gender, geography
  - There may still be some pre-market, indirect effects mediated through the quality of human capital acquired

- We then estimate explained inequality for a full specification
  - Adding basic schooling, secondary schooling & performance, HE characteristics & performance, HE processes
  - Indirect effects of circumstances may be mediated through these
  - They may also represent effort

Joint Significance Tests

Outcome:	Wage in Job After Five Yrs.				Current Job Quality			
Country:	Egypt		Jordan		Egypt		Jordan	
Specification:	Red.	Full	Red.	Full	Red.	Full	Red.	Full
Family Background	***	**	***	**	***	***		
Gender	***	***	***	***	*			
Geography	***	***	*	+	***	***	***	***
Experience	n/a	n/a	n/a	n/a	***	***	***	***
Basic Ed						+		
Sec Ed & Perform		*		*				**
Higher Ed & Perform		*				**		*
Higher Ed Factor						**		*

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$

Explained Inequality
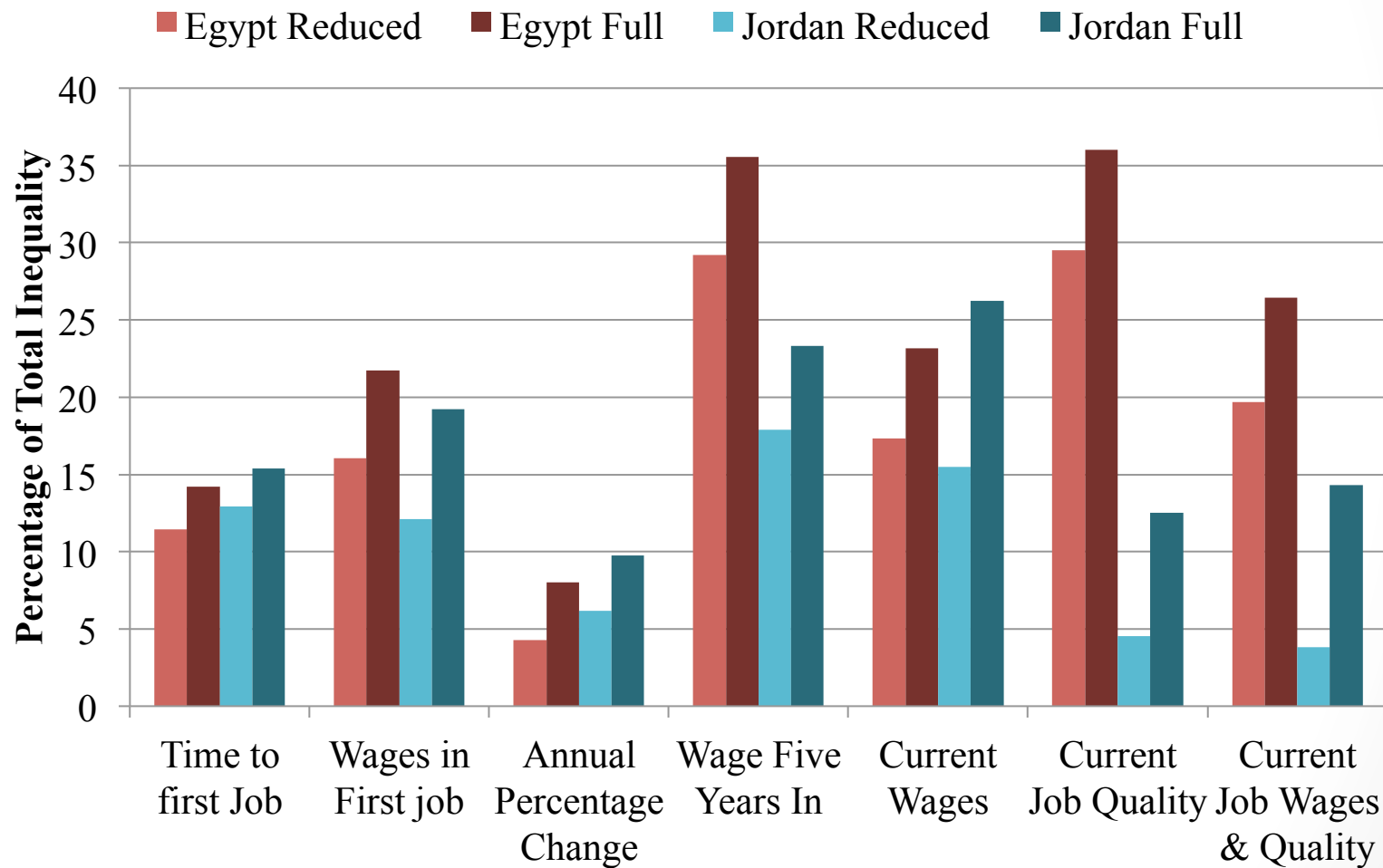
Explained Inequality: Reduced Form/Full Specification

Explained Inequality in Reduced Form as Percentage of Full Spec.
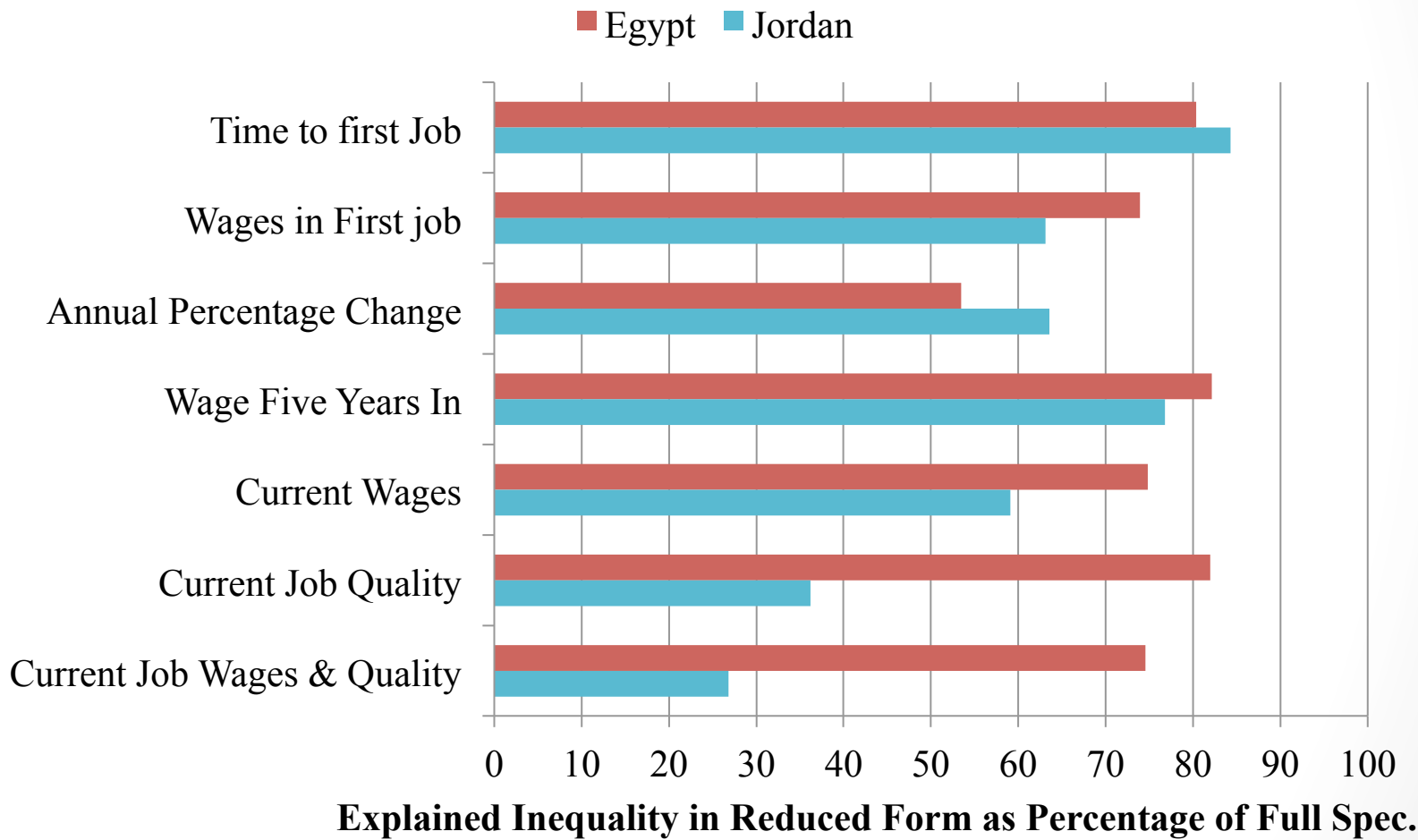
Circumstances & Time to First Job
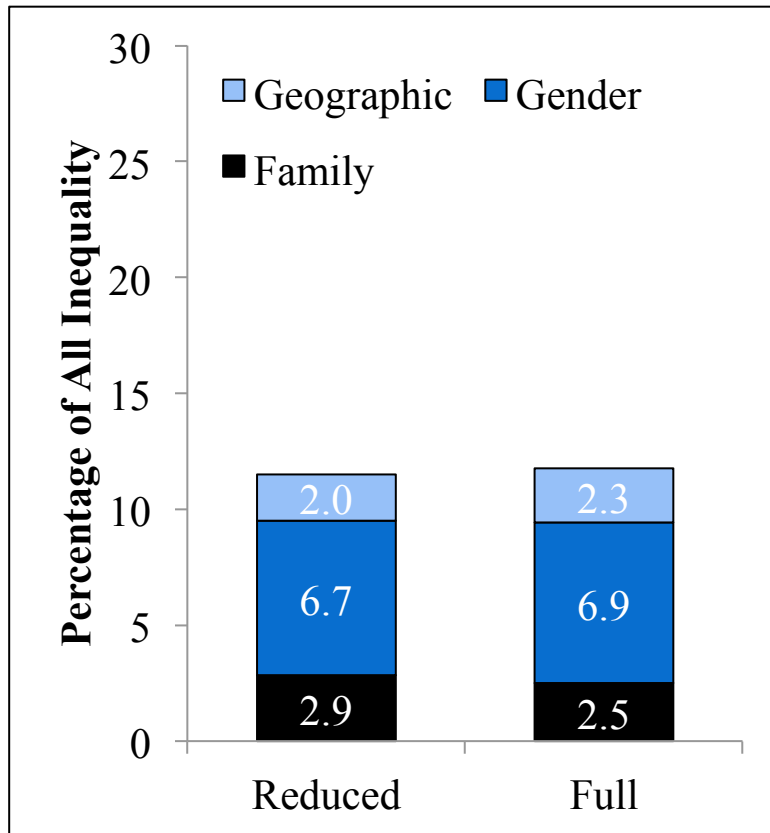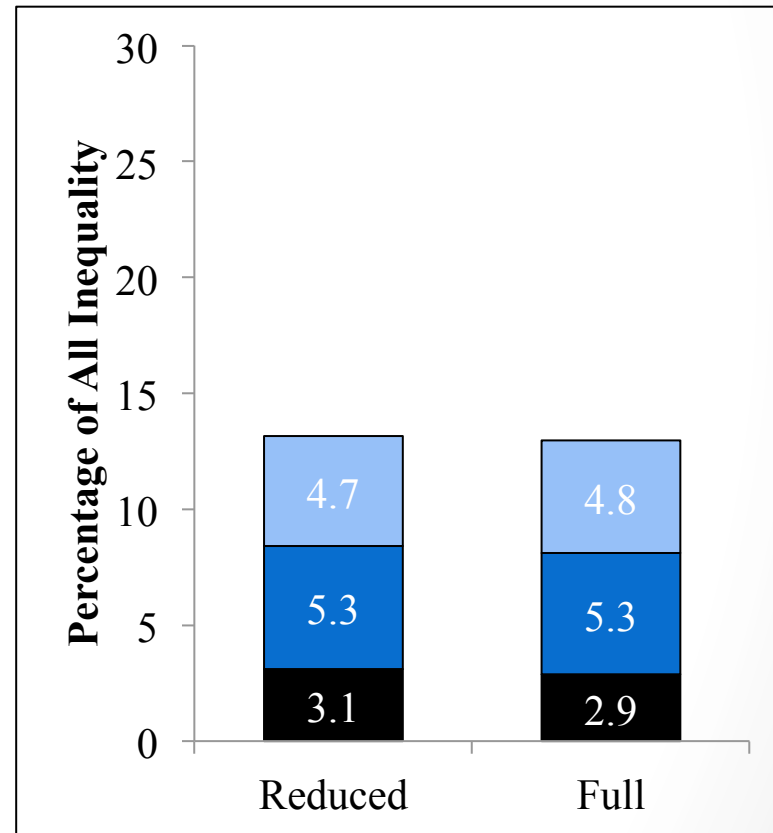
Circumstances & Wage in First Job

Egypt

Percentage of All Inequality

Reduced	Full
3.6	3.6
8.3	8.3
4.6	4.7

□ Geographic ■ Gender
■ Family

Jordan

Percentage of All Inequality

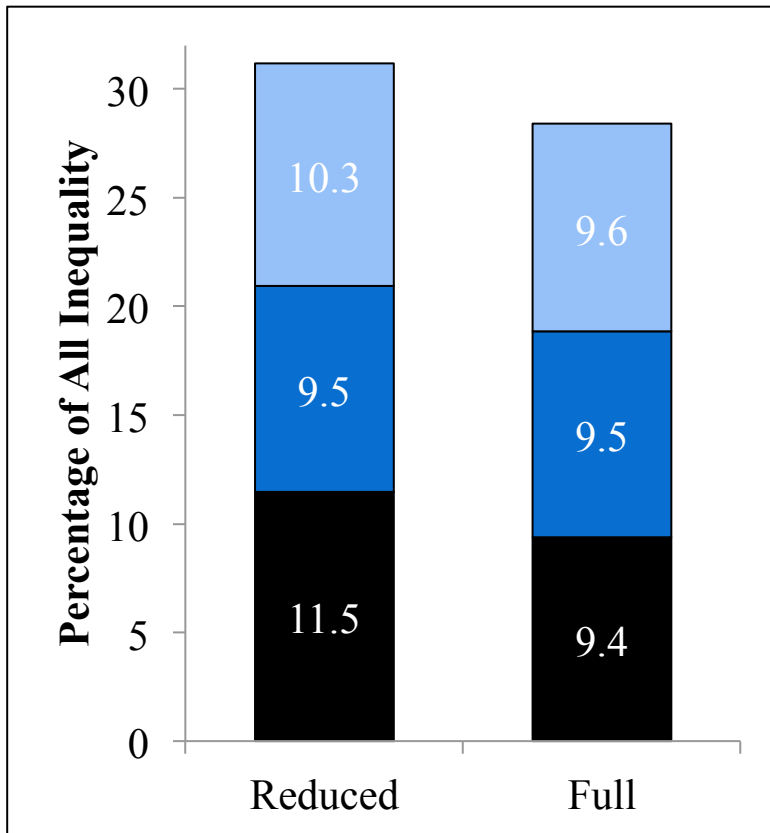| Reduced	Full
2.6	2.7
3.2	3.2
5.5	4.5
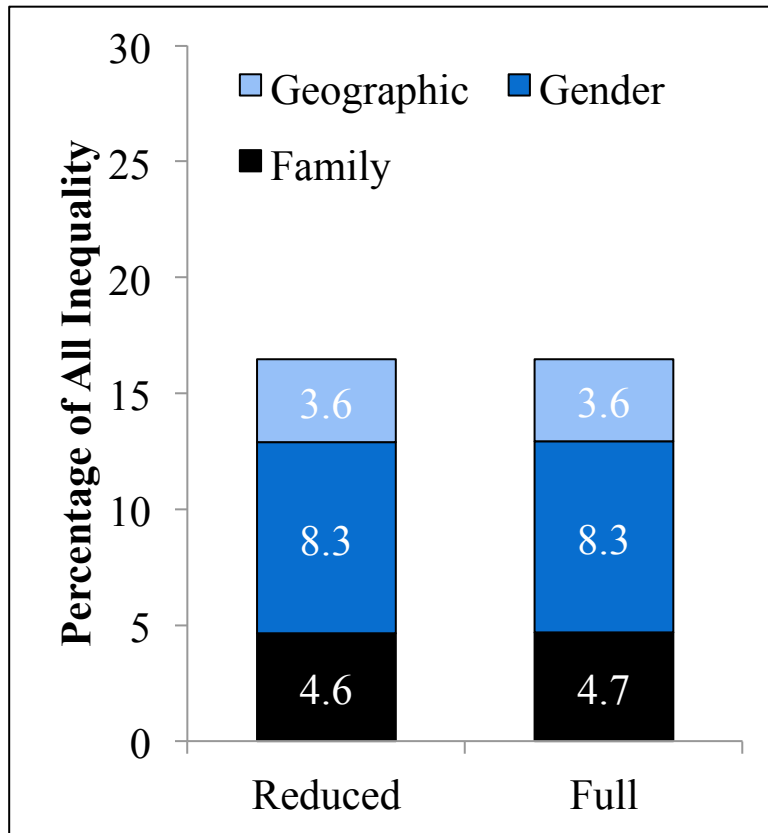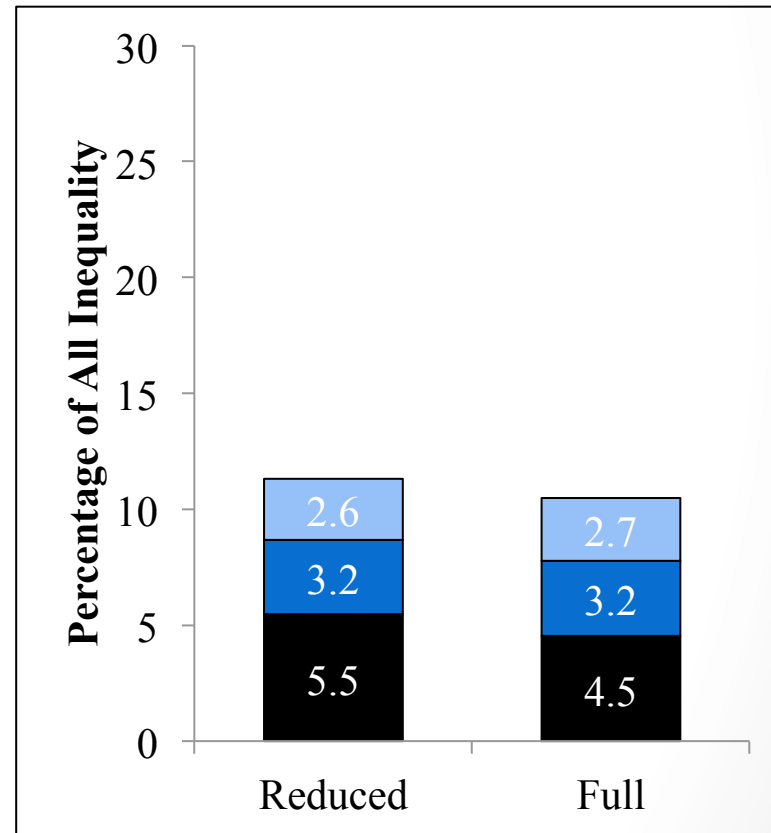
Circumstances & Annual Percentage Change

Egypt
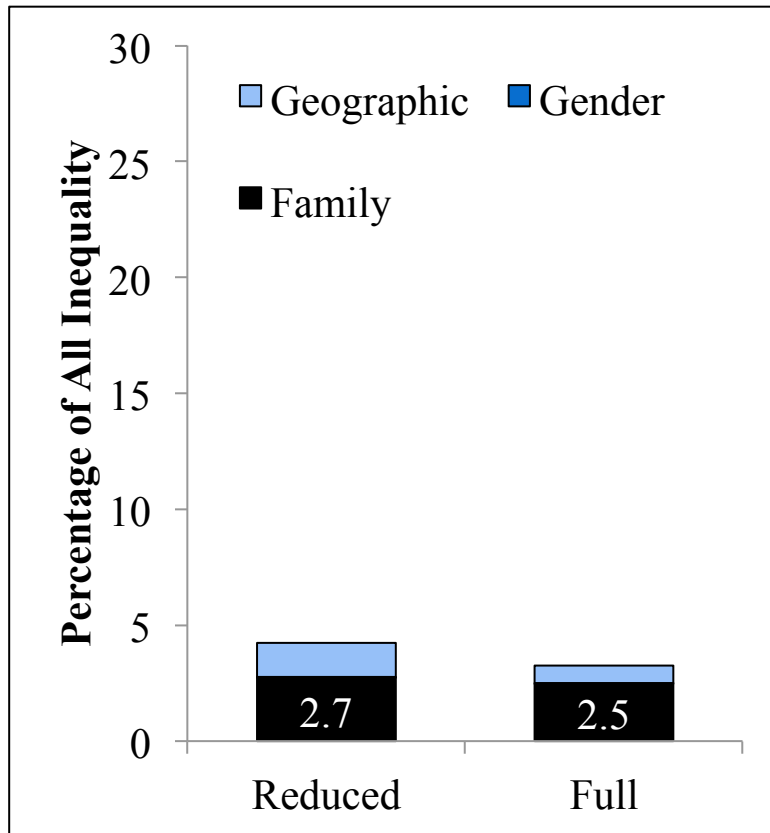
Jordan
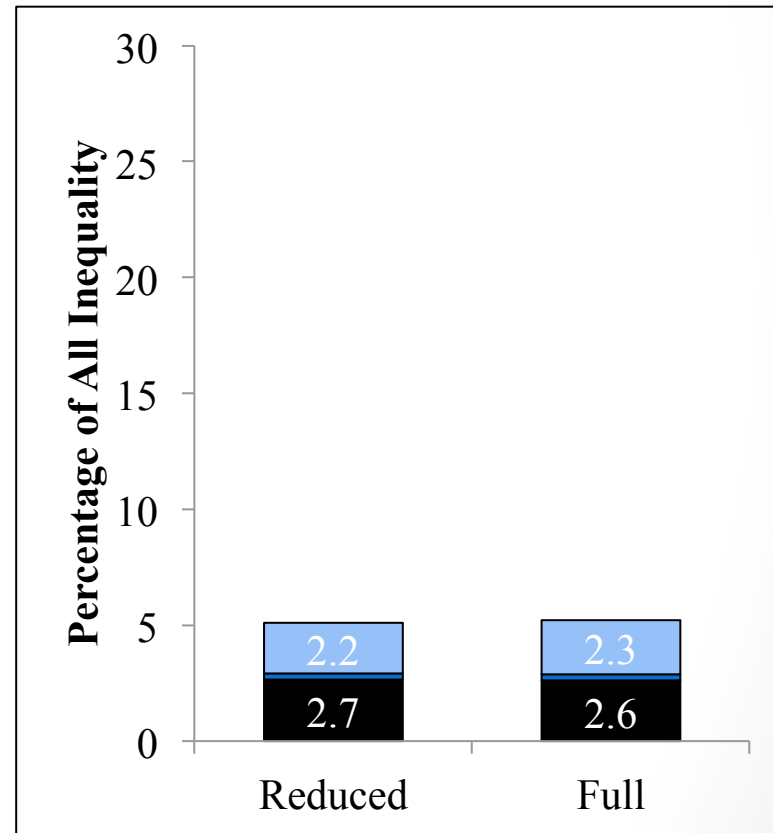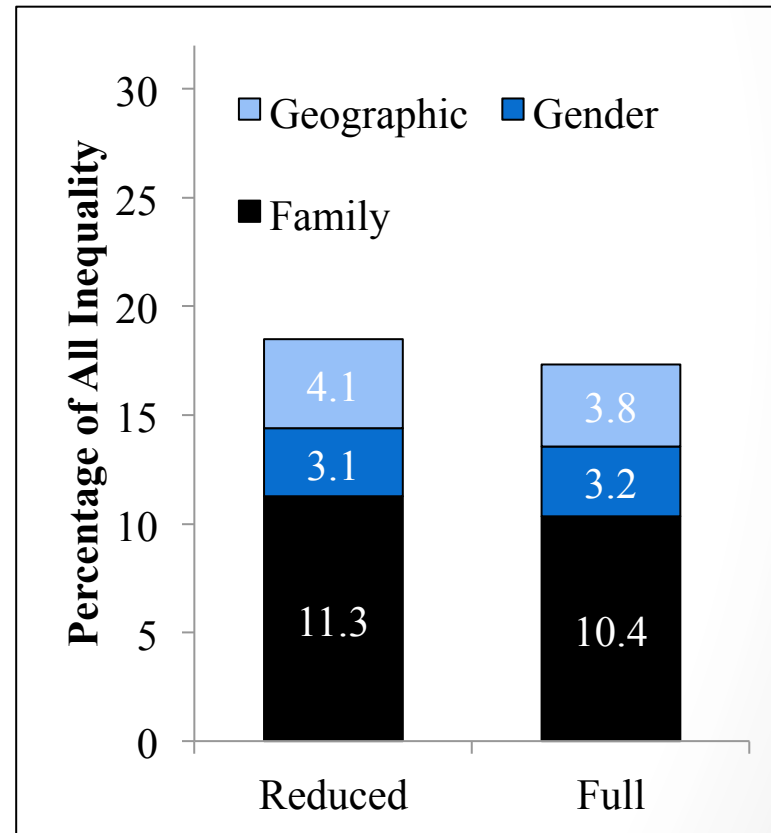
Circumstances & Wage after Five Years

Egypt

Jordan

Percentage of All Inequality
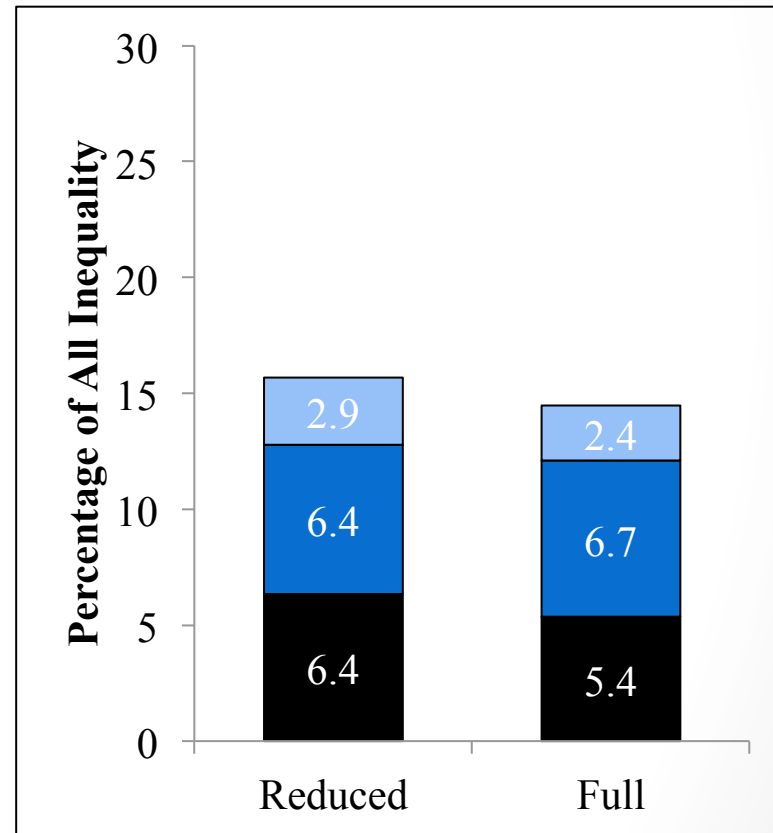
- ◻ Geographic
- ◼ Gender
- ◼ Family

Egypt — Reduced: Geographic 10.3, Gender 9.5, Family 11.5
Egypt — Full: Geographic 9.6, Gender 9.5, Family 9.4

Jordan — Reduced: Geographic 4.1, Gender 3.1, Family 11.3
Jordan — Full: Geographic 3.8, Gender 3.2, Family 10.4

Circumstances & Current Wages
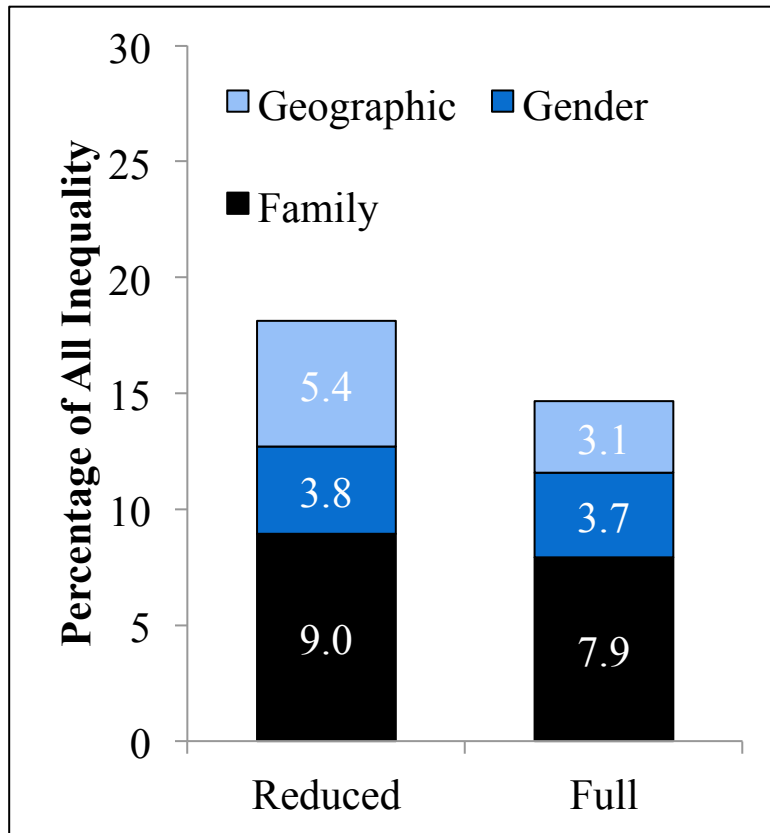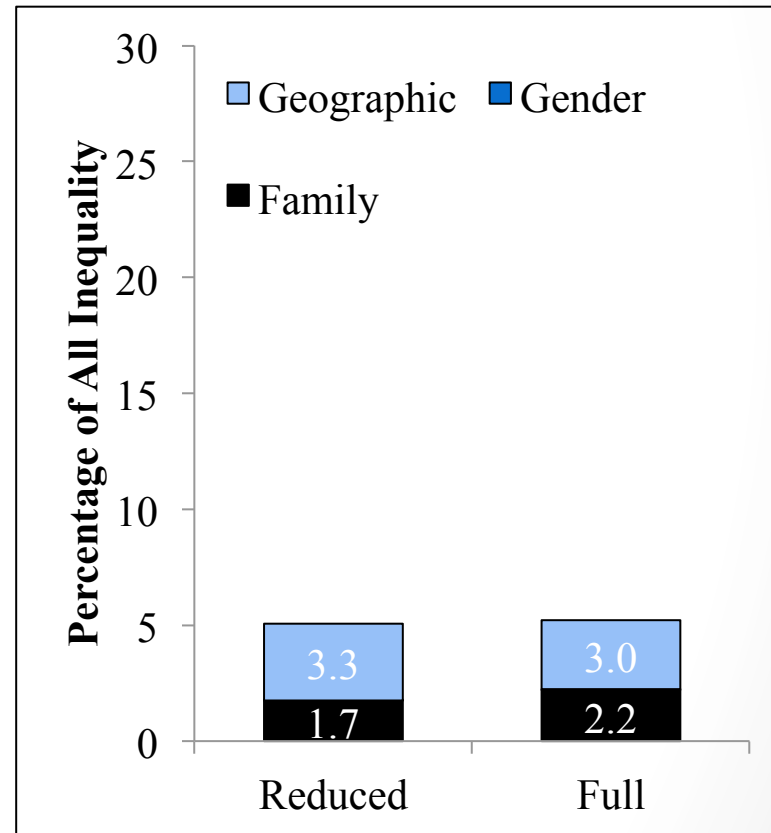
Circumstances & Job Quality
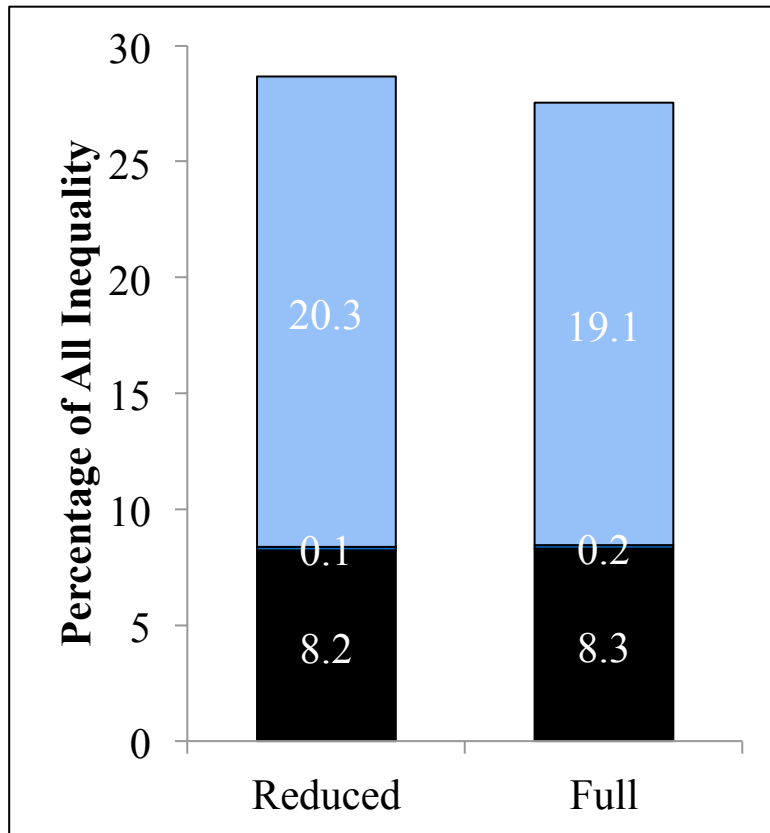
Circumstances & Current Wages and Job Quality

Egypt
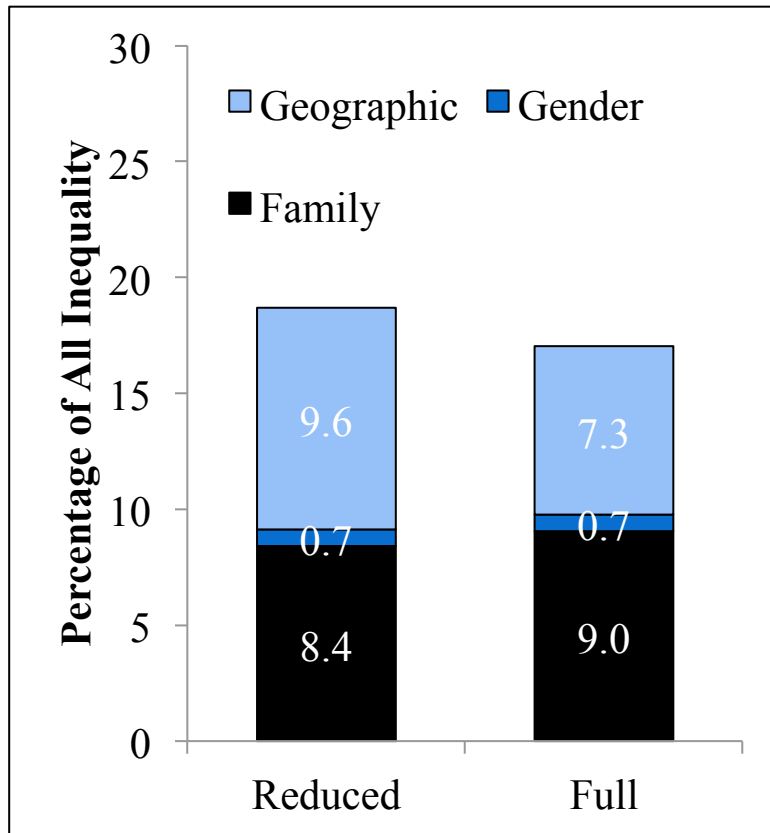
Jordan
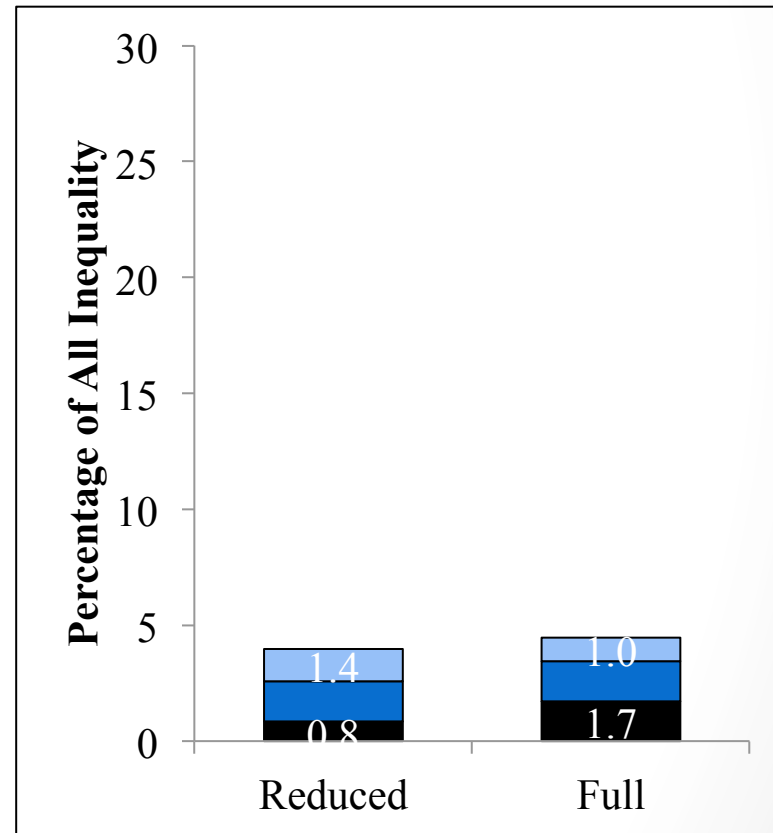
Relative Role of Circumstances and "Efforts"

Legend:
- Egypt: Circumstances
- Egypt: Mixed Circum. & Efforts
- Jordan: Circumstances
- Jordan: Mixed Circum. & Efforts

Y-axis: Percentage of Total Inequality (0–30)

X-axis categories: Time to first Job, Wages in First job, Annual Percentage Change, Wage After Five Years, Current Wages, Current Job Quality, Current Job Wages & Quality

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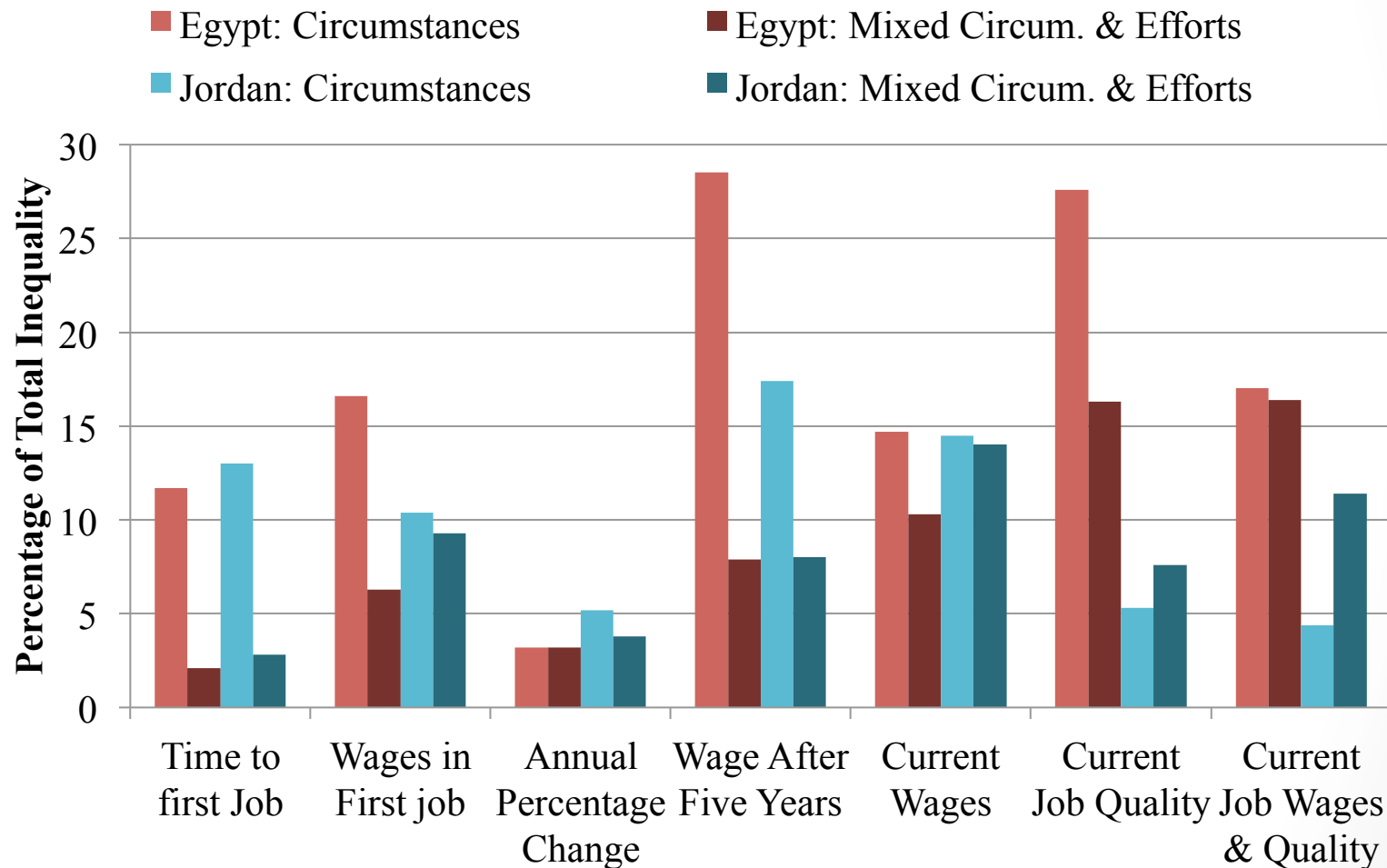
Summary

- After accounting for differences in human capital, there is substantial inequality of opportunity in the labor market

- There are unequal rewards based on circumstances in the labor market
  - Direct, in-market discrimination and segmentation

- The role of measurable efforts in labor market rewards is relatively small

- Overall, Egypt has more inequality of opportunity than Jordan

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Implications

- Providing equal opportunities in Egypt and Jordan's labor markets will require substantial changes in labor markets

- Addressing inequality may also improve efficiency
  - Labor market rewards based on circumstances lead to an inefficient allocation of human capital and diminish incentives

- Underlying structural problems
  - In both countries, firms are small
  - Social networks play a key role in employment
  - Egypt's labor market is dualistic, the formal private sector small
  - Jordan has a stronger formal private sector

- Policies should encourage labor market dynamism and decrease segmentation and discrimination