

Supplementary Materials

Section 1. Supplementary Tables and Figures

Table S1. Transitions among states from wave t to wave t+2

	nO/nD (1)	nO/D (2)	O/nD (3)	O/D (4)	Death (5)
nO/nD (1)	41167	719	2324	57	1183
nO/D (2)	266	4975	19	487	403
O/nD (3)	1847	120	11305	667	279
O/D (4)	22	603	150	4573	240
Death (5)	0	0	0	0	0

Table S2. Sample characteristics

Individuals (n)	7,663
Follow-up (n)	10.53
(SD)	(3.42)
Obesity/T2D status at baseline (%)	
not obese, not-T2D	72.43
not obese, T2D	3.66
obese, not-T2D	20.36
obese, T2D	3.55
Age at baseline (y)	57.24
(SD)	(7.76)
Female (%)	56.02
Bachelor's Degree (%)	55.44
PRS BMI	0.00
(SD)	1.00
PRS T2D	0.00
(SD)	1.00
Early condition index	0.00
(SD)	1.00

Notes: PRS stands for Polygenic Risk Score; early condition index is calculated as aggregating eleven individual indicators, including psychosocial stressors and household environment markers, with each variable coded so that higher values represent more favorable developmental conditions.

Table S3. Variables used to construct early life condition index

Variables	Value	Coding in constructing early life condition index
Self-rated health during childhood (1-5) (SD)	4.33 (0.91)	1-5, higher value indicates better self-rated health
Self-rated family financial situation during childhood (%)		
poor	21.82	1-4, higher value indicates better financial condition
varied	1.03	
about average	69.12	
well-off	8.03	
Father's occupation (%)		
manual/operators	59.61	1-4, higher value indicates higher-status job
service	14.31	
clerical or armed forces	4.93	
managerial professional	21.14	
Father's education (in years) (SD)	10.37 (3.52)	higher value indicates higher education
Mother's education	10.72 (2.98)	higher value indicates higher education
Move due to financial difficulty during childhood (%)	85.33	0- moved; 1- not moved
Live with grand parents during childhood (%)	22.26	0- lived with grandparents; 1-lived with grandparents
Good relationship with father (1-5) (SD)	3.99 1.19	1-5, higher value indicates better relationship with father
Family problems caused by parental drinking (%)	16.00	0- problems caued by parental drinking; 1- no problems
Physically abused before age 18 (%)	6.47	0 - abused; 1 - not abused
Early condition index		
mean	39.62	
(SD)	(7.74)	

Table S4. Baseline hazard rates for transitions among nO/nD, nO/D, O/nD, O/D, and death

From-To	Coefficient (se)	From-To	Coefficient (se)	From-To	Coefficient (se)	From-To	Coefficient (se)
nO/nD-nO/nD	-0.052*** (0.001)	nO/D-nO/nD	0.021*** (0.001)	O/nD-nO/nD	0.075*** (0.002)	O/D-nO/D	0.068*** (0.003)
nO/nD-nO/D	0.010*** (0.000)	nO/D-nO/D	-0.107*** (0.003)	O/nD-O/nD	-0.115*** (0.002)	O/D-O/nD	0.013*** (0.001)
nO/nD-O/nD	0.029*** (0.001)	nO/D-O/D	0.048*** (0.002)	O/nD-O/D	0.031*** (0.001)	O/D-O/D	-0.102*** (0.003)
nO/nD-death	0.012*** (0.000)	nO/D-death	0.038*** (0.002)	O/nD-death	0.008*** (0.001)	O/D-death	0.021*** (0.001)

Standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

The coefficients on transition to a different state (e.g., nO/nD→O/nD) are the estimated hazards of moving to another state from a given starting state. The coefficient on the “stay” transition (e.g., nO/nD→nO/nD) is not a separate staying hazard; it equals the negative sum of all hazards of leaving that state. These hazard rates are translated into 10-year probabilities and plotted in Figure 2. The reported p-values are two-sided Wald-test p-value.

Table S5. Baseline hazard rates and coefficients for transitions among nO/nD, nO/D, O/nD, O/D, and death, model with covariates

From-To	Baseline (se)	Age (se)	Female (se)	PRS for BMI (se)	PRS for T2D (se)	Early Condition (se)	Bachelor's Degree (se)
nO/nD-nO/nD	-0.042*** (0.001)						
nO/nD-nO/D	0.009*** (0.000)	0.009*** (0.002)	-0.201*** (0.031)	-0.004 (0.016)	0.071*** (0.015)	-0.013 (0.019)	-0.088** (0.034)
nO/nD-O/nD	0.029*** (0.021)	-0.011*** (0.001)	-0.03 (0.018)	0.154*** (0.009)	-0.033*** (0.009)	-0.013 (0.011)	-0.051** (0.019)
nO/nD-death	0.005*** (0.000)	0.058*** (0.002)	-0.188*** (0.028)	0.056*** (0.014)	-0.051*** (0.014)	-0.022 (0.018)	-0.080** (0.030)
nO/D-nO/nD	0.023*** (0.002)	-0.011*** (0.003)	0.105 (0.060)	-0.066* (0.031)	-0.02 (0.033)	-0.051 (0.037)	0.201** (0.065)
nO/D-nO/D	-0.087*** (0.003)						
nO/D-O/D	0.050*** (0.003)	-0.011*** (0.002)	-0.007 (0.042)	0.100*** (0.023)	0.038 (0.021)	0.081** (0.026)	-0.150** (0.047)
nO/D-death	0.014*** (0.002)	0.046*** (0.003)	-0.09 (0.051)	0.064* (0.026)	-0.029 (0.026)	-0.008 (0.035)	-0.059 (0.053)
O/nD-nO/nD	0.081*** (0.002)	0.009*** (0.001)	-0.011 (0.020)	-0.056*** (0.011)	0.014 (0.011)	0.038** (0.013)	0.031 (0.022)
O/nD-O/nD	-0.116*** (0.002)						
O/nD-O/D	0.030*** (0.001)	-0.001 (0.002)	-0.102*** (0.031)	0.000 (0.017)	0.055*** (0.015)	-0.025 (0.019)	-0.043 (0.033)
O/nD-death	0.005*** (0.001)	0.057*** (0.004)	-0.087 (0.070)	0.006 (0.038)	-0.023 (0.031)	-0.046 (0.043)	-0.025 (0.076)
O/D-nO/D	0.069*** (0.003)	0.013*** (0.002)	-0.025 (0.036)	-0.097*** (0.020)	0.025 (0.019)	0.033 (0.023)	-0.081* (0.039)
O/D-O/nD	0.014*** (0.001)	-0.014** (0.005)	0.054 (0.080)	-0.025 (0.043)	-0.078 (0.043)	-0.031 (0.050)	0.032 (0.085)
O/D-O/D	-0.097*** (0.004)						
O/D-death	0.014***	0.039***	-0.170*	0.007	-0.005	0.035	-0.122

(0.002) (0.004) (0.072) (0.038) (0.035) (0.046) (0.078)

Standard errors in parentheses.

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

The reported p-values are two-sided Wald-test p-value.

Table S6. Fit statistics of models

		AIC	BIC	log likelihood
Markov models	Baseline	76887.4	76981.0	-38431.7
	With covariates	72860.1	73466.2	-36346.0
	With covariates, interaction between EC & BMI PGS	72871.7	73542.0	-36339.9
	With covariates, interaction between EC & T2D PGS	72866.7	73537.0	-36337.3
hidden Markov model	With covariates	87754.4	88014.4	-43849.2

Table S7. Markov chain multistate model, with covariates and interaction between PRS BMI and early condition

From - To	Baseline	Age	Female	PRS for BMI	PRS for T2D	Early condition	Bachelor's Degree	PRS BMI × Early condition
nO/nD-nO/nD	-0.042*** (0.001)							
nO/nD-nO/D	0.009*** (0.000)	0.009*** (0.002)	-0.201*** (0.032)	-0.004 (0.016)	0.071*** (0.015)	-0.012 (0.019)	-0.088** (0.034)	0.005 (0.017)
nO/nD-O/nD	0.029*** (0.001)	-0.011*** (0.001)	-0.029 (0.018)	0.152*** (0.009)	-0.033*** (0.009)	-0.014 (0.011)	-0.051** (0.019)	0.01 (0.010)
nO/nD-death	0.005*** (0.000)	0.058*** (0.002)	-0.188*** (0.028)	0.057*** (0.015)	-0.051*** (0.014)	-0.022 (0.018)	-0.080** (0.030)	0.001 (0.017)
nO/D-nO/nD	0.023*** (0.002)	-0.011*** (0.003)	0.106 (0.060)	-0.067* (0.031)	-0.021 (0.033)	-0.046 (0.037)	0.202** (0.065)	0.051 (0.035)
nO/D-nO/D	-0.087*** (0.003)							
nO/D-O/D	0.050*** (0.003)	-0.011*** (0.002)	-0.008 (0.042)	0.105*** (0.023)	0.039 (0.021)	0.093*** (0.027)	-0.150** (0.047)	-0.048 (0.025)
nO/D-death	0.014*** (0.002)	0.046*** (0.003)	-0.092 (0.051)	0.067* (0.026)	-0.028 (0.026)	-0.011 (0.035)	-0.06 (0.053)	0.022 (0.036)
O/nD-nO/nD	0.081*** (0.002)	0.009*** (0.001)	-0.011 (0.020)	-0.056*** (0.011)	0.014 (0.011)	0.037** (0.013)	0.031 (0.022)	0.002 (0.013)
O/nD-O/nD	-0.116*** (0.002)							
O/nD-O/D	0.030*** (0.001)	0 (0.002)	-0.102*** (0.031)	-0.001 (0.017)	0.055*** (0.015)	-0.029 (0.020)	-0.044 (0.033)	0.013 (0.019)
O/nD-death	0.005*** (0.001)	0.057*** (0.004)	-0.085 (0.070)	0.002 (0.039)	-0.022 (0.031)	-0.042 (0.045)	-0.026 (0.076)	-0.017 (0.045)
O/D-nO/D	0.069***	0.012***	-0.03	-0.095***	0.023	0.044	-0.079*	-0.051*

	(0.003)	(0.002)	(0.036)	(0.020)	(0.019)	(0.024)	(0.039)	(0.023)
O/D-O/nD	0.014***	-0.014**	0.055	-0.028	-0.078	-0.036	0.03	0.012
	(0.001)	(0.005)	(0.080)	(0.044)	(0.043)	(0.053)	(0.085)	(0.05)
O/D-O/D	-0.098***							
	(0.004)							
O/D-death	0.014***	0.039***	-0.167*	0.005	-0.007	0.047	-0.12	-0.026
	(0.002)	(0.004)	(0.072)	(0.038)	(0.035)	(0.050)	(0.078)	(0.046)

Standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

The reported p-values are two-sided Wald-test p-value.

Table S8. Markov chain multistate model, with covariates and interaction between PRS T2D and early condition

From - To	Baseline	Age	Female	PRS for BMI	PRS for T2D	Early condition	Bachelor's Degree	PRS T2D × Early condition
nO/nD-nO/nD	-0.042*** (0.001)							
nO/nD-nO/D	0.009*** (0.000)	0.009*** (0.002)	-0.200*** (0.032)	-0.004 (0.016)	0.067*** (0.016)	-0.017 (0.019)	-0.088** (0.034)	0.028 (0.015)
nO/nD-O/nD	0.029*** (0.001)	-0.011*** (0.001)	-0.03 (.018)	0.154*** (0.009)	-0.031** (0.009)	-0.013 (0.011)	-0.050** (0.019)	-0.013 (0.009)
nO/nD-death	0.005*** (0.000)	0.058*** (0.002)	-0.189*** (0.028)	0.056*** (0.014)	-0.047*** (0.014)	-0.017 (0.018)	-0.081** (0.030)	0.029 (0.016)
nO/D-nO/nD	0.023*** (0.002)	-0.011** (0.003)	0.101 (0.060)	-0.067* (0.031)	-0.024 (0.033)	-0.056 (0.037)	0.200** (0.065)	0.056 (0.032)
nO/D-nO/D	-0.087*** (0.003)							
nO/D-O/D	0.050*** (0.003)	-0.011*** (0.002)	-0.005 (0.042)	0.100*** (0.023)	0.043* (0.021)	0.089** (0.027)	-0.150** (0.047)	-0.025 (0.022)
nO/D-death	0.014*** (0.002)	0.046*** (0.003)	-0.089 (0.051)	0.064* (0.026)	-0.031 (0.027)	-0.009 (0.035)	-0.059 (0.053)	-0.002 (0.033)
O/nD-nO/nD	0.081*** (0.002)	0.009*** (0.001)	-0.011 (0.020)	-0.055*** (0.011)	0.015 (0.011)	0.037** (0.013)	0.031 (0.022)	-0.008 (0.012)
O/nD-O/nD	-0.116*** (0.002)							
O/nD-O/D	0.030*** (0.001)	0 (0.002)	-0.101*** (0.031)	-0.001 (0.017)	0.054*** (0.015)	-0.026 (0.019)	-0.044 (0.033)	0.015 (0.017)
O/nD-death	0.005*** (0.001)	0.057*** (0.004)	-0.086 (0.070)	0.005 (0.038)	-0.021 (0.032)	-0.043 (0.044)	-0.024 (0.076)	0.004 (0.040)
O/D-nO/D	0.069*** (0.002)	0.012*** (0.002)	-0.026 (0.036)	-0.098*** (0.020)	0.025 (0.019)	0.04 (0.023)	-0.080* (0.039)	-0.029 (0.021)
O/D-O/nD	0.014*** (0.001)	-0.014** (0.005)	0.058 (0.080)	-0.023 (0.043)	-0.082 (0.044)	-0.035 (0.051)	0.031 (0.085)	0.057 (0.049)
O/D-O/D	-0.097*** (0.004)							

O/D-death	0.014*** (0.002)	0.039*** (0.004)	-0.169* (0.072)	0.008 (0.038)	-0.004 (0.035)	0.031 (0.046)	-0.125 (0.078)	0.022 (0.039)
-----------	---------------------	---------------------	--------------------	------------------	-------------------	------------------	-------------------	------------------

Standard errors in parentheses.

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

The reported p-values are two-sided Wald-test p-value.

Table S9. Misclassification probabilities

Observed	Underlying	Probability	95% Confidence interval
nO/nD	nO/nD	0.925	(0.915, 0.934)
nO/D	nO/nD	0.011	(0.01,0.012)
O/nD	nO/nD	0.056	(0.054,0.058)
O/D	nO/nD	0.008	(0.007,0.009)
nO/nD	nO/D	0.014	(0.011,0.018)
nO/D	nO/D	0.958	(0.744,0.994)
O/nD	nO/D	0.000	(0,0.003)
O/D	nO/D	0.028	(0.022,0.035)
nO/nD	O/nD	0.048	(0.043,0.053)
nO/D	O/nD	0.000	(0,0.002)
O/nD	O/nD	0.945	(0.248,0.999)
O/D	O/nD	0.007	(0.005,0.009)
nO/nD	O/D	0.000	(0,0.005)
nO/D	O/D	0.037	(0.031,0.045)
O/nD	O/D	0.011	(0.008,0.015)
O/D	O/D	0.952	(0.453,0.998)

Table S10. Hidden Markov chain multistate model, with covariates

From - To	Baseline	Age	Female	PRS for BMI	PRS for T2D	Early condition	Bachelor's Degree
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
nO/nD-nO/nD	-0.033*** (0.001)						
nO/nD-nO/D	0.011*** (0.000)	-0.007*** (0.002)	-0.196*** (0.028)	0.023 (0.015)	0.062*** (0.014)	-0.054*** (0.016)	-0.123*** (0.030)
nO/nD-O/nD	0.017*** (0.001)	-0.048*** (0.001)	-0.039* (0.017)	0.199*** (0.009)	-0.029** (0.009)	-0.090*** (0.010)	-0.014 (0.018)
nO/nD-death	0.005*** (0.000)	0.058*** (0.001)	-0.177*** (0.026)	0.052*** (0.013)	-0.044*** (0.013)	-0.014 (0.017)	-0.089** (0.027)
nO/D-nO/D	-0.044*** (0.003)						
nO/D-O/D	0.027*** (0.002)	-0.036*** (0.005)	0.009 (0.068)	0.063 (0.037)	0.05 (0.035)	0.071 (0.041)	-0.179* (0.077)
nO/D-death	0.017*** (0.002)	0.041*** (0.003)	-0.080 (0.045)	0.055* (0.024)	-0.029 (0.024)	0.001 (0.031)	-0.109* (0.048)
O/nD-nO/nD	0.016*** (0.001)	0.034*** (0.003)	0.019 (0.049)	0.022 (0.026)	0.021 (0.023)	-0.002 (0.029)	0.059 (0.051)
O/nD-O/nD	-0.053*** (0.002)						
O/nD-O/D	0.031*** (0.001)	-0.016*** (0.002)	-0.112*** (0.029)	-0.014 (0.016)	0.067*** (0.015)	-0.054** (0.017)	-0.006 (0.031)
O/nD-death	0.006*** (0.001)	0.051*** (0.004)	-0.112 (0.065)	0.024 (0.035)	-0.029 (0.032)	-0.009 (0.040)	-0.058 (0.072)
O/D-nO/D	0.031*** (0.002)	0.017*** (0.003)	-0.042 (0.054)	-0.126*** (0.027)	0.041 (0.028)	0.017 (0.034)	-0.104 (0.059)
O/D-O/D	-0.046*** (0.003)						
O/D-death	0.015*** (0.002)	0.033*** (0.004)	-0.159* (0.062)	0.038 (0.032)	-0.011 (0.032)	-0.027 (0.039)	-0.033 (0.067)

Standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001. The reported p-values are two-sided Wald-test p-value

Table S11. Fractions of person-years lived in states nO/nD, nO/D, O/nD, and O/D
(Average over 12 population profiles)

	State			
	nO/nD	nO/D	O/nD	O/D
PRS				
PRS BMI=-1 & PRS T2D = -1	0.67	0.14	0.12	0.07
PRS BMI=1 & PRS T2D = 1	0.59	0.14	0.16	0.11
Education				
>= Bachelor's	0.67	0.12	0.15	0.06
< Bachelor's	0.59	0.18	0.12	0.11
Gender				
Female	0.67	0.14	0.12	0.07
Male	0.62	0.11	0.16	0.11

Table S12. Summary of conjectures and results

MECHANISM	CONJECTURE	MODEL: STANDARD MARKOV CHAIN
1	<i>Genetic overlap:</i> phenotypes of T2D and obesity are influenced by common genomic regions.	Only weak or no pleiotropy or cross genotype/phenotype effects. BMI PRS and T2D PRS are positively associated with their corresponding phenotype.
2	<i>Physiologic:</i> Excess adipose induces inflammation, insulin resistance.	Strong empirical evidence for this mechanism: i. absolute values of transition rates for O/nD to O/D or nO/D; ii. Similarity baseline rates in models with covariates and baseline model; iii. Strong effect on association between obesity and T2D.
3	<i>Reverse causality:</i> Genetic predisposition to T2D induces asymptomatic glucose intolerance and then promotes excess adipose tissue.	No support for this mechanism. T2D PRS negatively associated with the transition from nO/nD to O/nD.
4	<i>Common exogenous factors:</i> SES and early conditions affect both T2D and obesity phenotypes.	Mixed support for this mechanism: i. Higher education (Bachelor's is protective against obesity and T2D); ii. Adverse early conditions have only marginal additive effects and weakly moderate the influence of genetic predispositions.
5	<i>Early condition:</i> Adverse early life condition may increase adult risks of obesity and T2D. Individuals with higher genetic propensity to be obese and become diabetic should experience higher risks when exposed to poor early conditions than if they had been exposed to better early conditions	No support for this mechanism. There is no significant interactions between early life condition and PRS for BMI or T2D in most transitions.
ARTIFACTS		MODEL: HIDDEN MARKOV CHAIN

1

Measurement error: Individuals with T2D who should be included in WHO's obesity categories are instead classified in the normal weight category.

Estimates are insensitive to potential measurement error.

Table S13. Correlation between and distribution of measured and self-reported BMI groups

Panel A. Correlation between measured and self-reported BMI, by measured BMI group		
Measured BMI group	Corr.	Freq.
<= 18.5	0.08	87
18.5-24.9	0.8	2,800
25-29.9	0.72	4,463
>= 30	0.82	4,753
Total	0.94	12,103
Panel B. Measured and self-reported obesity status		
Measured BMI group	Self-reported	
	Obese (%)	Not obese (%)
<= 20	100	0
20.1 - 25	0.15	99.85
26.1 - 30	1.84	98.16
>= 30	22.58	77.42

Table S14. Sensitivity analysis of misclassification of T2D, baseline model without covariates

From-To	Coefficient (95% confidence interval)	From-To	Coefficient (95% confidence interval)	From-To	Coefficient (95% confidence interval)	From-To	Coefficient (95% confidence interval)
nO/nD-	-0.0509	nO/D-	0.0204	O/nD-	0.0734	O/D-	0.0704
nO/nD	(-0.0513,-0.0506)	nO/nD	(0.0198,0.021)	nO/nD	(0.0724,0.0744)	nO/D	(0.068,0.0728)
nO/nD-	0.0097	nO/D-	-0.1000	O/nD-	-0.1130	O/D-	0.0151
nO/D	(0.0095,0.0098)	nO/D	(-0.103,-0.0973)	O/nD	(-0.114,-0.112)	O/nD	(0.0145,0.0156)
nO/nD-	0.0290	nO/D-	0.0492	O/nD-	0.0316	O/D-	-0.1040
O/nD	(0.0121,0.0124)	O/D	(0.0469,0.0517)	O/D	(0.0312,0.0321)	O/D	(-0.107,-0.102)
nO/nD-	0.0123	nO/D-	0.0305	O/nD-	0.0083	O/D-	0.0190
death	(-0.103,-0.0973)	death	(0.0295,0.0315)	death	(0.008,0.0086)	death	(0.0184,0.0196)

Multistate Markov chain model is estimated without covariates. The coefficient and 95% confidence interval is obtained from 300 replications, where in each replication 3% of individuals who are nO/nD and O/nD are re-assigned the status nO/D and O/D.

Supplementary Materials

Section 2. Derived statistics

Once the model is estimated we can compute several quantities of interest. These are listed below. To avoid cluttering we express them using the underlying continuous function $\eta(\cdot)$

1. Survival functions for each of the four non absorbing states:

$$\tilde{\sigma}_i(T) = \exp\left(-\sum_{\forall j \neq i} \left(\int_{t=0}^T \tilde{\eta}_{ij}(t) dt\right)\right) \quad (\text{S1})$$

where $\tilde{\sigma}_i(T)$ is the *predicted* survival function for state i up to time T and $\tilde{\eta}_{ij}(t)$ is the *predicted* continuous transition rate from state i to state j .

2. Probability that an exit at time T from state i is to state j :

$$\tilde{\rho}_{ij}(T) = \tilde{\sigma}_i \cdot \frac{\tilde{\eta}_{ij}(T)}{\sum_{\forall j} \tilde{\eta}_{ij}(T)} \quad (\text{S2})$$

3. Expected duration in state i after first visit to the state

$$\tilde{\alpha}_i = \int_0^\infty \tilde{\sigma}_i(t) dt \quad (\text{S3})$$

4. Expected duration in the state-space

$$\tilde{\beta} = \sum_i F_i \cdot \tilde{\alpha}_i \quad (\text{S4})$$

where $F(i)$ is the fraction of the population starting in state i

5. Expected fraction of a lifetime spent in state i : this quantity can be approximated assuming that return transitions involving states 1 and 2, on one hand, and 2 and 4, on the other are small. The approximation is given by

$$\hat{\gamma}_i = \hat{\alpha}_i / \tilde{\beta} \quad (\text{S5})$$

These quantities can also be directly calculated from the number of persons years lived in each state throughout the entire follow up.

6. Cumulative probability of first exiting state i via a transition to state s by time T : this quantity can be expressed as

$$\tilde{\pi}_i(T) = \int_0^T \tilde{\sigma}_i(y) \cdot \tilde{\eta}_{is}(y) dy \quad (\text{S6})$$

Predicted values $\tilde{\eta}_{ij}(t)$ are calculated using the estimated coefficients associated with the transition rates with variables set at selected values. These values can be specified *ex-ante* to ascertain the magnitude of counterfactual effects. For example, we may wish to assess how much does the expected duration of sojourn in state i before transiting to state j changes if we set all variables in vector **EC** to values that reflect the poorest of early conditions.